



# 2025-2030 NATIONAL CLIMATE CHANGE ADAPTATION PLAN (NAP) FOR GRENADA, CARRIACOU & PETITE MARTINIQUE

This document was prepared as an official request from the National Climate Change Committee to update the National Adaptation Plan (NAP) 2017- 2021. Therefore, what is reflected therein is the progress and update of the adaptation agenda in Grenada for the period 2025 -2030.

In 2022, a NAP Progress Report was developed by NAP Global Network to track the delivery status of measures agreed in the NAP and evaluate the extent to which goals have been attained. In the same year, a Consultant was hired in June 2022 with support from the Grenada Climate Resilient Water Sector (G-CREWS) Project to undertake and produce an official first draft of the Updated NAP document. With guidance and leadership of the Ministry of Climate Resilience, consultations began in 2023 with a wider stakeholder audience.

In 2024, the NAP Global Network, through the International Institute of Sustainable Development (IISD), provided further support to the Ministry of Climate Resilience by hiring embedded officers within the Ministry of Climate Resilience, the Environment, and Renewable Energy to lead the revision and finalization process.

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## List of Acronyms

Abbreviation	Meaning
<b>BMUV</b>	German Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection
<b>BTRs</b>	Biennial Transparency Reports
<b>CARDI</b>	Caribbean Agricultural Research and Development Institute
<b>CARICOM</b>	Caribbean Community
<b>CATS</b>	Caribbean Aqua - Terrestrial Solutions
<b>CBO</b>	Community Based Organisation
<b>CCRIF</b>	Caribbean Catastrophe Risk Insurance Facility
<b>CFAN</b>	Climate Finance Access Network
<b>CHN</b>	Could be Caribbean Health Network or Community Health Nurse depending on context
<b>CSO</b>	Civil Society Organisation
<b>CC4FISH</b>	Climate Change Adaptation in the Eastern Caribbean Fisheries Sector
<b>CCORAL</b>	Caribbean Climate Online Risk and Adaptation Tool
<b>CDB</b>	Caribbean Development Bank
<b>CDM</b>	National Comprehensive Disaster Management
<b>CDRRF</b>	Community Disaster Risk Reduction Fund
<b>C-FISH</b>	Caribbean Fish Sanctuary Partnership Initiative
<b>CIF</b>	Climate Investment Fund
<b>CIMH</b>	Caribbean Institute for Meteorology and Hydrology
<b>COVID-19</b>	Coronavirus Disease- 19
<b>CPM</b>	Carriacou and Petite Martinique
<b>CRIP</b>	Caribbean Regional Indicative Programme
<b>CCA</b>	Climate Change Adaptation
<b>CCFPN</b>	Climate Change Focal Point Network
<b>DAE</b>	Direct Access Entity
<b>DESDP</b>	Department of Economic & Sustainable Development Planning
<b>DETC</b>	Economic and Technical Cooperation Division
<b>DFID</b>	Department for International Development
<b>DRM</b>	Disaster Risk Management
<b>DRR</b>	Disaster Risk Reduction
<b>DRS</b>	Disaster Response Strategy
<b>EbA</b>	Ecosystem-based Adaptation

## LIST OF ACRONYMS

<b>ECMMAN</b>	Eastern Caribbean Marine Managed Areas Network
<b>EDF</b>	European Development Fund
<b>EIA</b>	Environmental Impact Assessment
<b>ECLAC</b>	United Nations Economic Commission for Latin America and the Caribbean
<b>ESIA</b>	Environmental and Social Impact Assessment
<b>GAA</b>	Grenada Airports Authority
<b>GAP</b>	Gender Action Plan
<b>GCCA</b>	Global Climate Change Alliance
<b>GCEPC</b>	Gravel & Concrete Emulsion Production Corporation
<b>GCF</b>	Green Climate Fund
<b>GDP</b>	Gross Domestic Product
<b>GEF</b>	Global Environment Fund
<b>GFDRR</b>	Global Facility for Disaster Reduction and Recovery
<b>GFNC</b>	Grenada Food and Nutrition Council
<b>GHG</b>	Greenhouse Gases
<b>GIS</b>	Geographic Information System
<b>GIZ</b>	Deutsche Gesellschaft für Internationale Zusammenarbeit
<b>GMSL</b>	Global Mean Sea Level
<b>GoG</b>	Government of Grenada
<b>GNCD</b>	Grenada National Council on Disabilities
<b>GRENCODA</b>	Grenada Community Development Organisation
<b>GSDTF</b>	Grenada Sustainable Development Fund
<b>GPRS</b>	Growth and Poverty Reduction Strategy
<b>GWP</b>	Global Water Partnership
<b>HFC</b>	Hydrofluorocarbons
<b>HGRP</b>	Hazard and Geospatial Risk Platform/Program
<b>HNAP</b>	(Grenada) Health National Adaptation Plan
<b>ICCAS</b>	Integrated Climate Change Adaptation Strategies in Grenada Programme
<b>ICZM</b>	Integrated Coastal Zone Management (ICZM)
<b>IDB</b>	Inter-American Development Bank
<b>IFCI</b>	International Forest Carbon Initiative
<b>IICA</b>	Inter-American Institute for Cooperation on Agriculture
<b>IKI</b>	International Climate Initiative
<b>INDC</b>	Intended Nationally Determined Contributions
<b>IPCC</b>	Intergovernmental Panel on Climate Change
<b>IPPU</b>	Industrial Processes and Product Use
<b>IWRM</b>	Integrated Water Resource Management
<b>J-CCCP</b>	Japan-Caribbean Climate Change Partnership

## LIST OF ACRONYMS

<b>JICA</b>	Japan International Cooperation Agency
<b>KAP</b>	Knowledge, Aptitudes & Practice (Survey)
<b>KfW</b>	Kreditanstalt für Wiederaufbau
<b>L &amp; D</b>	Loss & Damage
<b>LADA</b>	Land degradation Assessment in Dry land Areas
<b>LAPs</b>	Local Area Plans
<b>LDC</b>	Least Developed Countries
<b>LEG</b>	Least Developed Countries Expert Group
<b>M&amp;E</b>	Monitoring & Evaluation
<b>MCPMLG</b>	Ministry of Carriacou and Petite Martinique Affairs and Local Government
<b>MEL</b>	Monitoring, Evaluation, and Learning
<b>MET</b>	Meteorological
<b>MIT</b>	Ministry of Mobilisation, Implementation & Transformation
<b>MIU</b>	MoH Information Unit
<b>MMA</b>	Marine Managed Areas
<b>MNIB</b>	Marketing and National Importing Board
<b>MoCRERE</b>	Ministry of Climate Resilience, the Environment and Renewable Energy
<b>MPA</b>	Marine Protected Area
<b>MRV</b>	Measurement, Reporting and Verification
<b>MTAP</b>	Medium-Term Action Plan
<b>NaDMA</b>	National Disaster Management Agency
<b>NAO</b>	National Climate Change Adaptation Officer
<b>NAP</b>	National Adaptation Plan
<b>NAP GN</b>	National Adaptation Plan Global Network
<b>NAWASA</b>	National Water and Sewage Authority
<b>NBSAP</b>	National Biodiversity Strategy and Action Plan
<b>NCCC</b>	National Climate Change Committee
<b>NCCP</b>	National Climate Change Policy
<b>NDA</b>	National Designated Authority
<b>NDC</b>	Nationally Determined Contributions
<b>NEA</b>	National Ecosystem Assessment
<b>NEAC</b>	National Emergency Advisory Council
<b>NEWLO</b>	New Life Organisation
<b>NVQ/CVQ</b>	National Vocational Qualification/Caribbean Vocational Qualification
<b>NGO</b>	Non-Government Organisations
<b>NSDP</b>	National Sustainable Development Plan
<b>OECS</b>	Organisation of Eastern Caribbean States

## LIST OF ACRONYMS

<b>PAHO</b>	Pan American Health Organization
<b>PMU</b>	Project Management Unit
<b>POA</b>	Programme of Action
<b>PPP</b>	Public- Private Partnerships
<b>PPU</b>	Physical Planning Unit
<b>PSIP</b>	Public Sector Investment Programme
<b>PURC</b>	Public Utilities Regulatory Commission
<b>RDVRP</b>	Regional Disaster Vulnerability Reduction Program
<b>SAEP</b>	Climate Smart Agriculture and Rural Enterprise Programme
<b>SCADA</b>	Supervisory Control and Data Acquisition
<b>SDC</b>	Sustainable Development Council
<b>SDG</b>	Sustainable Development Goal
<b>SEED</b>	Supporting Entrepreneurs for Environment and Development
<b>SEO</b>	Stakeholder Engagement Officer
<b>SDM</b>	Structured decision-making
<b>SIDS</b>	Small Island Development States
<b>SLM</b>	Sustainable Land Management
<b>SLR</b>	Sea Level Rise
<b>SMB</b>	Senior Management Board
<b>SNC</b>	Second National Communication
<b>ToR</b>	Terms of Reference
<b>UKCIF</b>	United Kingdom Caribbean Infrastructure Partnership
<b>UNDP</b>	United Nations Development Programme
<b>UNICEF</b>	United Nations Children’s Fund
<b>UNFCCC</b>	United Nations Framework on the Convention of Climate Change
<b>UWI</b>	University of the West Indies
<b>VCD</b>	Possibly Vector Control Division (e.g., for mosquito-borne diseases affected by climate)
<b>WASH</b>	Water, Sanitation and Hygiene
<b>WHO</b>	World Health Organization
<b>WINDREF</b>	Windward Islands Research & Education Foundation
<b>WMO</b>	World Meteorology Organisation
<b>WRMU</b>	Water Resources Management Unit
<b>WWCS</b>	Grenada’s National Strategic Plan and Framework for Weather, Water, and Climate Services

## Message from The Honourable Dickon Mitchell, Prime Minister of Grenada



Climate change stands as one of the most formidable challenges of our time, with its impacts increasingly felt across the globe. For small island developing states like Grenada, the risks are especially profound. Rising sea levels, stronger storms, droughts, and coastal degradation threaten not only our ecosystems, but also the very foundation of our economy, public health, and our way of life.

Grenada's high dependence on climate-sensitive sectors such as agriculture, tourism, and fisheries make us particularly vulnerable. These sectors are vital to our national development and to the livelihoods of many of our citizens. Addressing climate change, therefore, is not only an environmental imperative—it is a critical element of our economic and social resilience.

Over the years, Grenada has reaffirmed its commitment to global climate action through active participation in the United Nations Framework Convention on Climate Change (UNFCCC) process. At the national level, the formulation and implementation of the National Adaptation Plan (NAP) has been central to guiding climate adaptation efforts and integrating resilience into our development planning.

The previous NAP laid important groundwork, particularly in building national capacity and initiating adaptation measures that contribute to advancing several priorities outlined in the revised National Adaptation Plan. However, the increasing urgency of the climate crisis demands deeper coordination, more robust institutional support, and greater alignment across sectors and stakeholders.

This revised NAP comes at a pivotal moment. It reflects Grenada's renewed commitment to accelerating adaptation action, strengthening institutional frameworks, and aligning our efforts with the broader goals of Vision 75 and the National Sustainable Development Plan (NSDP). These national strategies chart a path toward a climate-resilient, inclusive, and sustainable future.

This important work has been led by the Ministry of Climate Resilience, the Environment, and Renewable Energy, with valued support from the Government of Germany and technical assistance provided through the NAP Global Network, hosted by the International Institute for Sustainable Development (IISD). The Government of Grenada expresses its sincere gratitude to all partners and stakeholders who contributed to this process.

As we implement this revised NAP, we call upon all sectors of society—public institutions, the private sector, civil society, and international partners—to play their part. Climate resilience is not the work of one ministry or one plan. It is a shared national responsibility and a generational commitment.

On behalf of the Government of Grenada, I extend my deepest appreciation to all who have made this plan possible. Let us continue working together to protect our people, our environment, and our future.

**Hon. Dickon A.T. Mitchell**  
Prime Minister of Grenada

## Foreword from The Honorable Kerryne James, Minister for Climate Resilience, Environment, and Renewable Energy



The story of our time is one of accelerating planetary disruption. For Small Island Developing States like Grenada, climate change is no longer a matter of future projections but of present survival. Hurricane Beryl in 2024, the earliest Category 4 storm on record in the Atlantic, was not an anomaly—it was a harbinger. It revealed in stark terms what science has long warned: rising seas, warming oceans, and intensifying storms are converging to reshape the very conditions of our existence.

The **National Adaptation Plan (NAP) 2025–2030** represents Grenada’s answer to this defining challenge. It is not a technical exercise alone; it is a statement of principle and ambition. At its core lies the recognition that adaptation is inseparable from development, and that resilience is the currency of our future prosperity. The plan therefore provides not only a roadmap to protect our people and our ecosystems, but also a framework for reimagining our economy, our infrastructure, and our governance in ways that anticipate disruption rather than merely respond to it.

Globally, the adaptation gap continues to widen. Current finance flows fall dramatically short of the needs of vulnerable nations, even as losses mount and the window for resilience narrows. Grenada’s NAP speaks directly into this gap. It is a tool of accountability—calling for urgent and scaled-up international financing, technology transfer, and solidarity, consistent with the principles of equity and climate justice. We may contribute less than one-tenth of one percent of global greenhouse gas emissions, yet our adaptation needs are as profound as those of entire continents. The moral clarity of this imbalance must drive the global system toward action.

This revised NAP outlines priority actions across critical sectors: protecting our coastlines and marine resources; securing food, water, and energy systems; strengthening health and education for climate resilience; and investing in adaptive infrastructure that is both sustainable and inclusive. It also breaks new ground in addressing climate mobility—recognizing that displacement is no longer a distant possibility but an emerging reality for frontline communities.

Grenada views adaptation not only as a shield against climate impacts but as a **transformative opportunity**: to modernize our economy, catalyze green industries, and position our people as innovators in resilience. In this sense, the NAP is not a defensive posture but a proactive strategy for national renewal.

Our task is urgent, but it is also hopeful. By advancing this Plan, Grenada reaffirms its role as both a frontline state and a frontline advocate. We extend an open invitation to partners, investors, and global institutions: walk with us in this journey. Together we can demonstrate that adaptation, when adequately supported, is not only possible but catalytic—delivering security, dignity, and opportunity in an age of uncertainty.

The revised National Adaptation Plan is therefore both a national commitment and a diplomatic call to action. It is Grenada’s contribution to the global pursuit of resilience, justice, and sustainable development. It reminds us that while the climate crisis defines our vulnerability, it also defines our shared humanity and our collective responsibility to act.

**Hon. Kerryne Z. James**

Minister of Climate Resilience, the Environment and Renewable Energy



Hog Island, located within Mt. Hartman and Woburn Bays, St. George

## Executive Summary

Grenada’s National Climate Change Adaptation Plan (NAP) 2025-2030 is a key instrument under Article 7 of the Paris Agreement, reaffirming the country’s commitment to enhancing adaptive capacity, strengthening resilience, and reducing vulnerability to climate change. As a Small Island Developing State (SIDS), Grenada faces heightened climate risks, with recent climatic events—including the catastrophic impact of Hurricane Beryl in July 2024—reinforcing the urgent need for accelerated adaptation action.

Initiated by a Cabinet mandate in 2015 and officially approved in 2017, the NAP provides a strategic framework for integrating climate adaptation into national and sectoral planning. It is aligned with the National Climate Change Policy (NCCP), Grenada’s Nationally Determined Contributions (NDCs), the Sustainable Development Goals (SDGs) and Grenada’s Vision 75, adapted from 2020–2035 National Sustainable Development Plan. The NAP 2025-2030 update builds on findings from the 2021 midterm review, the First NAP Progress Report (2022), and national stakeholder consultations in 2024, ensuring that adaptation priorities remain responsive to evolving climate realities.

## EXECUTIVE SUMMARY

The updated NAP is guided by the National Climate Change Committee (NCCC) and supported by the NAP Global Network through the International Institute for Sustainable Development (IISD). Key updates to the NAP include:

- Stronger use of climate data to improve vulnerability analysis and risk assessments.
- Dedicated personnel and institutional arrangements established to support the NAP's revision and transition into implementation.
- Enhanced monitoring, evaluation, and reporting mechanisms to better track progress and impact.
- Broader stakeholder engagement, including structured participation of gender specialists, youth, and vulnerable communities.
- Community sensitization and public awareness efforts, with visibility across multiple media platforms and direct engagement island wide.
- Explicit integration of gender and child-responsive adaptation approaches, promoting equity and resilience across all demographics.
- Adoption of a human security approach to promote holistic, people-centered adaptation strategies across sectors.
- Consideration of Loss and Damage, including both economic and non-economic impacts, and mechanisms for recovery and resilience-building.
- Closer alignment with NDC implementation and complementary initiatives, including sectoral adaptation plans.
- A reinforced budget and resource financing framework, designed to prioritize and align domestic and international climate funding to prioritize and align domestic and international climate funding

The 2025-2030 implementation phase prioritizes mainstreaming adaptation across governance and environmental and socio-economic sectors, ensuring resilience-building efforts are integrated into national development planning. The NAP will serve as a driving force for accessing external climate finance, while safeguarding national resources for core development priorities such as education, health, and social protection.

Grenada remains committed to strengthening its climate resilience in line also with the Paris Agreement's Global Goal on Adaptation. Through the NAP, the country will continue to mobilize resources, engage stakeholders, and implement targeted adaptation actions to protect its people, economy, and ecosystems from the growing threats of climate change.

# 1.0 Introduction

## 1.1 National Context

Globally, climate change poses an existential threat, and for the islands of Grenada, Carriacou, and Petite Martinique, the impacts are expected to intensify. The primary climate-related risks include the increasing intensity of tropical storms threatening livelihoods, infrastructure, and ecosystems; heightened drought risks impacting communities and key sectors such as tourism, agriculture, and water; and rising temperatures. Additionally, sea level rise and other coastal hazards pose significant threats, particularly to low-lying communities and critical infrastructure.

As a Small Island Developing State (SIDS), Grenada's vulnerability to these climate impacts forces continual adjustment by the country and its economy. The most recent IPCC report (Sixth Assessment Report [AR6]) suggests that the global greenhouse gas (GHG) emissions projected for 2030 will likely lead to warming that could exceed 1.5 degrees Celsius during the 21st century, thereby complicating efforts to limit the temperature increase below 2 degrees Celsius. In response, Grenada's Second Nationally Determined Contributions (NDCs) policy document aims for a significant reduction in GHG emissions—up to 40% by 2030—through enhanced energy efficiency and accelerated technology adoption to curb emissions (United Nations Framework Convention on Climate Change [UNFCCC], 2022).

The National Adaptation Plan (NAP) is designed to foster close collaborations and create linkages with the NDC to develop inclusive policies that help reduce greenhouse gas emissions. The NAP also emphasizes the need for adaptation measures that provide mitigation co-benefits, reflecting the dual approach required to tackle these complex challenges. The NDC Partnership Plan further includes references to these adaptation strategies, aiming to maximize opportunities for mitigation benefits (UNFCCC, 2022).

Recognizing these vulnerabilities and risks, Grenada places climate resilience at the core of its transformative policy-making agenda. The country has formed strategic alliances with major global climate finance providers, positioning itself to receive crucial climate funds. However, despite these strategic efforts, the challenges remain daunting, and substantial increases in financial and technical international support are needed to augment the islands' adaptive capacities.

The document presents the second National Adaptation Plan (NAP) for Grenada, Carriacou, and Petite Martinique, covering the five-year period from 2025 to 2030. This plan provides strategic and programmatic guidance for Grenada's adaptation process, emphasizing that fully implementing the NAP is an economic, social, and environmental imperative.

However, the revision of the NAP did not occur in isolation and was influenced by two significant events: the COVID-19 pandemic and the devastating impacts of Hurricane Beryl in July 2024.

The COVID-19 pandemic had a profound economic impact on Grenada, reversing years of fiscal progress. Since 1990, Grenada's GDP had grown at an average annual rate of approximately 2–3% (Caribbean Development Bank [CDB], 2021), and by 2019, the country's debt-to-GDP ratio had declined to 58.5%, marking significant fiscal improvement (International Monetary Fund [IMF], 2022). However, the pandemic disrupted this trajectory, with public debt rising sharply to 71.4% of GDP in 2020, driven by a pandemic-induced economic contraction of 11.2% (CDB, 2021). The government's response to the pandemic was swift and involved closing international borders between March and August 2020, which initially helped keep COVID-19 cases low, with only 24 cases reported when the airport reopened. Yet, reopening was

## 1.0 INTRODUCTION

essential for Grenada's tourism-dependent economy, as tourism accounts for 80% of the country's exports and 57% of its economy (International Monetary Fund [IMF], 2020). Unfortunately, this reopening led to a surge in COVID-19 cases, with 65% of infections recorded in December 2020 alone, leading to a total of 134 cases by January 2021.

The economic fallout was devastating, particularly for sectors like tourism, trade, and food security, which are closely tied to the well-being of the island. In response, the government rolled out an emergency relief program worth 2% of GDP (approximately US\$23 million), which provided payroll support to tourism-related businesses, expanded employment programs, deferred tax collections, and increased healthcare spending (IMF, 2020). These interventions were crucial, but they occurred in the context of a challenging fiscal environment that had been strained since a debt crisis in 2013. At that time, government expenditures had been reduced from 29.2% to 21.6% of GDP under an IMF program, which also led to cuts in healthcare spending, leaving the sector vulnerable when the pandemic struck.

These fiscal austerity measures left many Grenadians in an economically precarious situation. In 2018, an estimated 14% of Grenada's population lived in poverty, with the rate rising to 15.6% in 2022 before falling to 13.9% in 2023 (World Bank, 2023). Poverty remained more pronounced among children, with approximately 23% of those aged 14 and under affected (World Bank, 2022). While the COVID-19 pandemic contributed to a temporary increase in poverty, the national rate has since returned to pre-pandemic levels. Regionally, the World Food Programme (WFP) conducted a 2020 survey that highlighted the broader socioeconomic strain during the pandemic. The survey revealed that 30% of respondents across the Caribbean were skipping meals or eating less, while 5% reported going an entire day without food (WFP, 2020). These indicators underscore the vulnerability of Grenadians during and after the pandemic, marked by heightened unemployment, food insecurity, and economic instability.

At the same time, Grenada's environmental vulnerabilities, exacerbated by climate change, continued to pose severe challenges. The island has been battered by tropical storms over the past few decades, with cumulative damage amounting to 157% of GDP between 1980 and 2015 (Munevar, 2018). This damage has negated much of the economic growth the island achieved during this period. For example, Hurricane Ivan in 2004 destroyed 90% of the island's housing and caused losses equivalent to 200% of GDP. This led to a humanitarian crisis and ultimately triggered a sovereign debt default.

As climate change continues to increase the intensity and frequency of storms, Grenada faces existential risks. Hurricane Beryl, which hit Carriacou on July 1, 2024, devastated the island as a Category 4 hurricane, which later intensified into a Category 5 as it moved away. This event highlighted the compounding threats posed by both natural hazards and disasters and economic shocks. The destruction caused by Hurricane Beryl, in combination with the economic fallout from the COVID-19 pandemic, severely strained the country's key sectors such as tourism, trade, and agriculture.

The convergence of these events exhibits the urgent need for comprehensive adaptation strategies that not only address climate-related risks but also bolster economic resilience. For Grenada, this means strengthening the capacity of sectors like tourism and agriculture to recover from both economic crises and environmental disasters. This dual focus on climate adaptation and economic stability is essential to safeguarding Grenada's future in an increasingly unpredictable world.

### 1.2 Climate Change Context – A Closer Look

Grenada's geographic positioning places it within the southern hurricane belt, exposing the island to a hurricane season that spans from June to November (Government of Grenada [GoG], 2000). The island's topography—marked by a mountainous central range running from north to south, and settlements concentrated along the coast and in flatter areas—contributes to its heightened vulnerability to natural hazards such as hurricanes, as well as slow-onset events like sea level rise. These factors often lead to coastal erosion, flooding, and saltwater intrusion. While tourism has become the primary economic driver, the decline of agriculture—once a staple of the economy, alongside growing pressures on other sectors such as fisheries, has had observable impacts on food security and employment (Campo et al., 2017). A thorough understanding of three key factors—geographic exposure to hurricanes, economic dependence on coastal industries, and the challenges presented by climate change—is essential for assessing the overall vulnerability of Grenada's population to climate-related health risks.

Grenada's climatic conditions significantly influence both its economic stability and public health, introducing direct and indirect health threats linked to climate variability (Deutsche Gesellschaft für Internationale Zusammenarbeit [GIZ], 2016). Climate change poses particular risks for small island developing states like Grenada, where health burdens are already high and the resources to address them are limited (Second National Communication to the UNFCCC [SNC], 2019). While Grenada historically faced a lower risk of tropical storms than other Caribbean islands, recent events—such as Hurricanes Ivan and Emily in 2004 and 2005, respectively, and Hurricane Beryl in July 2024—underscore growing climate vulnerability. In addition, unprecedented droughts and freshwater scarcity highlight the urgent need to build climate-resilient infrastructure and health systems. These events emphasize the importance of strengthening food and nutrition security, as well as ensuring ongoing management of disease vectors and non-communicable diseases.

Grenada's landmass is divided into 71 watershed areas, supported by a network of permanent rivers (GoG, 2007). The largest of these, the Great River watershed, covers approximately 15% of the island's surface (United Nations Department of Economic and Social Affairs [UNDESA], 2012). Most surface water originates from high rainfall zones in the central mountains and flows outward in a radial pattern toward the coast (GoG, 2007). The steep slopes and volcanic soils, which have low permeability, result in low infiltration and high surface runoff. As rivers and tributaries often converge in low-lying coastal areas, intense rainfall frequently leads to severe runoff, erosion on steep terrain, and flooding in flatter regions where drainage is limited (GoG, 2020b).

On the smaller islands, Carriacou and Petite Martinique, similar patterns are observed. Carriacou contains 20 distinct watershed units, while Petite Martinique has none (GoG, 2007). Carriacou also displays a radial drainage pattern, with surface flows originating from central areas and draining toward the coast. Due to its geology and topography, the island is prone to high runoff during extreme rainfall events, leading to erosion and localized flooding. Petite Martinique, lacking rivers, channels its surface water through natural gullies and ravines (GoG, 2020b).

## 1.0 INTRODUCTION

According to the World Health Organization (WHO) and UNFCCC (WHO & UNFCCC, 2020) climate hazard projections for Grenada indicate significant long-term risks, especially under a high emissions scenario (RCP8.5). Key projections include:

### 1. Temperature Rise

- Under RCP8.5, mean annual temperature could increase by approximately 2.9°C by 2071–2100, compared to the 1981–2010 baseline.
- Under RCP2.6 (low emissions), this rise is limited to about 0.9°C.

### 2. Decreased Precipitation

- Total annual precipitation may decrease by 24% on average under high emissions, with a wide range of uncertainty (-55% to +5%).
- Under low emissions, the decrease is expected to be around 6%, with uncertainty ranging from -22% to +7%.
- The proportion of rainfall from very wet days could fall from 30% to 25% by the end of the century under RCP8.5.

### 3. Increased Heat Stress

- Currently, around 23% of days are classified as “hot” (up from 10% in 1961–1990). This could rise to nearly 100% by 2100 under high emissions, and about 90% even under low emissions.
- A similar increase is expected in hot nights, although specific figures were not provided.

### 4. Extreme Rainfall and Flood Risk

- While the contribution of very wet days to total rainfall is expected to decline slightly, variability will persist, and flash flood risks may remain elevated despite lower overall rainfall.

### 5. Increased Drought Risk

- The Standardized Precipitation Index (SPI 12) could fall to -0.8 under high emissions, indicating more frequent and intense droughts. Some models suggest even more severe reductions. Although wet periods will still occur, they are expected to be less frequent and intense.

## 2.0 Institutional and Policy Setting for Climate Change Action

### 2.1 Relevant National Legislation and Policy Frameworks

Grenada has developed a strong national policy framework to support climate change adaptation, ensuring that resilience-building measures are systematically integrated into the country's broader development agenda. These policies provide the legal, strategic, and institutional foundation for addressing climate risks, mainstreaming adaptation into various sectors, and aligning national efforts with international climate commitments.

One of the key guiding documents is the National Climate Change Policy for Grenada, Carriacou, and Petite Martinique (2017-2021), which establishes a strategic approach to integrating climate change responses into national planning. It emphasizes resilience-building, sustainable growth, and cross-sectoral coordination, ensuring that climate action is embedded within national development processes. Complementing this is the National Sustainable Development Policy and Action Plan (2020-2035), which provides a long-term vision for achieving sustainability through harmonized social, economic, and environmental strategies. This policy framework ensures that climate adaptation is a fundamental component of national development, supporting resilience across multiple sectors.

Biodiversity conservation is also a crucial pillar of climate adaptation. The Third National Biodiversity Strategy and Action Plan (NBSAP) (2016-2020) was developed in alignment with the country's obligations under the Convention on Biological Diversity (CBD). It prioritizes the sustainable use of biodiversity and the mainstreaming of conservation strategies into national planning and decision-making processes. Given the critical role of ecosystems in climate resilience—such as coastal mangroves acting as natural buffers against storm surges—this strategy reinforces adaptation efforts through ecosystem-based approaches.

Grenada's climate action is further guided by the Second Nationally Determined Contribution (NDC) (2020), which outlines the country's commitments under the Paris Agreement. The NDC integrates both mitigation and adaptation strategies, identifying priority actions to enhance resilience in key sectors such as agriculture, water, coastal and marine resources, and infrastructure. Many of these adaptation strategies are also incorporated into Grenada's National Adaptation Plan (NAP), reinforcing long-term sustainability and climate preparedness. Grenada's Third Nationally Determined Contribution (NDC 3.0) is currently being developed and is expected to be finalized and submitted for Cabinet approval by 2025.

While these policies provide the overarching framework for climate adaptation, additional sector specific policies—covering areas such as disaster risk reduction, agriculture, energy, and water resource management—offer more targeted approaches. These sectoral policies are further detailed in the respective Programmes of Action (POAs), which outline specific adaptation measures and implementation pathways.

Grenada's commitment to climate adaptation is reflected in these policy instruments, ensuring a structured and proactive response to climate risks while fostering sustainable development.

## 2.2 International Legislation and Policy Frameworks

Grenada’s commitment to climate change adaptation and mitigation is rooted in its obligations under the United Nations Framework Convention on Climate Change (UNFCCC), which it ratified in 1994 as part of the global community’s efforts to address climate change challenges comprehensively. The UNFCCC provides a framework for international cooperation to combat climate change by limiting average global temperature increases and coping with impacts.

As part of the Paris Agreement under the United Nations Framework Convention on Climate Change (UNFCCC), which Grenada joined in 2015, countries are obligated to outline their plans for reducing greenhouse gas emissions and adapting to climate change. This commitment is outlined under Article 4, which requires countries to prepare, communicate, and maintain NDCs, representing each country’s efforts to lower emissions and respond to climate impacts. Additionally, Article 7 emphasizes the global goal on adaptation, urging nations to enhance adaptive capacity, strengthen resilience, and reduce vulnerability to climate change. Grenada’s updated NDC for 2020-2030 sets ambitious emission reduction targets and outlines key adaptation strategies that align with the broader objectives of its national climate policy and the long-term goals of the Paris Agreement.

At the national level, Grenada’s NAP serves as a critical framework for strengthening climate resilience while ensuring alignment with global sustainable development priorities. The NAP not only guides national adaptation efforts but also reinforces the implementation of the Sustainable Development Goals (SDGs)—particularly Goal 13 (Climate Action), which calls for urgent action to combat climate change and its impacts. Additionally, the NAP aligns with Target 17.4, which highlights the importance of policy coherence in advancing sustainable development. By integrating adaptation strategies with economic, social, and environmental policies, Grenada ensures that climate action contributes to broader sustainability objectives while fostering resilience across all sectors.

Furthermore, Grenada has positioned itself as an active advocate in the Loss and Damage discussions with UNFCCC. Recognizing the irreversible impacts of climate change—particularly for SIDS—Grenada supports the operationalization of the Santiago Network on Loss and Damage, which aims to provide technical assistance to vulnerable countries experiencing climate induced damages. As part of the Caribbean Community (CARICOM), Grenada also engages in regional efforts to address climate-related loss and damage, advocating for financial and technical support mechanisms to assist communities facing extreme weather events, rising sea levels, and other climate-induced challenges. These efforts reinforce Grenada’s broader climate resilience strategy and its commitment to securing international support for addressing loss and damage.

Beyond the UNFCCC and Paris Agreement, Grenada’s climate adaptation efforts are also guided by a range of international agreements and regional initiatives. These frameworks provide technical and financial support, shape national policy priorities, and ensure alignment with global resilience-building strategies. The following table outlines the key international instruments that influence Grenada’s approach to climate change adaptation and mitigation.

## 2.0 INSTITUTIONAL AND POLICY SETTING FOR CLIMATE CHANGE

International Framework	Purpose & Relevance to Grenada
<b>2030 Agenda for Sustainable Development (2015)</b>	Adopted by Grenada to align national development with global priorities for ending poverty, ensuring equity, and safeguarding the environment. It reinforces Grenada’s commitment to sustainable progress through the National Sustainable Development Plan (2020–2035), which incorporates the SDGs into domestic policies. The agenda calls for integrated actions to boost social well-being, economic resilience, and environmental protection.
<b>United Nations Framework Convention on Climate Change (UNFCCC) (1994)</b>	Establishes a global framework for international cooperation on climate change by limiting global temperature increases and addressing climate impacts. Grenada, as a Party, participates in negotiations, reporting, and adaptation planning.
<b>Paris Agreement (2015)</b>	Ratified by Grenada to enforce domestically, supporting climate change adaptation and action development. It strengthens global climate commitments, requiring Grenada to prepare, communicate, and maintain NDCs that outline efforts to lower emissions and enhance adaptation resilience.
<b>Biennial Transparency Reports (BTRs) under the Enhanced Transparency Framework (ETF)</b>	Under the Enhanced Transparency Framework, Parties to the Paris Agreement are required to submit their BTRs every two years. Grenada’s NAP informs BTRs, enabling the country to report on adaptation progress, actions, and challenges identified, ensuring transparency and continuous improvement under the Paris Agreement.
<b>Glasgow Climate Pact (2021)</b>	Reaffirms global adaptation goals, promotes increased climate finance, and highlights the urgency of addressing Loss and Damage, which is critical for Small Island Developing States (SIDS) like Grenada.
<b>CARICOM Regional Framework for Achieving Development Resilient to Climate Change (2021-2030)</b>	Strengthens regional collaboration on climate adaptation, finance, and policy harmonization among CARICOM nations, ensuring shared resilience-building strategies.
<b>Sendai Framework for Disaster Risk Reduction (2015 - 2030)</b>	Grenada’s commitment to the Sendai Framework ensures disaster risk reduction is integrated into climate adaptation planning, ensuring that adaptation measures align with broader risk reduction strategies to enhance national capacity for responding to climate-induced disasters.
<b>Comprehensive Disaster Management Strategy for the Caribbean Region (2014-2030)</b>	Though regional in scope, this strategy—originally set for 2014-2024 but extended in 2023 during the CDEMA Comprehensive Disaster Management Conference—guides disaster risk management in the Caribbean. It strengthens multi-hazard risk reduction, climate resilience, and emergency response, complementing adaptation and broader resilience-building efforts.
<b>Convention on Biological Diversity (CBD) &amp; Third National Biodiversity Strategy and Action Plan (NBSAP) (2016-2020)</b>	Developed in line with Grenada’s obligations under the Convention on Biological Diversity (CBD), the NBSAP integrates biodiversity conservation into national planning and decision-making processes. It focuses on sustainable use and the mainstreaming of biodiversity across various sectors of the economy, reinforcing ecosystem-based adaptation.

International Framework	Purpose & Relevance to Grenada
<b>Small Island Developing States Accelerated Modalities of Action Pathway (2014)</b>	Strengthens resilience-building for Small Island Developing States (SIDS), providing a global framework for adaptation finance and policy integration, ensuring that Grenada receives international support in addressing climate-induced vulnerabilities.
<b>Green Climate Fund (GCF) and Adaptation Fund</b>	Provides international financing mechanisms supporting Grenada’s climate adaptation projects, helping to fund resilience building initiatives across vulnerable sectors.
<b>Montreal Protocol &amp; Kigali Amendment (1987, 2016)</b>	Supports the phase-down of hydrofluorocarbons (HFCs), which are potent greenhouse gases. Grenada is actively implementing the Kigali Amendment to reduce HFC emissions, contributing to both ozone protection and climate mitigation.

### 2.3 UNFCCC Framework for NAP Development

The UNFCCC has established guidelines (refer to Annex A) for the formulation of national adaptation plans, including four key elements: 1) laying the groundwork and addressing gaps; 2) preparatory elements; 3) implementation strategies; and 4) reporting, monitoring, and review (Decision 5/CP.17). Currently Grenada sits between B and C, preparatory elements and implementation strategies respectively. The development of the NAP, along with the objectives and measures, followed established guidance and incorporated key integral elements. These elements include aligning the development and implementation of the NDC adaptation components with the NAP process, which is recognized as a best practice for enhancing adaptation efforts and ensuring policy coherence and clarity regarding national priorities (discussed in the next chapter-Chapter 3.0)

### 3.0 The Co-Benefits Between NDCs And NAPs

Grenada’s approach to integrating its NAP and NDC is a prime example of how countries can align their adaptation and mitigation strategies. This integration ensures that actions taken are complementary and mutually reinforcing:

- **Mitigation through Adaptation:** Many of Grenada’s adaptation actions, as outlined in its NAP, have mitigation co-benefits. For instance, enhancing forest carbon stocks through sustainable forest management not only adapts its forestry sector to the impacts of climate change but also contributes to carbon sequestration, a key mitigation measure.
- **Policy Coherence:** Grenada’s NDC outlines specific sectors for focused action, including energy, forestry, and agriculture, which are also pivotal areas in the NAP. This ensures that policy measures support both adaptation and mitigation goals, leading to more efficient use of resources and greater effectiveness of implemented actions.

The National Adaptation Plan (NAP) plays a critical role in Grenada’s efforts to build resilience and address the long-term impacts of climate change. To ensure the successful implementation of adaptation strategies, it is essential that these plans are supported by and aligned with the country’s existing legal and policy frameworks. A key component of the NAP is the Programmes of Action (POAs), which focus on both sector-specific measures and other critical elements such as institutional arrangements, integration of adaptation into national development policies, and adaptation financing. It is highly recommended that adaptation co-benefits should also be highlighted and integrated within future NDC.

POA	POA Title	Connection to NDC - Extended Direct Quote/Reference
POA 1	Institutional Arrangements, Inter-Sectoral Coordination and Participation	Within Grenada's governance framework, the Ministry of Climate Resilience houses the UNFCCC focal point, responsible for overseeing climate change policy, the NDC, and the NAP. This central coordination ensures effective integration of climate actions into national planning. According to the Second NDC, the NDC review process, led by the National Climate Change Committee (NCCC), "followed a multi-sectoral, whole-of-society approach which consisted of engagements with key ministries, public and private sector stakeholders, academic and technical experts, civil society organizations, and vulnerable and marginalized groups," (p. 2). This comprehensive approach underscores the essential institutional coordination for POA 1, ensuring that all climate-related actions are inclusively managed and implemented.
POA 2	Systematic Integration of Adaptation into Development Policies, Plans, Programmes, Projects, Budgets, and Processes	"Grenada is also committed to linking the NDC implementation to its national policy framework as expressed in the following policy documents and programmes, inter alia: National Climate Change Policy; National Sustainable Development Plan 2035; National Adaptation Plan (NAP)," (p. 2) This shows the direct integration of climate actions into broader developmental policies.

### 3.0 THE CO-BENEFITS BETWEEN NDCS AND NAPS

POA	POA Title	Connection to NDC - Extended Direct Quote/Reference
POA 3	Water Availability	<p>The NDC’s commitment to a “holistic and multi-sectoral approach to low-carbon development and climate resilience, which encompasses... water and sanitation” (p10), directly supports water resource management initiatives. Specifically, “specific projects to be implemented to contribute to mitigation co-benefits, including information on adaptation plans that also yield mitigation co-benefits which may cover....water resources,” underlines the integrated approach to managing water resources efficiently while contributing to climate resilience and mitigation efforts. A successful case is in 2023- a GHG Emissions Inventory was conducted for Grenada’s water sector, under the G-CREWS Project to help guide utility managers, policy makers and other major water stakeholders on the most significant challenges in reducing carbon emissions. The report provides detailed emissions estimates for various sub-sectors within the water sector. In water supply, emissions primarily stem from electricity consumption in water abstraction and treatment processes. Sanitation systems contribute to emissions through untreated wastewater and containment in septic tanks, with methane being the dominant greenhouse gas. Additionally, fuel consumption by generators for backup power and irrigation pumps, as well as diesel use by trucks for the supply of water and onsite services contribute to greenhouse gas emissions.</p> <p>This aligns with Grenada’s climate commitments highlighting the importance of the water sector to achieving Grenada’s goal of 40% reduction in greenhouse gas emissions by 2030. Mitigation efforts in the water sector include energy efficiency improvements, particularly at pumping stations and treatment plants, as well as the installation of solar panels to power these facilities. Additionally, the promotion of rainwater harvesting helps to reduce demand and lessen the pressure on the NAWASA system to pump water. Encouraging water reuse also contributes by decreasing the volume of drinking water required. All of these actions, along with their associated mitigation co-benefits, are explored under this POA.</p>
POA 4	Food Security	<p>In alignment with the NDC’s strategy for “economic diversification actions, which may cover, but are not limited to, sectors such as... agriculture and forestry” (p.11), POA 4 benefits directly. The current NDC emphasizes integrating “food security” within the broader framework of low-carbon development and resilient practices. Particularly, agricultural strategies that are both adaptive and mitigation focused within POA 4 include the encouragement of energy efficiency gains as well as manure management and biogas production to help reduce the release of methane.</p>
POA 5	Ecosystem Resilience	<p>Grenada’s NDC highlights the integration of environmental management with climate mitigation across various sectors, focusing on forestry, agriculture, and coastal zones. NDC quote: “This will be done through interventions in the Energy including transport; Waste; Forestry; and Industrial Processes and Product Use (IPPU) sectors...” (p. 2). Additionally, it supports the enhancement of ecosystem resilience through practices like mangrove restoration, coral reef protection, and the adoption of sustainable agricultural practices such as agroforestry, permaculture, and organic farming. These practices not only help in carbon sequestration but also ensure biodiversity conservation, contributing significantly to both mitigation and adaptation benefits. Such initiatives bolster resilience against climate impacts, protect biodiversity, and maintain ecosystem services, aligning with Grenada’s holistic approach to sustainable development and climate resilience. Throughout POA 5 specific actions aimed at ecosystem restoration will have co-benefits for mitigation action and achieving Grenada’s mitigation targets as well.</p>

### 3.0 THE CO-BENEFITS BETWEEN NDCS AND NAPS

POA	POA Title	Connection to NDC - Extended Direct Quote/Reference
<b>POA 6</b>	Integrated Coastal Zone Management (ICZM)	The NDC Plan states that "specific projects to be implemented to contribute to mitigation co-benefits, including information on adaptation plans that also yield mitigation co-benefits which cover coastal resources (e.g. restoration projects proposed] and urban planning [incl. coastal cities]." Within POA 6, mention is also made of ecosystem restoration as well as an opportunity to encourage energy efficiency."
<b>POA 7</b>	Resilient Infrastructure & Sustainable Land Management	Grenada's NDC states "This will be done through interventions in the energy sectors including transport, Waste, Forestry, and Industrial Processes and Product Use (IPPU)." Within this POA the integration of climate change mitigation and adaptation strategies into the revised Airport Master Plan, is articulated emphasizing sustainable infrastructure, energy efficiency, and reduced carbon emissions, guided by the latest environmental standards and practices. Largely, the creation and maintenance of resilient infrastructure should capture energy efficiency gains to reduce emissions.
<b>POA 8</b>	Disaster Risk Reduction	Not explicitly nor implicitly covered in the NDC. However, while direct links in quotes to disaster risk reduction aren't specified, the overarching themes in the NDC to improve resilience and preparedness indirectly support disaster risk strategies.
<b>POA 9</b>	Climate-related Data & Projections	Grenada's NDC emphasizes the importance of robust data collection and reporting mechanisms that align with the goals of POA 9. The commitment to ongoing data reporting is highlighted: "Grenada is also committed to continue reporting data and information on quantified co-benefits of adaptation actions in its NAP and National Communications. Mitigation actions within adaptation projects will be captured through the data collection framework and GHG inventory and reported in the respective sectors." Additionally, the NDC discusses the processes involved in enhancing these data mechanisms: "Several workshops were held with key stakeholders to develop strategies and initiatives and to identify the possible data sources that will be needed to update the NDC. To ensure the future availability of quality, disaggregated, useable data, Grenada will continue efforts towards the development of a national data collection framework for long term collection and verification of data." The reflection on past climate events, like Hurricane Ivan, and noting the recent impact of Hurricane Beryl, underscores the evolving challenges in data collection and the necessity to adjust data assumptions about ecosystem responses and recovery: "However, recent severe hurricane damage [Ivan, 2004]... to national forest stands combined with the age-class structure and hurricane impacts reported elsewhere in the region lend support to the assumption that age class structure will not impact the forest carbon cycle during the NDC period." These statements from the NDC articulate the critical role of data in informing and refining climate response strategies, directly supporting the objectives of POA 9.

### 3.0 THE CO-BENEFITS BETWEEN NDCS AND NAPS

POA	POA Title	Connection to NDC - Extended Direct Quote/Reference
POA 10	Sustained Public Education and Participation	<p>Within POA 10, emphasis was made not only on public awareness focused on adaptation but mitigation as well for instance recommendations were made to include sensitization not only about NAP implementation but NDC achievements as well. Topics such as GHG emissions and reforestations were also highlighting the linkages between NAP and NDC.</p> <p>Furthermore, Grenada's NDC explicitly includes education as a crucial sector within its holistic approach to climate resilience and low-carbon development. The NDC states, "Grenada will adopt a holistic and multi-sectoral approach to low-carbon development and climate resilience, which encompasses education." This approach is further linked to the economic context and the pivotal role of education, as highlighted by the evolution of Grenada's economy towards services including education. Moreover, the commitment to integrating these strategies into national policy frameworks is emphasized, with specific mention of educational programs: "Grenada is also committed to linking the NDC implementation to its national policy framework as expressed in the following policy documents and programmes, <i>inter alia</i>: Support for Education, Empowerment and Development (SEED)."</p>
POA 11	Adaptation Financing	There is no alignment
POA 12	Monitoring & Evaluation	NDC commitments to GHG emissions reductions and mitigation actions are supported by the revised NAP's suggestion to establish a Monitoring, Reporting, and Verification (MRV) Mechanism for Climate Actions. This mechanism enables systematic monitoring, data collection, tracking, reporting, and verification of (1) GHG emissions (inventory) in accordance with Intergovernmental Panel on Climate Change (IPCC) 2006 guidelines, and (2) the impacts of mitigation actions under the NDC.
POA 13	Climate Mobility <b>NEW</b>	There is no alignment.
POA 14	Climate Resilient Health Systems and People	The NDC emphasizes a comprehensive approach to enhancing health resilience in response to climate change. According to the 2 <sup>nd</sup> NDC "Human Health: Implementing best available technologies could assist in mitigating factors that negatively impact respiratory health. Grenada is actively building capacity, developing policies, and implementing interventions to prevent morbidity, mortality and attain its SDGs," (p.9). Additionally, it details efforts to strengthen the health sector's capacity to manage climate change impacts and health emergencies: "areas include strengthening capacity to address climate change and health impacts; health emergencies and environmental threats and risks; and disaster management and risks." This strategy is part of Grenada's broader commitment to a "holistic and multi-sectoral approach to low-carbon development and climate resilience, which encompasses education, health, food security, water and sanitation, housing and social protection" ensuring a resilient, inclusive, gender-sensitive, and peaceful society. Furthermore, the commitment to "ensure the future availability of quality, disaggregated, usable data" supports the development of a data collection framework crucial for effective health management and policymaking in the face of climate change.
Other	N/A	"The inclusion of... and gender and youth considerations represent an expansion in scope relative to the first NDC," {p.15} aligns with the revision process of the NAP, which actively engaged gender experts and ensured to have youth representation throughout the process.

# 4.0 The National Climate Change Adaptation Plan for Grenada, Carriacou And Petite Martinique

## 4.1 Background

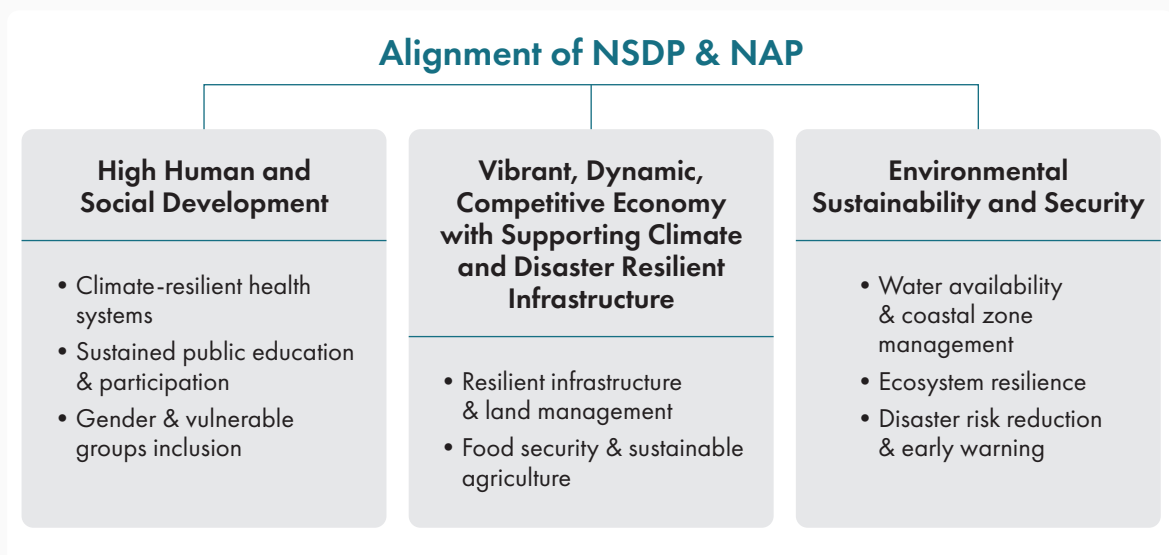
The National Adaptation Plan (NAP) serves as a critical implementation tool for Grenada’s National Climate Change Policy (NCCP), particularly in advancing the country’s objectives for climate adaptation. It ensures that the strategies and outcomes defined in the NCCP are operationalized and systematically monitored. The principal function of this NAP document is to provide a strategic, coordinating framework for building climate resilience in Grenada, recognizing the need to develop the enabling environment for climate change adaptation, as well as implementation of programmatic priorities. It is intended to guide Government ministries, departments and agencies as well as non-state actors (e.g. NGOs, CBOs, citizens, companies, research institutes) in understanding the vulnerabilities to climatic risks, and on appropriate responses that should be taken. In addition, it will signpost stakeholders to existing data and information to guide climate resilient decision-making. The NAP is also intended to help development partners identify resilience building activities, and to mobilize climate finance from diverse sources. The Vision of the NAP remains “A resilient nation that continuously adapts to climate change by reducing its vulnerability through comprehensive adaptation strategies.” This will be realized via the revised NAP’s fourteen (14) Programmes of Action (refer to Chapter 4) which each contains a goal and further specific objectives.

The overarching objectives of the NAP process, aligned with the UNFCCC and the Least Development Countries Expert Group (LEG)

Technical Guidelines are:

- To reduce vulnerability to the impacts of climate change, by building adaptive capacity and resilience.
- To facilitate the integration of climate change adaptation, in a coherent manner, into relevant new and existing policies, programmes and activities, in particular development planning processes and strategies, within all relevant sectors and at different levels, as appropriate (UNFCCCC decision 5/CP.17, paragraph 1).

Figure 1. Illustration of how the NAP aligns within the NSDP



#### 4.0 THE NATIONAL CLIMATE CHANGE ADAPTATION PLAN FOR GRENADA, CARRIACOU AND PETITE MARTINIQUE

The vision, goals, and strategic priorities of the NAP are complementary to Grenada's National Sustainable Development Plan (NSDP) 2020-2035 goals and development outcomes (see Figure 1), the NCCP (2017-2021), the Second NDC (2020), the National Gender Equality Policy and Action Plan (2021-2024), and the OECS Climate Strategy and Change Adaptation Action Plan 2021-2026. The update process for Grenada's NAP, covering the period 2025-2030, builds upon the structure of the previous NAP (2017-2021). It integrates lessons learned and recommendations from the NAP Progress Report, which was completed in 2022 with support from the NAP Global Network. The revised NAP reflects progress made in the past five years and includes a stronger emphasis on gender integration, the use of climate data and vulnerability analysis, and a more robust monitoring and evaluation system. Moreover, it enhances synergies with the Nationally Determined Contributions (NDC) Implementation Plan, ensuring that both adaptation and mitigation efforts are closely coordinated.

The updated NAP is not only a technical document but a product of extensive consultation, involving over 200 Grenadian stakeholders (Annex B) from various sectors, including government ministries, the private sector, educational institutions, NGOs, CBOs, and representatives of women and youth. Gender representation was near balanced, with an approximate 9:10 ratio of men to women participating in the consultation process. This inclusive process ensures that the NAP reflects the needs and priorities of different segments of society, promoting ownership and collaboration across all levels of implementation.

Furthermore, the NAP update is supported by the NAPGN funding through IISD, the Climate Resilient Water Sector in Grenada (G-CREWS) Project, with financing from the Green Climate Fund, Germany's Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV), and GoG.

The NAP plays a pivotal role in delivering Grenada's climate adaptation goals by translating the broader policy framework of the NCCP into actionable strategies. Through strong institutional arrangements, leadership, and public awareness, the NAP ensures that Grenada is better equipped to face the challenges posed by climate change. The 2025-2030 revision enhances the plan's capacity to inter alia address key issues, including gender integration, climate data utilization, and synergy with mitigation efforts, thereby reinforcing Grenada's overall climate resilience strategy.

## 4.2 NAP Principles

The revision of the National Adaptation Plan (NAP) has been grounded in principles aligned with Grenada's National Climate Change Policy, 2017–2021, informed by extensive feedback from a wide range of national stakeholders, including the National Climate Change Committee (NCCC), and guided by the UNFCCC Technical Guidelines for the NAP Process (2012). The updated NAP continues to reflect and apply the following principles:

- **National Ownership and Engagement:**

The NAP process is nationally driven, with inclusive participation from citizens, civil society, the private sector, research institutions, gender focal points, and government agencies. These actors play a critical role in defining adaptation priorities, implementing climate-resilient and low-carbon development strategies, and evaluating progress. Collaboration across sectors, institutions, and geographic scales remains a cornerstone. Public participation will be conducted in a gender-responsive and socially inclusive manner, ensuring that local communities are actively engaged throughout the process.

#### 4.0 THE NATIONAL CLIMATE CHANGE ADAPTATION PLAN FOR GRENADA, CARRIACOU AND PETITE MARTINIQUE

- **NAP as an Umbrella Document:**

The NAP serves as the overarching framework for advancing national resilience through climate adaptation. It does not seek to reinvent existing systems but builds upon and integrates current policies, strategies, and ongoing resilience efforts. This approach enables the efficient use of financial and human resources, minimizes duplication, and strengthens synergies across sectors and initiatives.

- **SIDS-Specific Approach:**

Recognizing the unique challenges faced by Small Island Developing States (SIDS)— including limited human and financial capacity and heightened vulnerability—the NAP is strategically structured to respond to these constraints. It aims to attract the necessary resources to implement its objectives while emphasizing the disproportionate burden of climate impacts borne by SIDS like Grenada.

- **NAP as a Financial Resource Mobilization Mechanism:**

The NAP is positioned as a tool to access international climate finance to support Grenada’s adaptation goals. Adaptation is considered an added development cost arising from the impacts of emissions predominantly generated by large emitters. Therefore, it is Grenada’s stance that the financial responsibility for adaptation must be substantially borne by these countries, rather than reallocating limited domestic resources away from essential areas such as education, healthcare, and social development.

- **Integration into Development Planning:**

The integration of climate resilience and adaptation measures into national and sectoral development planning is a central priority. This includes embedding adaptation considerations into budgetary planning and resource allocation processes, thereby ensuring that resilience is mainstreamed across government operations and decision-making.

- **Application of the Precautionary Principle:**

The NAP adopts the precautionary principle, taking proactive steps to strengthen adaptive capacity and reduce vulnerabilities, even where there may be scientific uncertainty. Inaction due to uncertainty is not considered acceptable. The NAP prioritizes ecosystem-based and other no-regrets adaptation solutions that generate co-benefits for people, livelihoods, communities, and the national economy, regardless of the exact trajectory of climate change.

- **Flexibility for Monitoring, Evaluation, and Iteration:**

The NAP process incorporates mechanisms for continuous learning and improvement. As new data and information become available or as circumstances evolve, the NAP must remain flexible to adapt its strategies and priorities accordingly. Ongoing monitoring, evaluation, and reporting are essential for ensuring accountability, tracking progress, and making evidence-based adjustments over time.

### 4.3 Main Achievements under the First NAP (2017-2021) Cycle

According to the First progress report of the National Adaptation Plan for Grenada, Carriacou and Petite Martinique (2022), key achievements from the first cycle of the National Adaptation Plan (NAP) implementation include:

#### **Institutional and Governance Achievements**

- Climate Change Focal Point Network (CCFPN): Established to bring together representatives from various sectors, marking a significant institutional success.
- National Climate Change Committee (NCCC): Met regularly over the past five years with diverse representation, including one representative from Carriacou and Petite Martinique; however, greater participation from the sister islands remains a challenge.
- Climate Screening of Public Sector Investment Projects: In 2015, the Cabinet mandated that all public sector investment projects undergo climate screening using the Caribbean Climate Online Risk and Adaptation (CCORAL) tool. This tool was applied to most projects in the Public Sector Investment Programme (PSIP) between 2016 and 2018. However, the full implementation of this decision remains a work in progress, with further efforts needed to ensure climate relevance and adaptation are fully integrated into new projects.
- NAP Monitoring and Evaluation (M&E) Framework Assessment (2020): Identified the need for a fully functional and integrated M&E system to track climate progress.
- Climate-related Funding Proposals: Grenada has submitted multiple proposals targeting climate change adaptation in different sectors and disaster risk management, many of which have already been approved and are currently being implemented, as highlighted in the subsequent achievements.

#### **Water Resource Management**

- Updated National Water Policy (2019/2020): Incorporated climate change as a key pillar under Integrated Water Resource Management (IWRM).
- G-CREWS Project: Mobilized US\$50.6 million to enhance water sector resilience.
- Southern St. George's Water Supply Expansion and Wastewater Improvement Project: Currently in preparation.

#### **Agriculture and Food Security**

- Climate-Smart Agriculture: Training of agricultural technicians and extension officers to promote climate-adaptive practices. However, economic challenges, including COVID19 and Hurricane Beryl, have impacted progress.
- Climate Smart Agriculture and Rural Enterprise Programme (SAEP): Promotes climate smart agricultural practices.

### **Disaster Risk Management and Climate Resilience**

- Grenada Hydrometric Network: Installed 33 climate stations for improved hydrometeorological data collection and analysis in 2019, followed by training on collection, analysis and Hydromet software use, with for relevant officers in 2020.
- Natural Disaster Rehabilitation and Reconstruction Project (2021): Focuses on flood prone areas to improve mitigation infrastructure.
- Regional Disaster Vulnerability Reduction Project (RDVRP): Reduced vulnerabilities in public buildings and infrastructure.

### **Coastal and Ecosystem Management**

- Coastal Zone Act (2019): Passed, but the Coastal Zone Management Unit is yet to be established.
- Ridge to Reef (R2R) Project: Adopted in multiple watersheds, including Moliniere/Beausejour, for ecosystem-based management, targeting farmers.
- Ecosystem-based Adaptation Project by GRENCODA: Focused on community resilience and coastal resource rehabilitation.

### **Land Use and Infrastructure**

- National Land Policy (2017/2018): Established the foundation for climate-resilient land management.
- Public Sector Investment Programme (PSIP): Integrated climate screening tools in projects between 2016-2018, with ongoing efforts to ensure adaptation measures.

### **Education and Public Awareness**

- Greenz Climate Champion Toolkit: Introduced in primary and secondary schools, featured in the 2018 National Science Fair.

## **4.4 Lessons Learned from NAP First Cycle**

A significant challenge in the implementation of the NAP was the lack of awareness and understanding of the plan among key stakeholders and agencies. This limited knowledge about the NAP and the specific responsibilities of the agencies involved was one of the main reasons for the low completion rates of measures during the first implementation cycle. Additionally, there was an inadequate focus on sustained public education regarding climate change and the NAP, which further compounded the problem. Without a clear understanding of the NAP's purpose and the role of each agency, many of the strategic objectives remained unfulfilled, as the plan was not fully integrated into the work programs of various organizations.

The low utilization of the NAP in strategic planning also reflects a broader issue: many agencies referenced the NAP in official documents and project proposals but did not operationalize it into concrete actions. This disconnect, in part due to limited awareness, resulted in the NAP being treated more as a policy document rather than an actionable guide. These challenges highlight the critical need for better communication, education, and engagement with the NAP to ensure that stakeholders not only recognize their roles but also take active steps to implement its measures effectively.

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Beyond the awareness issue, other challenges such as inadequate governance structures, insufficient technical capacity, and budgetary constraints further limited the effective implementation of the NAP. The absence of a clear, well-resourced governance mechanism, a deficiency in monitoring and evaluation systems, and the lack of a financial resource mobilization strategy delayed progress. Furthermore, while many policymakers acknowledged the importance of climate action, their political will did not always translate into the necessary allocation of resources to implement the NAP.

An additional limitation was the insufficient integration of gender considerations within the NAP. Gender was identified as a cross-cutting issue, yet the current plan lacked a comprehensive approach to mainstream gender equality and equity. This oversight highlights the need for a gender-sensitive adaptation strategy, which involves collaboration with gender stakeholders and a commitment to ensuring that climate adaptation efforts address the specific vulnerabilities and needs of different genders.

### 4.5 How is the Revised NAP (2025 to 2030) Different?

The Revised NAP (2025–2030) incorporates a range of significant enhancements—not only in response to the challenges and lessons from the first cycle (2017–2021), but also drawing on insights from national consultations, technical workshops, high-level engagements at COP29, and contributions from international partners, national experts, and stakeholders. Together, these inputs have strengthened the Revised NAP’s focus, implementation readiness, inclusivity, and alignment with global best practices. Key improvements include, *inter alia*:

#### 4.5.1 Additional Personnel to Support the NAP Process

The process of revising the National Adaptation Plan (NAP) began in 2022 with stakeholder consultations led by G-CREWS under the government’s direction. These consultations, along with a series of workshops held into 2023, were designed to strengthen the plan’s implementation. During this period, it became clear that dedicated human resources were crucial to ensure focused efforts toward completing the NAP revision and facilitating its transition into the implementation phase (as identified in the previous NAP cycle; further history are provided in the Executive Summary of this document).

In April 2024, a dedicated NAP Team was embedded within the Ministry of Climate Resilience, the Environment, and Renewable Energy, with support from NAP GN via the IISD. The team consists of a National Climate Change Adaptation Officer (NAO), a Communications Officer, and a Stakeholder Engagement Officer (SEO). Their mission is to complete the revision of Grenada’s NAP and transition it from planning to implementation, with each officer assigned specific responsibilities aligned with their respective areas of expertise and the overarching objectives of the NAP and NCCP.

NAO’s primary objective is to provide technical, administrative, and advisory support for policy development, particularly related to the updated NAP and its implementation, which includes overseeing pilot projects informed by community stakeholder input. The Communication Officer’s key responsibilities include managing communications related to the NAP’s development and implementation, ensuring public awareness, crafting messages, coordinating outreach activities, and supporting policy development. The SEO is responsible for coordinating stakeholder engagement activities, particularly those related to updating the NAP.

The NAP team in collaboration with G-CREWS provided additional support for NAP awareness through several sensitization and visibility activities in an attempt start addressing the awareness issues as identified afore during the revision to validation (see Figure 2).

**Figure 2. Timeline of Activities for NAP Revision Process.**

2022	NAP Progress Report produced by the NAP Global Network to track the delivery status of agreed measures in the first NAP cycle
2022	Request by the National Climate Change Committee for the G-CREWS project to support the update of the NAP
2022	Consultant engaged under GCREWS to develop the initial draft of the NAP Update document
2023	Virtual stakeholder consultation and national engagement session led by the Ministry of Climate Resilience with support from GCREWS
2024	NAP revision series with stakeholders based on the second draft; included public awareness efforts through media outreach (TV, radio, newspapers) in partnership with NAP-GN
2024	National Validation of the Revised NAP Document and Adaptation Financing Forum
2025	NAP Budget Review and Validation
2025	High-level Meetings (SMB, NCCC and Cabinet) to prepare for Endorsement by Cabinet

#### 4.5.2 Community Sensitization

Unlike the first NAP, where there was limited public awareness, the Revised NAP made significant strides in community engagement. Increased NAP visibility through the different forms of media (tv, radio, newspaper articles, social media postings) and community sensitization events throughout the length and breadth of Grenada, Carriacou and Petite Martinique were conducted, ensuring that more stakeholders are informed and involved in the adaptation process, especially at the grassroots level. Such engagement is expected to continue throughout the implementation phase in 2025, with further details outlined in the forthcoming Communications

#### 4.5.3 Inclusion of Gender Considerations

An improvement in the Revised NAP is the attempt to explicitly include, where applicable, gender considerations. This addresses one of the shortcomings of the previous NAP and ensures that adaptation measures are more equitable, taking into account the specific vulnerabilities and needs of different genders. This approach aligns with Grenada’s Gender Equality Policy and Action Plan (2014–2024), which identifies climate change and disaster risk reduction as critical areas for gender mainstreaming. Section 4.5 of the policy highlights that women, particularly in rural and coastal communities, face heightened risks due to existing gender disparities in access to resources, information, and decision-making power. It calls for gender-responsive environmental policies and emphasizes enhancing women’s capacities in natural resource management and climate resilience. Aligning the NAP with these national priorities helps to institutionalize gender equity in climate adaptation planning (GoG, 2014).

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Gender responsiveness goes beyond ensuring equal participation; it requires that all sectoral climate change adaptation plans and actions address the differentiated needs, capacities, and experiences of men and women, boys and girls. This involves integrating gender-responsive planning, budgeting, and implementation processes, while promoting full, effective, and informed participation in both the development and execution of climate strategies. To support gender responsive implementation of the NAP, it is essential to promote women’s leadership in decision-making platforms, particularly at the community level where climate actions are prioritized.

Awareness-raising, targeted training, and capacity-building initiatives can empower women and other marginalized groups to engage meaningfully. Ultimately, a gender-inclusive approach strengthens adaptation outcomes by ensuring equitable access to resources and benefits and recognizing the transformative role of women and vulnerable populations in building climate resilience (UNFCCC, 2019; UNDP, 2016).

#### 4.5.4 Considerations for Child-Responsive Adaptation

Children—who make up one-third of the global population and about half of those living in extreme poverty—are among the most vulnerable to climate change, yet they are frequently overlooked in national climate responses and in the discussions and guidance emerging from the intergovernmental UNFCCC process (United Nations International Children’s Emergency Fund [UNICEF], 2023a; UNFCCC, 2023). Fewer than half of NDCs meaningfully reference children or youth, and most national adaptation plans lack provisions to address their specific needs (UNFCCC, 2023). At the same time, only 2.4% of global climate finance from major multilateral funds supports projects with a child-responsive focus (UNICEF, 2023b), highlighting a critical gap in aligning climate action with children’s rights and well-being

UNICEF and the UNFCCC emphasize the need for child-responsive climate adaptation policies, highlighting that children are disproportionately affected by climate change, particularly in vulnerable regions. They advocate for integrating child-sensitive elements into National Adaptation Plans (NAPs) and NDCs, urging increased investment in sectors like health, education, and water to protect children’s well-being. Both organizations also stress the importance of involving children in climate decision-making and scaling up climate finance for child-focused initiatives to ensure resilience against future climate impacts

Grenada’s Revised National Adaptation Plan (NAP) recognizes this importance and aimed to address children’s needs in climate change adaptation. Given their vulnerability, it is essential that adaptation measures consider the specific challenges children face. This section highlights the child-responsive elements in the NAP. While not all aspects are explicitly addressed, the following components are integrated to ensure children’s resilience to climate change.

1. The NAP acknowledges that children are especially vulnerable due to their age, dependence on adults, and limited capacity to respond to climate-related challenges. The NAP emphasizes the need to protect children from disasters like hurricanes, floods, and droughts, which can disrupt their education, health, and development, especially in marginalized communities. Acknowledging this vulnerability, the NAP highlights the importance of tailoring adaptation measures to their needs.
2. With relation to education and awareness, education is a key focus, with an emphasis on building climate awareness and resilience among children. The NAP promotes integrating climate education into curricula and strengthening school infrastructure to protect children from extreme weather, aiming to empower them as agents of change in their communities.

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3. In terms of Social Protection, while not explicit, the NAP supports social protection measures that benefit children by safeguarding vulnerable households from climate impacts. This includes promoting food security, safe housing, and climate-resilient livelihoods, ensuring children's basic needs are met during climate shocks.
4. Collaboration with UNICEF (globally central child-focused organisation) was undertaken to receive guidance in developing and implementing child-responsive measures, aligning with global best practices in protecting children from climate risks.

##### 4.5.5 Considerations for implementing through the human security approach

The National Adaptation Plan of Grenada, Carriacou and Petite Martinique 2025-2030 clearly demonstrates that consideration is being given to implementing through the Human Security Approach. The Revised NAP is developed on a comprehensive, people-centered, prevention oriented and context specific framework that emphasizes the protection and empowerment of individuals and communities, ensuring their safety and well-being in the face of environmental challenges. Incorporating the human security approach is crucial for addressing the interconnected impacts of climate change and triggers of human insecurity that often limit vulnerable people's ability to live free from fear, free from want and the right to live in dignity.

The human security approach promotes cross-sectoral collaboration and coordination, as detailed in the NAP, which is essential to implementing targeted adaptation strategies for the POAs such as Climate Resilient Health Systems and People, Food Security, Water Availability, Disaster Risk Reduction and Climate Mobility. A human security approach encourages the integration of adaptation measures across these sectors, promoting a holistic and comprehensive response to climate change. The marked effort for the Revised NAP to promote community participation and ownership is critical to the success of human security centered interventions. Engaging local communities in the planning and implementation of adaptation measures ensures that their knowledge and experiences are considered, leading to more sustainable and context-appropriate solutions.

By incorporating human security, the NAP is well placed to mobilize financial resources and support from regional and international donors and organisations, given the renewed focus on the human dimensions of climate change and efforts to prioritize the well-being and security of the people of Grenada, Carriacou and Petite Martinique.

##### 4.5.6 Loss and Damage Considerations

Over the past decade, the islands of Grenada, Carriacou, and Petite Martinique have experienced significant climate-related events that have impacted their development and infrastructure. One of the most notable incidents was Hurricane Beryl in July 2024. This Category 4 hurricane made landfall on Carriacou on July 1, 2024, causing catastrophic damage. The island was "flattened," with extensive destruction of structures and vegetation. Petite Martinique also suffered considerable damage, with up to 95% of residences destroyed or rendered uninhabitable. The hurricane severely disrupted electrical grids and communication networks across these islands. In Grenada, approximately 95% of residents were without power, and telecommunications were down. The estimated preliminary damage in Grenada was around USD \$218 million (Global Facility for Disaster Reduction and Recovery [GFDRR], 2024).

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In addition to infrastructure losses, Hurricane Beryl wiped out key mitigation and adaptation measures such as solar PV projects, mangrove restoration works, and other climate resilience initiatives. Recognizing the significance of loss and damage (L&D) is crucial to understanding the long-term effects of climate change. Loss and damage describe the consequences of climate change that exceed adaptation capacities (Appadoo, 2021). This can include both severe weather events, as well as slow-onset events. Additionally, L&D can encompass both economic and non-economic impacts, including the loss of life, ecosystems, cultural heritage, and livelihoods, among other consequences. Some impacts are irreversible, such as the encroachment of rising seas on low-lying islands or the transformation of once-productive farmland into barren land due to drought (Appadoo, 2021).

Farmers in coastal communities, such as La Sagesse, have faced these challenges for over two decades. Sea level rise and saltwater intrusion have forced several to abandon their farms, contributing to economic displacement and livelihood insecurity. Addressing non-economic losses and damages is essential, as they encompass the loss of family members, cultural heritage, and traditional ways of life, as well as the psychological trauma of forced migration. In response, the introduction of a POA on climate mobility is warranted to address displacement and ensure appropriate measures are in place for affected communities.

To facilitate recovery, Grenada pioneered an innovative approach by activating a “hurricane clause” in its debt agreements, thereby suspending debt repayments and freeing up crucial resources for reconstruction and adaptation. This groundbreaking financial mechanism not only alleviates immediate fiscal pressures but also sets an important precedent for other vulnerable nations grappling with the escalating impacts of climate change. By suspending repayments, Grenada can allocate funds to restore critical infrastructure, enhance disaster preparedness, and implement long-term adaptation strategies—all of which are vital for mitigating future risks. In tandem with this measure, the Caribbean Catastrophe Risk Insurance Facility (CCRIF) provided a record payout of \$44 million to support Grenada’s recovery efforts.

The Intergovernmental Panel on Climate Change (IPCC) 6th Assessment Report (2022) highlights the increasing likelihood of exceeding adaptation limits as climate change intensifies. It distinguishes between “soft” limits—where adaptation options exist but financial constraints prevent implementation—and “hard” limits, where no viable options exist to mitigate risks. These challenges are particularly pronounced in vulnerable communities with limited resources to implement effective adaptation strategies or recovery efforts.

One clear example of adaptation reaching its limits is coral reef degradation. The IPCC projects that 70% to 90% of tropical coral reefs will die by mid-century even if global warming is limited to 1.5 degrees C (2.7 degrees F), with near-total loss expected under a 2-degree C (3.6 degrees F) scenario (Hoegh-Guldberg, et al., 2018). This would lead to irreversible biodiversity losses and significant impact on coastal communities that rely on reefs for fishing and tourism. In Grenada, coral reef degradation is already evident, with rising sea temperatures causing frequent bleaching events. A notable case is the Gouyave Biorock Pilot Project, which was implemented in June 2018 to restore reef ecosystems. While the project initially showed progress, extreme warming events in 2023 led to the complete loss of the corals, demonstrating the fragility of such initiatives in the face of intensifying climate change. The decline of coral reefs threatens marine biodiversity, fisheries, and coastal protection, further exacerbating economic and environmental vulnerabilities.

The increasing frequency and severity of climate-related events emphasize the need for strengthened disaster risk reduction strategies in Grenada. This includes enhanced preparedness, response mechanisms, and long-term mitigation measures to protect lives, livelihoods, and infrastructure from future climate impacts.

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## 5. Programmes of Actions (POAs)

Each **POA** is designed with a **central goal, specific objectives, and measurable indicators** to track progress. Targets are set through stakeholder consensus, often expressed as percentages or exact figures. When baseline data is available, it informs these targets; otherwise, the POA first focuses on establishing baselines before defining measurable improvements. This structured approach ensures adaptability and relevance, allowing tailored strategies to address the unique challenges of each sector.

Each POA also includes a prioritized list of actions, ranked from highest to lowest priority based on the National Stakeholder Validation (2024). These actions are linked to specific objectives, contributing to the overall success of the POA.

For effective implementation, each measure within a POA has:

- An assigned lead entity responsible for execution, followed by key collaborators providing support.
- An indicative cost estimate, initially assessed by a Climate Finance Expert and later validated by stakeholders.

The total estimated budget for NAP 2025–2030 is USD \$ 572,003,000. The budget underwent multiple rounds of revision to ensure accuracy, sustainability, and alignment with national and regional priorities. Initially, it was drafted based on financial assessments and specific projected expenditures. A financial advisor from the Commonwealth, working in collaboration with the Ministry of Climate Resilience, reviewed the proposal and provided recommendations to optimize resource allocation and integrate climate resilience priorities. The Advisor used two main approaches in the proposed costing including the Aggregate Cost Approach and the Calculated Cost Approach.

Following these updates, the revised budget was then subjected to a thorough review and validation process by finance experts from various sectors, including an all-day workshop facilitated by a Climate Finance Access Network (CFAN) Advisor.

To finalize the budget, a focus group session was held with policy and finance experts from the Ministry of Finance, Grenada. This session aimed to: (1) validate the process of determining the indicative costs and provide expert feedback to enhance adaptation and funding strategies, and (2) ensure practical cost estimates and transparency in line with national fiscal policies. This multi-sectoral and expert-driven approach ensured the finalized budget adhered to the best financial practices and was both comprehensive and actionable.

POAs also contains progress updates and are reflected under the “Current Situation” section, incorporating:

- Findings from the First Progress Report of the National Adaptation Plan (2022).
- Updates from stakeholder workshops in 2023.
- Inputs from the 2024 revision series, conducted with stakeholders between June and July.

Each POA also has a tabulation of specific measures with associated responsibilities, indicative costs (as informed by the budgeting process previously highlighted), and timelines for achieving each objective. In this tabulation, each measure identifies one or more responsible entities. Where multiple entities are listed under the “Responsibility” column, the first is typically designated as the lead, with the others serving as supporting collaborators. These designations were determined through stakeholder consultations. Note, Implementation timelines are set for each measure, with most activities expected to be ongoing.

This comprehensive framework ensures that Grenada, Carriacou, and Petite Martinique systematically advance their adaptation efforts, guided by clear goals, priorities, and financial planning.

Throughout the revised National Adaptation Plan (NAP) 2025–2030, energy emerges as a consistent and strategic thread interwoven across multiple Programmes of Action (POAs). While energy-related initiatives are more prominently articulated within Grenada’s Second NDC—which commits to reducing greenhouse gas emissions by up to 40 percent by 2030 through enhanced energy efficiency and accelerated adoption of renewable technologies—the relevance of energy to adaptation remains evident across all sectoral priorities in the NAP. This focus on energy will continue to feature prominently in future NDCs, as Grenada advances its long-term transition toward a low-emission, climate-resilient development pathway.

This intersection between energy and adaptation demonstrates that resilience depends not only on sector-specific interventions but also on the availability, accessibility, and sustainability of energy systems. Energy is therefore treated as a cross-cutting enabler that supports multiple objectives—from food and water security to resilient infrastructure, health systems, and livelihoods. Across the POAs, recurring references highlight energy efficiency measures and renewable solutions as key components of resilience-building. In the agriculture and food security sector (Programme of Action 4), renewable technologies such as solar-powered irrigation and biogas production for manure management are being incorporated, alongside energy-efficient practices that enhance productivity, reduce fossil fuel dependency, and strengthen long-term sustainability.

Programmes of Action 5 (Ecosystem Resilience) and 6 (Integrated Coastal Zone Management) highlight opportunities for energy efficiency in coastal infrastructure and revised building codes, recognizing that sustainable energy use contributes both to emission reduction and the durability of assets in vulnerable zones. Under Programme of Action 7 (Modern Climate-Resilient Infrastructure and Sustainable Land Management), sustainable design principles and low-carbon approaches are embedded in infrastructure planning and development, ensuring that projects prioritize energy efficiency, resource optimization, and reduced emissions.

Within the social sector, Programme of Action 13 (Climate Mobility) and Programme of Action 14 (Climate-Resilient Health Systems and People) extend the energy focus into livelihoods and public health. The former promotes employment and training in renewable energy for displaced and vulnerable populations, while the latter emphasizes low-carbon technologies and renewable integration to ensure health facilities remain operational and resilient to power disruptions. Priority actions within the NAP and NDC frameworks reinforce this direction, with the Government—through the Ministry of Climate Resilience, the Environment and Renewable Energy—promoting concessions and incentives for renewable products such as solar panels, biogas systems, and hybrid/electric vehicles to drive a national transition toward a cleaner, more resilient energy economy.

In summary, while energy is not framed as an individual POA, it remains a common and critical thread across Grenada’s adaptation agenda. Its integration throughout the NAP highlights that energy resilience underpins national resilience—powering climate-smart agriculture, enabling resilient infrastructure, supporting essential health services, and creating sustainable livelihood opportunities.

Building on this, energy also represents Grenada’s strategic investment narrative—a unifying theme that connects adaptation and mitigation priorities under a single, transformative vision. Energy acts as both an enabler and accelerator of resilience, with targeted investments in renewable energy and efficiency directly strengthening the adaptive capacity of key systems. Reliable, low-carbon power ensures hospitals and critical facilities remain functional during climate-induced disruptions; farmers sustain productivity through renewable-powered technologies; and infrastructure operates efficiently while minimizing emissions. These outcomes deliver measurable adaptation–mitigation co-benefits—reducing emissions, enhancing service continuity, and safeguarding livelihoods.

By positioning energy as a cross-sectoral investment priority, Grenada presents a compelling value proposition for the Green Climate Fund (GCF) and development partners. The NAP and NDC together articulate a unified, investment-ready pipeline of energy-related interventions—ranging from renewable energy deployment and efficiency retrofits to the integration of clean technologies in agriculture, health, and transport systems. Each initiative offers transformational potential, scalability, and clear alignment with GCF’s strategic impact areas: energy generation and access, resilient livelihoods, and infrastructure and built environment resilience.



The Ministerial Complex, St George, Grenada

## **Programme of Action 1: Institutional Arrangements, Inter-Sectoral Coordination and Participation**

### **Goal**

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Dedicated and well-resourced institutional structure to support coordination, integration, and implementation of climate change adaptation actions by 2030.

**Objective 1.1** Gender-sensitive governance and institutional arrangements to provide leadership and coordinate implementation of the NAP is established by the end of 2025 and maintained over the 5-year cycle.

**INDICATORS**

**1.1.1** Build on the successful recruitment of three new staff members by further enhancing the capacity of the Ministry of Climate Resilience, the Environment and Renewable Energy (MoCRERE) with the addition of more staff and a dedicated Monitoring and Evaluation (M&E) personnel, all strategically aligned with and approved by HR, to support the NAP Coordination and Management Team in effective and timely NAP implementation.

**1.1.2** 100% of the members in the CCFP network are provided with instruments of appointment that clearly specify their adaptation roles and responsibilities. These adaptation roles and responsibilities, or potential duties, should be outlined in their employment contracts, accompanied by regular performance appraisals.

**1.1.3** The NCCC meets at least 4 times each year over the 5-year cycle, with involvement from the private sector, CBOs, and NGOs (with specific attention given to adaptation and gender mainstreaming).

**1.1.4** Conduct an annual performance review to evaluate the effectiveness of the governance and institutional arrangements for NAP implementation

**APPROXIMATE BUDGET**

USD 1,057,000

**LEAD AGENCY:**

Ministry of Climate Resilience, the Environment and Renewable Energy

**Overview**

POA 1 continues to be a major underpinning requirement to advance the climate change adaptation agenda. Within the current NAP implementation period, the focus lies on the refinement and strengthening of the formally established coordination and implementation structure of the adaptation process.

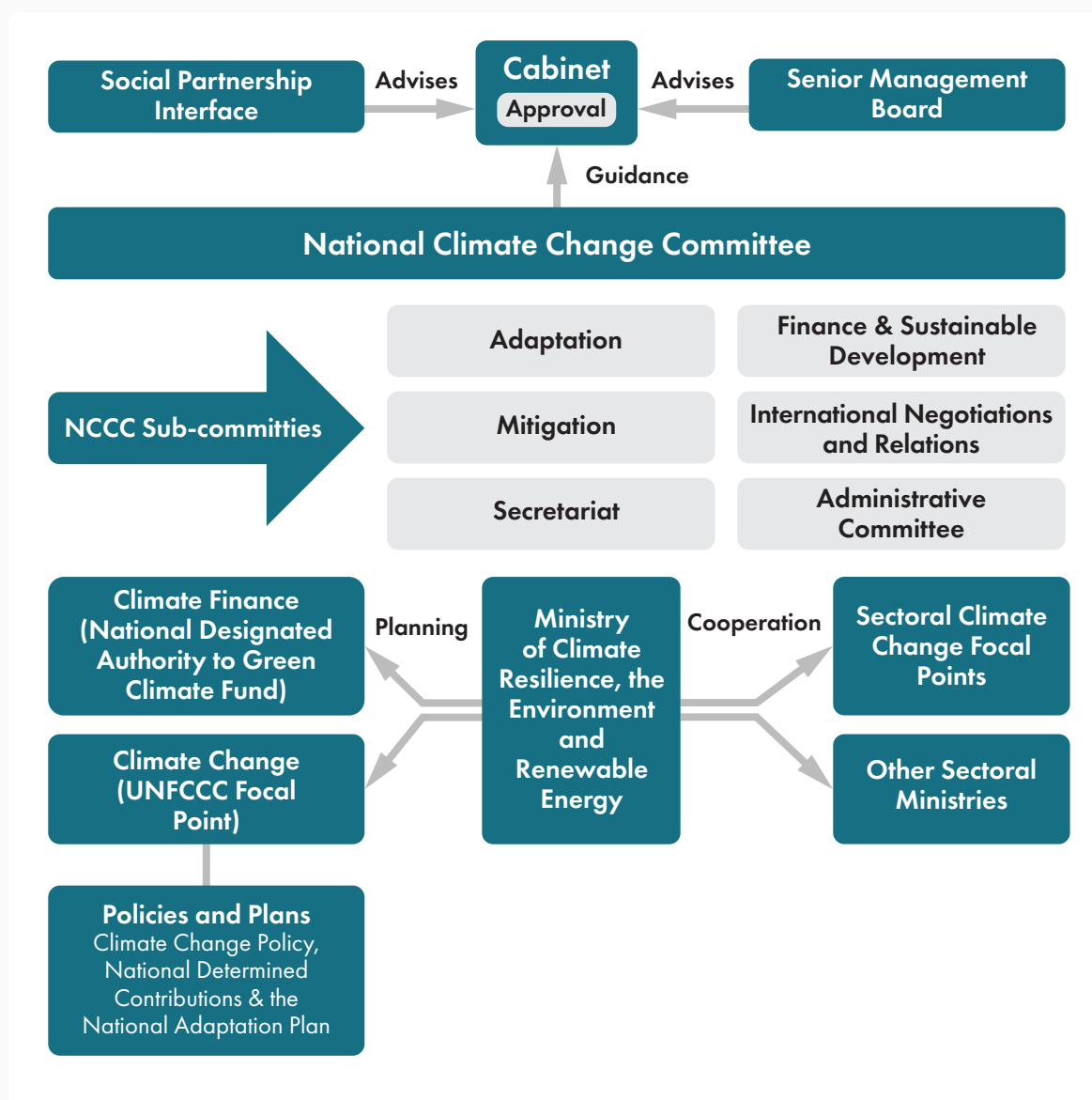
The climate change governance and planning processes in Grenada are illustrated in a structured diagram (Figure 2), which outlines the interrelationships and functional roles of the key entities involved in managing and responding to climate-related issues. At the top of this structure is the Cabinet, which makes final decisions based on guidance provided by the Senior Management Board. The Cabinet plays a critical role in approving policies and strategies related to climate change. Central to the governance framework is the National Climate Change Committee (NCCC), which is administratively supported by a dedicated Secretariat responsible for coordinating its activities.

The NCCC is organized into specialized subcommittees focusing on key thematic areas: Adaptation, aimed at building climate resilience; Mitigation, focused on reducing greenhouse gas emissions; Finance and Sustainable Development, which oversees the financial and economic dimensions of climate action; and International Negotiations and Relations, which ensures Grenada’s alignment with global climate agreements and obligations. Additionally, an Administrative Committee provides further support to the NCCC, helping to ensure effective implementation and coordination across sectors.

Ministerial roles are clearly delineated within this governance framework. The Ministry of Climate Resilience acts as the pivotal entity, connected directly to the UNFCCC National Focal Point which is integral in international climate discussions. The Ministry is also responsible for the National Designated Authority to the Green Climate Fund and is tasked with managing interactions and securing funding for climate projects.

Sectoral involvement is facilitated through various other ministries and statutory bodies, along with designated sectoral climate change focal points. These sectors participate in comprehensive planning and implementation processes, known as Sectoral Planning. The diagram also indicates a mechanism for co-optation, where additional expertise can be integrated as needed, and emphasizes the importance of cooperation across different government layers and external agencies. This layered and interconnected structure allows for a thorough and coordinated approach to climate governance, ensuring that Grenada can effectively address both current and future climate challenges.

Figure 3. Climate Change Governance and Planning Processes in Grenada



## Current Situation

Within the NAP Progress Report, POA 1, Institutional arrangements, intersectoral coordination and participation reported the highest percent completion of planned measures (18.2 %) based on an equal weighting of each measure. Measures from the NAP 2017-2021 cycle reported as completed are:

1.1. Increase human resources with regard to climate change adaptation (CCA) of the Environment Division.

- Three officers were hired on contract by National Adaptation Plan Global Network (NAP GN) through the International Institute for Sustainable Development (IISD) and embedded in the Ministry of Climate Resilience, the Environment, and Renewable Energy to complete the NAP revision for 2025 to 2030 and transition from plan to implementation.

1.2 Appoint a nominee from the MCPMLG as a Standing Member of the NCCC. The nominee will represent government, civil society (including gender issues) and private sector interests of the people of Carriacou and Petite Martinique.

- However, this measure has been updated to ensure that the nominees distinctly represent the interests of government, civil society, and the private sector.

1.3 Appoint a NaDMA representative as a Standing Member of the NCCC and appoint a NCCC representative as a Member of the National Emergency Advisory Council (NEAC).

- NaDMA currently holds membership in the NCCC, however NCCC representation in NEAC has not been established.

1.4 Establishment of Climate change Focal Points and Network.

- There have been developments towards the goal of setting up dedicated climate change Focal Points within key government ministries, however since several CCFPs no longer are part of the network, steps are being taken to identify potential CCFPs (and perhaps substitutes), defining the roles of Focal Points, or even beginning to establish such positions.

Substantial additional efforts are necessary to fully implement this action. This could involve further defining the responsibilities, securing necessary resources, training personnel, and integrating these Focal Points into the wider national adaptation planning processes.

## Priority Actions

- i. Establish a well-structured governance and institutional arrangement for NAP implementation. It is crucial to formalize the CCFPN as a key player within this framework, ensuring buy-in from their respective ministries. The Network should be well trained (e.g., CCORAL training) and explicitly mandated to perform climate resilience screenings on projects before they advance to the finance departments. Integrating these screening responsibilities into the CCFPs' terms of reference will guarantee that all initiatives align with national adaptation objectives. Consideration should be given to including a gender focal point and an NGO, Civil Society Organisations (CSOs) and private sector representative on the Focal Point Network, recognizing their notable contribution to climate action. As an incentive for participation, formal mechanisms for engagement and targeted capacity-building initiatives should be established to enhance their effective involvement. It is of paramount importance that roles and responsibilities for every aspect of NAP implementation are effectively delegated, documented, and communicated. Moreover, developing a Resource Mobilization Strategy as a companion instrument for NAP implementation is critical to achieving the intent of POA 1.
- ii. Establish a mechanism within the NAP to ensure all agencies and stakeholders involved agree on and commit to the finalized POA measures, enhancing ongoing communication and collaboration. A continuity plan should also be in place to mitigate the impact of staff changes on NAP implementation. Regular updates and communication with all stakeholders are critical to the success of these measures.
- iii. Strengthen the Ministry responsible for Climate by ensuring robust coordination capabilities, either through enhancing the role of the existing Ministry's climate change focal point or by hiring at least one dedicated adaptation matters focal point. Additionally, appoint a monitoring expert to complement these roles. These personnel will drive effective inter-ministerial coordination, build capacity within the National Climate Change Focal Point Network, facilitate access to climate finance, and improve communication and stakeholder involvement for successful NAP implementation.
- iv. Enhance coordination and management of the NAP implementation process by strengthening the integration between the current NAP Team and established mechanisms such as the NCCC and climate change focal points.
- v. Adopt a Results Based Management Approach to inform administration of the implementation process and the M&E framework of the new NAP.
- vi. Ensure active participation of nominees from the Ministry of Carriacou and Petite Martinique Affairs as Standing Members of the NCCC, representing government, civil society (including gender focused groups), and the private sector. Nominees should reflect gender balance or demonstrate gender sensitivity through appropriate training, to effectively represent the interests of the people of Carriacou and Petite Martinique.

## Tabulation of Specific Measures, Responsibilities, Costs, and Timelines for Achieving Each Objective

**Objective 1.1** Gender-sensitive governance and institutional arrangements to provide leadership and coordinate implementation of the NAP is established by the end of 2025 and maintained over the 5 year cycle.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
1.1-1	Strengthen institutional capacity for climate change adaptation (CCA) monitoring and reporting within MoCRERE through the expansion and training of human resources.	MoCRERE	380,000	5 years
1.1-2	Expand the representation of the NCCC by inviting additional nominees from the MCPMLG to serve as Standing Members, ensuring their active and sustained participation. Each nominee should effectively advocate for the interests of government, civil society—including gender equity—and the private sector, thereby strengthening inclusive decision-making for the people of Carriacou and Petite Martinique.	NCCC	Supported Through Existing Capacity	1 year
1.1-3	Appoint a NCCC representative as a Member of the National Emergency Advisory Council (NEAC).	NCCC, NEAC	Supported Through Existing Capacity	1 year
1.1-4	Provide CCFPN with clear Terms of References (TORs) outlining their roles and responsibilities, along with tailored CCA training and capacity-building to equip them for NAP implementation.	MoCRERE, DPA	25,000	1 year
1.1-5	Conduct regular focal point and quarterly NCCC meetings, ideally in hybrid format	MoCRERE	32,000	5 years
1.1-6	Maintain the NAP Coordination and Management team with secretariat support to coordinate the implementation of measures in the NAP.	MoCRERE	500,000	5 years
1.1-7	Develop and roll-out a Communication and Engagement Strategy to increase stakeholder understanding of the NAP, its components, and roles and responsibilities.	NAP Coordination and Management Team	50,000	1 Year

**Objective 1.1** Gender-sensitive governance and institutional arrangements to provide leadership and coordinate implementation of the NAP is established by the end of 2025 and maintained over the 5 year cycle.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
1.1-8	Formalize a Financial and Human Resource Mobilization Plan to support the effective and efficient implementation of the NAP.	MoCRERE	15,000	
1.1-9	Establish a Help Desk for CCORAL application within MoCRERE and provide assistance for CCORAL application, prioritizing the use by CCFPN (refer also to 1.4 specific to CCFPN)	MoCRERE	10,000	5 years
1.1-10	Update list of ongoing PSIPs related to climate change and disaster management projects on a regular basis and disseminate quarterly to key stakeholders.	Ministry w.r.f. Department of Economic and Sustainable Development Planning (DESDP), Ministry of Mobilisation, Implementation & Transformation (MIT), CCFPN	Supported Through Existing Capacity	5 years
1.1-11	Regular/bi-annual meetings of project managers/staff to present ongoing and planned climate change adaptation and disaster risk management activities to avoid duplication, create synergies and learn from another.	DESDP, MIT, CCFPN	15,000	5 years
1.1-12	Continue SDC meetings on a monthly basis	SDC Chair	30,000	5 years





Grenada's first Climate-Smart Fisher Facility in Soubise, St. Andrew, integrating climate adaptation into local planning and development

## **Programme of Action 2: Systematic Integration of Adaptation Into Development Policies, Plans, Programmes, Projects, Budgets and Processes**

### **Goal**

Climate change is systematically integrated and budgeted in new government projects and in the physical planning and approval process, prioritizing gender responsiveness.

**Objective 2.1** Climate impacts and risk considerations are mainstreamed into government investment projects and sectoral corporate plans, the EIA Terms of Reference (TOR), and at least two priority development plans by 2030.

**2.1.1** By 2030, ensure 100% of new Public Sector Investment Programs (PSIPs) undergo CCORAL screening, with screening reports serving as verification. Projects classified as ‘high relevance’<sup>1</sup> must integrate climate adaptation measures into their design, as confirmed by TOR for feasibility studies and final feasibility reports including Environmental and Social Impact Assessments (ESIAs).

INDICATORS

**2.1.2** Integrate climate vulnerability assessments and adaptation strategies into the Environmental Impact Assessment (EIA) Terms of Reference by 2030, ensuring these considerations are also embedded in the updated Tourism Master Plan and at least one major physical development plan, such as the National Physical Development Plan or a Local Area Plan.

**2.1.3** By 2030, ensure the budget labelling exercise clearly identifies the proportion of the PSIP budget that is considered at “medium to high risk”<sup>2</sup> of climate impact. This categorization, documented in budget labelling reports and highlighted in annual budget speeches, serves to prioritize adaptation funding and measures effectively.

**Objective 2.2** Ensure gender considerations are actively integrated and monitored in all government investment projects and sectoral corporate plans, with a commitment to achieving measurable improvements in gender equity and inclusion starting in 2025 and continuing into the future.

INDICATOR

**2.2.1** Establishment of a baseline in 2025, where 100% of all new Public Sector Investment Programs (PSIPs) incorporate considerations of gender, youth, and people with disabilities. Monitor and increase this integration annually, aiming for a measurable improvement in these considerations with each successive year.

**APPROXIMATE BUDGET:**

USD 730,000

**LEAD AGENCY:**

Ministry of Climate Resilience, the Environment, and Renewable Energy

<sup>1</sup> Projects that are significantly affected by or crucial to climate adaptation strategies.

<sup>2</sup> **Medium risk** refers to projects that are likely to be affected by climate change but perhaps to a lesser extent or with less immediacy than high-risk projects. High risk refers to projects that are expected to face significant impacts from climate change, which could threaten their viability or effectiveness without substantial adaptation measures.

## Overview

The systematic integration of climate change adaptation into national development planning is critical to safeguarding the nation's people and its assets. Grenada has made significant progress in integrating climate risk and adaptation considerations into development planning and processes prior to 2017, as noted in the NAP 2017-2021.

This mainstreaming effort continued during the first NAP cycle (2017-2021), achieving several milestones:

- Climate change adaptation was incorporated into the National Sustainable Development Plan (NSDP) 2020-2035.
- The National Water Policy was updated to integrate climate change considerations, marking significant progress in building a climate-resilient water sector.
- At least 50% of new Public Sector Investment Program (PSIP) projects incorporated adaptation considerations into their design by 2021.
- Most PSIP projects were screened using the CCORAL tool during the budget labelling exercises in 2016, 2017, and 2018.

Additionally, a greater emphasis on mainstreaming gender considerations is noted in this NAP cycle. A Gender Action Plan (GAP) will be developed, implemented, and monitored as a parallel activity to increase the gender-sensitivity of the NAP. Relevant gender indicators are included in the overarching M&E framework for the NAP.

Furthermore, the expectation is the integration of NAP Measures for POAS 1-14 into the annual Corporate Plans and annual national budgets of the various government ministries.

## Current Situation

Within the NAP Progress Report, POA 2, systematic integration of adaptation into development policies, plans, programmes, projects, budgets, and processes reported no completed measures. However, 33.3% of planned measures were reported as partially completed, compared to 22.2% as ongoing and continuous.

This recognition of the partial completion and evolving nature of adaptation measures emphasizes the necessity for a more strategic and systematic approach. This approach is vital for embedding these efforts seamlessly into the framework of national policy and planning. Several key measures are currently in place to support this strategic integration including:

**Climate-Sensitive Monitoring and Evaluation for the NSDP:** The Cabinet Office currently oversees a climate-sensitive Monitoring and Evaluation (M&E) plan for the National Sustainable Development Plan (NSDP). This plan aligns with the differentiated-term development agenda—encompassing short, medium, and long-term objectives—to ensure the systematic incorporation of climate adaptation measures across all Government Ministries' sectoral and corporate plans.

**Adaptation Strategies in Performance Agreements:** The initiative to integrate climate adaptation content into the Performance Agreements of Permanent Secretaries (PS) has been initiated. This measure is critical for embedding adaptation strategies within ministerial Corporate Plans and their associated budgets. To enhance this effort, it is advisable to connect sensitization activities to the inclusion of climate adaptation in these agreements. Additionally, securing a speaking slot at the annual Permanent Secretaries retreat will provide an optimal opportunity to discuss and advance these integration strategies with all PSs.

**Limitation and Expansion of CCORAL:** Currently, CCORAL targets only Public Sector Investment Programs (PSIPs) and does not extend to private sector investment projects. To address this limitation, it is suggested to build the capacity within the private sector, introducing changes in relevant legislation, and incorporating recommendations at the physical planning level. This measure should be adopted at the appropriate stage of the PSIP project preparation process, utilizing lessons learned from previous CCORAL assessments which began in 2017/18. This strategy should guide not only the application of the CCORAL tool in public sector investments but also facilitate the integration of climate resilience into private sector projects.

**Implementation of the National Adaptation Plan (NAP):** This measure is pivotal for rolling out the NAP and enhancing implementation rates. Each ministry should take responsibility for the measures where it is designated as the lead implementer or coordinator. Climate Change Focal Points (CCFPs) should facilitate this process as effectively as possible. Any NAP measures not integrated into the first available Corporate Plan should be carried over to the next cycle. Additionally, it is crucial for each ministry to identify which actions can be executed within its existing budget and which will require external support.

## Priority Actions

- i. Integrate climate vulnerability and risk considerations in the EIA process, the updated Tourism Master Plan, and at least one physical development plan.
- ii. Utilize the NAP measures to select and integrate activities into annual corporate plans and annual budgets.
- iii. Conduct a comprehensive vulnerability assessment on climate change for Grenada, Carriacou, and Petite Martinique as a basis for evaluation of the national adaptation programme, project development, and access to climate finance.
- iv. Provide additional training to planning officers and the CCFP Network on CCORAL assessment within the PSIP process and climate proofing measures.
- v. Increase dialogue with potential funders to mobilize resources that facilitate integration of adaptation considerations in project design, as part of the climate proofing thrust.
- vi. Strengthen the implementation of the mandatory CCORAL assessment within the PSIP process and monitor their implementation through quarterly reports to the Senior Management Board and annual reports to the Cabinet.
- vii. Screen the PSIP portfolio, as part of the budget labelling exercise in 2025 to 2030, and report in the national budget the proportion of the PSIP budget that was considered at medium to high risk of climate impact.

**Tabulation of Specific Measures, Responsibilities, Costs, and Timelines for Achieving Each Objective**

**Objective 2.1** Climate impacts and risk considerations are mainstreamed into government investment projects and sectoral corporate plans, the EIA Terms of Reference, and at least two priority development plans by 2030.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
2.1-1	Design and execute a process for integrating climate change adaptation considerations into the M&E framework of the NSDP 2035 during its implementation period.	MoCRERE, Cabinet Office, Ministry w.r.f. Economic Development and Planning	20,000	5 years
2.1-2	Integrate a requirement for climate action to be addressed as a 'crosscutting' issue in annual Permanent Secretaries (PSs) Performance Agreements between the PSs and Cabinet/Cabinet Secretary.	Cabinet Office, SMB, MoCRERE, NCCC	15,000	5 years
2.1-3	Apply the CCORAL screening to all projects submitted to the PSIP approval process.	DESDP, ALL ministries, CCORAL, Help Desk in MoCRERE	5,000	5 years
2.1-4	Carry out an in-depth CCORAL assessment of all PSIP projects that are rated as 'highly climate influenced.'	DESDP, MoCRERE, CCORAL Help Desk	Supported Through Existing Capacity	5 years
2.1-5	Develop a Sectoral Strategy and Action Plan (SSAP) for each key sector, tailored to Grenada's specific needs, to guide technical officers in applying the CCORAL tool during in-depth assessments within the PSIP process. This sector-specific SSAP will enhance mainstreaming climate resilience into government and private sector projects	MoCRERE	200,000	2 years
2.1-6	Identify and review PSIP projects lacking climate adaptation considerations. Initiate discussions with funders to secure resources aimed at integrating climate risk management and adaptation strategies into these projects	Respective Ministries, DESDP, MoCRERE	200,000	5 years
2.1-7	Update the basic TOR for statutorily required Environmental Impact Assessments (EIAs) to integrate assessment of climate vulnerability and risks and resilience building.	MoCRERE, Planning and Development Authority (PDA) (note: previously known as PPU)	50,000	1 Year

**Objective 2.1** Climate impacts and risk considerations are mainstreamed into government investment projects and sectoral corporate plans, the EIA Terms of Reference, and at least two priority development plans by 2030.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
2.1-8	Develop adaptable guidelines for integrating climate change projections into Environmental Impact Assessments (EIAs), ensuring compatibility with existing tools like GeoNode and the Caribbean Handbook on Risk Management. Enhance the skills of development staff to effectively implement these guidelines across relevant projects, including those conducted in Grenada and by certified professionals in the OECS region.	MoCRERE, PDA, Ministry w.r.f. Economic Development and Planning Authority, Ministry of Works, PCU	10,000	3 years
2.1-9	Update the Tourism Master Plan and relevant physical development plans (such as Local Area Plans or the National Physical Development Plan) to reflect both current and future needs, incorporating climate change considerations as applicable."	Ministry w.r.f. Tourism	200,000	5 years

**Objective 2.2** Ensure gender considerations are actively integrated and monitored in all government investment projects and sectoral corporate plans, with a commitment to achieving measurable improvements in gender equity and inclusion starting in 2025 and continuing into the future.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
2. 2-1	Draft guidelines that define specific criteria for integrating gender, youth, and disability considerations into all new PSIPs. These guidelines will ensure that each project addresses these aspects from the planning stage	Ministry of Social & Community Development, Housing and Gender Affairs	10,000	1 year
2.2-2	Conduct mandatory training for all project managers and planners on how to apply the inclusive criteria in project design and implementation, with specific focus on gender, youth, and disability inclusion.	Ministry of Social & Community Development, Housing and Gender Affairs	20,000	2 years
2.2-3	Incorporate a standard agenda item in the regular PSIP oversight meetings to review and discuss updates on the integration of gender, youth, and people with disabilities in all ongoing and upcoming projects.	Ministry w.r.f. Economic Development and Planning	0	1 year



Grand Etang Lake, St. Andrew

## Programme of Action 3: Water Availability

### Goal

Increased systemic climate change resilience in the water sector including stronger watershed protection and enhanced monitoring by 2030.

**Objective 3.1** Fully functional climate-responsive water governance structure is in place by the end of 2030.

INDICATORS

- 3.1.1 Operationalisation of the Water Resources Management Unit (WRMU), and enactment of climate-responsive legislation to enforce the National Water Policy.
- 3.1.2 A participatory-based climate-responsive tariff structure for NAWASA is completed and approved.
- 3.1.3 New standards and guidelines for the safe re-use of grey water discharge from homes and storm drains for agricultural purposes is approved and developed

**Objective 3.2** Substantially increased water efficiency and the adoption of adaptation measures among water users, with an emphasis on sectors most vulnerable to climate change by 2030.

INDICATORS

- 3.2.1 Adoption of water security measures among farmers, tourism, and users of portable water (i.e. farmers, stakeholders, tourism sector, residents, commercial users) increased by 40% (e.g. rainwater harvesting, drip irrigation systems; water efficient technologies; wastewater recycling).
- 3.2.2 40% of all newly approved buildings on mainland Grenada have installed rainwater or recycled water harvesting and storage system.
- 3.2.3 Water demand (per capita per day) reduced to climate-resilient levels: 135 litres per capita per day (verification: NAWASA database/ annual report)

**Objective 3.3** More effective management of watersheds for enhanced water security

INDICATORS

- 3.3.1 Comprehensive data and information management system for monitoring key hydrological, climatic, environmental, and other indicators operational in 40% of waterways with abstraction protocols.
- 3.3.2 Climate-proofing of two priority watersheds to be integrated into policies

**Objective 3.4** Enhance the management of water supply infrastructure to strengthen water security and system resilience.

INDICATORS

- 3.4.1 Climate – proofing of two water supply networks for greater efficiency in meeting demands during the dry season to be integrated into policies
- 3.4.2 Physical assets made more resilient to climate variability and change, considering human benefit
- 3.4.3 Re-opening and rehabilitation of at least 5 key government cisterns on the island of Carriacou to improve water security

**APPROXIMATE BUDGET:**  
USD 65,525,000

**LEAD AGENCY:**  
Ministry of Infrastructure & Utilities

## Overview

Although climate projections are expected to have global impacts, Small Island Developing States are particularly vulnerable to projected trends such as rises in temperature, decline in precipitation and sea level rise. According to the latest IPCC Assessment report, SIDS, including the Caribbean region, will be disproportionately affected, with global warming reaching 1.5 in the near term expected to cause increases in multiple climatic hazards.

Particularly for Grenada, temperature projections reveal clear signals for warming trends which will increase evapotranspiration and have a negative impact on water availability, decreasing run off and stored water. This will add pressures in water provision. Decreasing precipitation trends will also increase demand, especially in highly dense urban areas. Approximately 20% decrease in annual mean precipitation is expected by 2050 (Roehrl et al., 2017). Interruption in water distribution will also be heavily impacted by rainfall events and inability to capture and store water. Although Grenada will be exposed to slow onset impacts such as SLR, since the country obtains 90% of its fresh water from precipitation and only 10% from ground water wells, this is not very relevant as high exposure to hurricanes, droughts and heavy rainfall, that will pose risk to the water sector. (United Nations Economic Commission for Latin America and the Caribbean, Subregional Headquarters for the Caribbean [UN-ECLAC], 2011; Roehrl et al., 2017) rephrasing needed. It's trying to say impact to freshwater also includes slow onset events like SLR (resulting in things like saltwater intrusion which can impact coastal farms) but doesn't necessarily play as a major role as Grenada's risks to hurricanes, torrential rainfalls, and drought.

The island of Carriacou and Petite Martinique experiences even less rainfall than Grenada with drought conditions that occur regularly and are particularly vulnerable to increasing temperatures having worsening impacts to water security. In the aftermath of the devastating Category 4 hurricane in 2024, major infrastructural damage has significantly impacted water production— particularly due to the loss of many roof catchment systems, which were a primary source of water. This disruption in the ability to capture and store water, especially following extreme events like hurricanes, poses a serious challenge for an island highly dependent on rainwater harvesting. As a result, future adaptation strategies must be both sensitive to and responsive to current pressures in the post-Hurricane Beryl context. One such adaptation option is the re-opening and rehabilitation of government cisterns that have been found to be more resilient after extreme onset events acting as a source of reliable water supply post hurricane damage.

While Grenada's adaptive capacity is assessed as medium, the water sector's adaptive capacity is assessed as medium to low due to financial constraints and limited track records of systemic change in response to external shocks.

In an assessment that was done for Grenada's water sector in 2017, exposure was assessed as high, sensitivity as high and adaptive capacity as medium to low. Overall, the water sector's vulnerability was assessed as medium with a trend towards high. In light of these trends, adaptation responses must be measured, recognizing the interconnectivity of water availability on multiple sectors.

This Programme of Action on Water Availability reflects measured actions ranging from water governance as an adaptation response to climatic hazards and the data available, particularly focused on enhancing natural water retention through ecosystem management and development of watershed management plans, water use efficiency and new forms of energy generation coupled with significant investment in supply infrastructure and continued public education and engagement.

Generally, successful adaptation will require scaled-up investments in healthy watersheds and water infrastructure, dramatic improvements in efficiency of water use, and the integration of new climate risks, such as floods and drought at every level of planning and operation (Global Commission on Adaptation, 2019, p.6).

The ongoing implementation of Grenada’s biggest investment in the water sector, the G-CREWS project, contributes significantly to the implementation of the previous and current NAP. Many measures remain relevant and - despite being already under implementation - will be listed in this NAP period. With the Water Resource Management and Regulation Bill already updated and the Water Resource Management Unit (WRMU) established, a major governance milestone of the G-CREWS project has been achieved. By mid-2026, when the project concludes, further progress will be made. Additionally, the development of a climate-responsive water tariff system is set for completion by 2025.

Countries that make water management a top national priority, inclusive of major governance changes and investments, are more likely to adapt and prosper than those that do not (Global Commission on Adaptation, 2019).

The Grenada National Water Policy (2020) is based on the concept of Integrated Water Resources Management (IWRM), which recognizes the essential, finite and vulnerable nature of water. The importance of conservation and protection of ecosystems, and the urgent need to address the adverse impacts of climate change on water resources were highlighted as central underpinning factors. The Policy’s overarching goal is to provide sustainable management of the country’s water resources, through stakeholder participation, and contribution to economic, social and environmental development, in an efficient and equitable manner (GoG, 2020b).

The four (4) policy outcomes listed below are particularly pertinent to building adaptive capacity of the nation’s water resources. Operationalization of the policy’s intent would therefore be significant to achieving a resilient water sector.

**Outcome 1:** Enhanced enabling environment and improved climate smart water related behaviour;

**Outcome 2:** Increased water access, availability and quality;

**Outcome 3:** Increased water use efficiency and conservation;

**Outcome 4:** Strengthen preparedness for climate variability and extremes.

Grenada has commenced a major capital initiative titled the *Southern St. George’s Water Supply Expansion and Wastewater Improvement Project*, implemented by the National Water and Sewerage Authority (NAWASA). Launched in April 2024, the project aims to reduce the vulnerability of the water sector to the adverse effects of climate change by improving access to potable water and upgrading wastewater infrastructure. Target beneficiaries include approximately 14,875 residents (14.1% of the national population), 18,662 students and faculty across 34 educational institutions, and 1,442 business accounts (GOG, 2024).

## Current Situation

Within the NAP Progress report, POA 3 reported the completion of 7.7 % of planned measures. Almost 40% of measures in this POA were rated as highly complex (GoG, 2022). Measures from the NAP 2017-21 reported as completed are:

- 3.1 Updated of the National Water Policy to include climate change considerations.
- 3.14 Upgrade of the national water information system online data access platform.
- In addition, several actions have been accomplished since the NAP Progress report: The draft Water Resources Management and Regulatory Bill was finalized and approved by Cabinet in February/ March 2024; Targeted education programmes about the water sector and the nexus to climate change and adaptation is ongoing; start of the implementation of a challenge fund for tourism and agriculture.

## Priority Actions

- i. Substantial and scaled-up investment in conservation and management of critical watershed areas.
- ii. Promote increased storage, distribution, and use of untreated water for nonconsumption activities.
- iii. Incentives for substantially increased adoption of adaptation measures among the farming, tourism, health, and other vulnerable sectors.
- iv. Design and construction of robust climate-smart water supply networks including (i) re opening and rehabilitation of government cisterns at key locations in Carriacou (ii) construction of additional desalination plant for Carriacou.
- v. Finalize the governance arrangements and legislative improvements for a climateresilient water sector.
- vi. Continue targeted education programmes about the water sector and the nexus to climate change and adaptation with key training agencies, education institutions and civil society
- vii. Promotion of water reclamation, re-use and other innovative technologies, specifically in the tourism and industry sector.
- viii. Dramatic improvements in water use efficiency ix. Strengthened data and information management systems for resource and supply planning and management.
- x. Intentional integration of existing climatic impacts and projected mid-century and beyond risks in water resource planning and operation.

**Tabulation of Specific Measures, Responsibilities, Costs, and Timelines for Achieving Each Objective**

<b>Objective 3.1: Fully functional climate responsive water governance structure is in place by the end of 2030</b>				
<b>#</b>	<b>Measures</b>	<b>Responsibility</b>	<b>Indicative cost (USD)</b>	<b>Timeline (2025-2030)</b>
3.1-1	Develop and enact legislation to implement the National Water Policy 2020	Ministry w.r.f. Infrastructure, Public Utilities Regulatory Commission (PURC)	50,000	1 year
3.1-2	Operationalise WRMU including staffing, training, equipment and development of financial resource mobilization strategy for sustainability of the Unit	Ministry w.r.f. Infrastructure, NAWASA, PURC	1, 000,000	1 year
3.1-3	Develop and approve climate responsive water tariffs including safety net options for vulnerable households	WRMU, NAWASA, Ministry of Infrastructure	150,000	2 years
3.1-4	Conduct GAP analysis to strengthen national quality infrastructure to ensure testing services are available (i.e. equipment, trained persons).	Bureau of Standards	50, 000	2 years
3.1-5	Promote and improve national laboratory standards and regulations for the monitoring of portable water quality involving regulatory authorities, professional bodies and other stakeholders - Establish mechanisms for regulatory authorities to monitor performance and compliance with standards, procedures and controls pertaining to water quality - Identify regulatory authorities that can draw up relevant regulatory and licensing statues including setting standards for laboratory operations, training, human resources and equipment and putting a monitoring mechanism in place	Ministry of Health (Environmental Health - Public Health Ordinance), Bureau of Standards	50,000	1 year
3.1-6	Strengthen and implement new/ revised standards and guidelines for the safe treatment and reuse of wastewater, particularly grey water, from homes and storm drains, drawing on lessons from existing pilot initiatives and introducing additional demonstrations in all parishes, using modern decentralized treatment technologies, such as WOTA’s home-based system piloted in Antigua.	Environmental Health, Bureau of Standards	4,000,000	1 year

**Objective 3.2:** Substantially increased water efficiency and the adoption of adaptation measures among water users, with an emphasis on the most vulnerable sectors

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
3.2-1	Provide incentives for the procurement of water efficient devices & faucets. Target groups: homeowners, suppliers, plumbers and builders	MoCRERE	80,000	1 year
3.2-2	Investment in communal rainwater harvesting systems to increase water availability. Particularly prioritizing the re- opening and rehabilitation of at least 5 Government Cisterns on the island of Carriacou	NAWASA, Ministry of Carriacou and Petite Martinique Affairs and Local Government (MCPMLG), Civil Society	3,000,000	3 years
3.2-3	Make rainwater harvesting and storage (at least 3 days' supply), mandatory for all new buildings (including government and industrial buildings) in Grenada, Carriacou and Petite Martinique	PDA, Ministry w.r.f. Infrastructure, Ministry w.r.f. Agriculture	80,000	2 years
3.2-4	Promote the adoption of rainwater harvesting and other water adaptation technologies for agriculture. Establish nationwide incentives to encourage farmers to participate in these practices. This includes designing rainwater harvesting ponds that can serve multiple farmers, thereby minimizing land area loss.	Ministry of Agriculture, GDB, Civil Society Organisations (CSOs)	4, 000,000	5 years
3.2-5	Enhance capacity for rainwater harvesting installations to boost investment in large developments, particularly those requiring EIAs. Offer training for target groups, including instructors, students, the plumbing sector, and vulnerable groups such as women and the disabled. Integrate rainwater harvesting, water efficiency, domestic leakage control, and conservation into existing National Vocational Qualification and Caribbean Vocational Qualification (NVQ/CVQ) plumbing programs. Develop tailored teaching materials aligned with the National Training Agency's standards for instructors.	National Training Agency, CSOs NGOs	50,000	1 year

**Objective 3.2:** Substantially increased water efficiency and the adoption of adaptation measures among water users, with an emphasis on the most vulnerable sectors

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
3.2-6	Approve and implement the draft National Drought Management Plan	NaDMA, Ministry w.r.f. Agriculture, NAWASA	250,000	3 years
3.2-7	Develop and facilitate the approval of the Drought Management Strategy for the Agriculture sector	Ministry w.r.f. Agriculture	15,000	3 years
3.2-8	Develop public education and media campaigns on the impact of climate change on the water resources	Ministry w.r.f. Works, Ministry w.r.f. Education	1, 000,000	4 years

**Objective 3.3:** More effective management of watersheds for enhanced water security

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
3.3-1	Improved management and centralization of soil data and incorporating new soil classification system to watershed management	Ministry w.r.f. Forestry and Agriculture	50,000	3 - 5 years
3.3-2	Develop a participatory National Water Resources Management Master Plan including heavy emphasis on GIS and digitalization for the sustainable development of water resources	WRMU	50,000	5 years
3.3-3	Develop watershed management plans for each major watershed that may include water balances: <ul style="list-style-type: none"> <li>- Calculate monthly water-budgets for each basin along with a final yearly water budget.</li> <li>- Conduct continuous analysis of the water budget using rainfall, evaporation and storage data to enable the effective management of water availability and projection into short, medium and long term time periods.</li> </ul>	WRMU	100,000	3 years

<b>Objective 3.3: More effective management of watersheds for enhanced water security</b>				
<b>#</b>	<b>Measures</b>	<b>Responsibility</b>	<b>Indicative cost (USD)</b>	<b>Timeline (2025-2030)</b>
3.3-4	<p>Establish a comprehensive, technology-integrated system for the collection, management, and analysis of meteorological and hydrological data in Grenada.</p> <p>The initiative will include:</p> <ul style="list-style-type: none"> <li>- Updating data on all existing water resources (both surface and groundwater) for Grenada, Carriacou, and Petite Martinique, including the precise locations of rainfall monitoring stations within each watershed.</li> <li>- Developing a national policy and standardized procedures for hydrometeorological data collection, accompanied by staff training to emphasize the importance and use of reliable data.</li> <li>- Conducting a full audit of existing data collection equipment used for monitoring rainfall and water resources, identifying deficiencies, and implementing necessary upgrades or replacements.</li> <li>- Installing stream stage monitoring devices (water level loggers or staff gauges) within the Chemin watershed to record water levels during and after flood events.</li> <li>- Training community members, along with staff from NAWASA and the Ministry of Health and the Environment, to read and interpret stage monitoring data for the creation of spatial flood maps based on recurrent flooding events.</li> <li>- Introducing a centralized IT Asset Management System within the water utility, integrated with GIS platforms, to enhance data sharing, resource tracking, and decision-making.</li> </ul>	<p>Ministry w.r.f. Works, Ministry w.r.f. Education, MoCRERE, Grenada MET Service, NAWASA</p>	200,000	1 year

**Objective 3.3: More effective management of watersheds for enhanced water security**

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
3.3-5	Implement Water Resources Investment Programme: <ul style="list-style-type: none"> <li>- Develop alternative modalities for water resources (solar-powered desalination plant, community-based rainwater harvesting).</li> <li>- Develop and start the implementation of a reforestation programme to improve watersheds, beginning with Carriacou (<i>Measure 5.3-8 also contributes to this</i>)</li> </ul>	WRMU, Ministry w.r.f. Forestry, MoCRERE, MCPMLG, CSOs NGOs	1, 000,000	3 years
3.3-6	For Carriacou/ PM: Rehabilitate /repair existing watershed areas and improve watershed management including the Dumfries Landfill	Ministry w.r.f. Works, PMLG, NAWASA	2, 000,000	2 years

**Objective 3.4: Enhance the management of water supply infrastructure to strengthen water security and system resilience.**

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
3.4-1	Increase surface storage including investigation into the following priority areas in the parish of Saint John: (i) Douglaston Water Dam (ii) Springs at Brooklyn Conduct a feasibility study to determine the best locations for additional surface storage and the type of storage	NAWASA	33,000,000	5 years
3.4-2	Improvement of distribution System and efficiency by implementing effective Non-Revenue Water measures and tools for enhanced monitoring of leakages	NAWASA	350,000	2 years
3.4-3	Extend a reticulated water supply system to main communities in the northern half of the island of Carriacou from the Sea Water Reverse Osmosis plant located at Beausejour in Hillsborough.	Ministry w.r.f. Works, MCPMLG, NAWASA	3,000,000	1 year

**Objective 3.4:** Enhance the management of water supply infrastructure to strengthen water security and system resilience.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
3.4-4	Commission a new low carbon Sea Water Reverse Osmosis facility for Carriacou to address water scarcity concerns that conform to WHO standards for drinking. Increase the production capacity to supply for at least 4000 people	NAWASA	5, 000,000	5 years
3.4-5	Increase the potable water storage capacity at up to 16 community health facilities and associated services by more than 50%, enhancing their resilience to extreme weather events and drought conditions. This measure will be implemented across four parishes in Grenada and on the island of Carriacou. <i>Activities will include the installation of drinking water storage tanks, as well as improvements to plumbing systems and/or rainwater harvesting infrastructure.</i>	NAWASA	2, 000,000	3 years
3.4-6	Minimize disruptions to Grenada’s water supply system by scaling up key interventions under the G-CREWS initiative. Recommended actions include the construction of check dams and retrofitting of river intakes; implementation of Supervisory Control and Data Acquisition systems for remote monitoring and control; and the development of a comprehensive emergency response plan.	NAWASA	5, 000,000	2 years





Local, smallholder farm featuring cultivation and the use of drip irrigation as a good agricultural practice

## Programme of Action 4: Food Security

### Goal

By 2030, citizens have stable, affordable and better access to safe, locally and climate-smart produced food, which are the three main pillars of food security.

**Objective 4.1** Increased availability of sector-specific climate vulnerability and risk information.

INDICATOR

**4.1.1** Completed climate vulnerability and risk assessment/s for the agri-food sector that targets 4 priority crops and livestock, and the transformational measures needed for adaptation.

**Objective 4.2** Policy, legal, and institutional frameworks to support climate-smart practices in the agriculture and fisheries sector are strengthened.

INDICATOR

**4.2.1** Update of 2 sectoral policies and/or strategic plans based on comprehensive vulnerability assessments that incorporate climate and gender considerations (e.g., Agriculture Policy and Strategic Plan, Drought Management Strategy for the Agriculture Sector).

**Objective 4.3** Substantially increase the technical capacities and technological options for climate-resilient agriculture and fisheries production systems.

INDICATORS

**4.3.1** A suite of technological options and solutions tailored for commercial and smallholder farmers and fisherfolk adopted to enhance climate resilience, aiming for broad accessibility and affordability.

**4.3.2** Submission of at least four major climate adaptation project proposals aimed at increasing food security, tailored to meet donor criteria, over a 5-year period. o **4.3.3** Increase the percentage of extension officers trained and actively providing climate adaptation solutions to the farming and fishing communities to 100% by the end of the 5-year period.

**4.3.3** Establishment and operationalization of four climate smart demonstration sites and a state-of-the-art farmer field school programme, reaching farmers across the tri-island state with hands-on training in climate adaptation practices.

**4.3.4** Opportunities and affordable access to innovative technologies and practices that convert agricultural and fisheries waste into valuable products, such as organic fertilizers, animal feed, or bioenergy, with adoption rates scaled according to farm size and production capacity.

**Objective 4.4** Increased disaster preparedness and social protection mechanisms for farmers, fisherfolk, and vulnerable households following adverse climatic events.

INDICATORS

**4.4.1** Two risk transfer schemes targeting farmers, fisherfolks, agro-processors, and vulnerable households approved and operational (i.e. Disaster Management Fund/Climatic Events Management Fund and Insurance Scheme)

**4.4.2** Food and nutrition early warning system in alignment with regional disaster response and relief protocols completed.

**Objective 4.5** Enhance the knowledge and understanding of climate impacts, vulnerabilities, risks, and resilience options among the farming and fishing communities.

INDICATOR

**4.5.1** Measurable enhancement of supportive knowledge, attitudes, and behaviors regarding climate change across the diverse farming and fishing communities, tailored to their specific needs and existing knowledge.

**Objective 4.6** Funding for resilience-building initiatives to enhance food security has increased by 40%.

INDICATORS

**4.6.1** At least 2 large project proposals with a food security focus addressing climatic risks developed, approved, and financed.

**4.6.2** Government allocations for food security in domestic budgets show a measurable increase, demonstrating enhanced commitment to funding resilience-building measures.

**4.6.2** Implementation of food safety protocols and practices within the funded projects, enhancing the quality, safety, and resilience of the food supply in response to climatic risks.

**APPROXIMATE BUDGET:**

USD 40,340,000

**LEAD AGENCY:**

Ministry w.r.f. Agriculture and Ministry w.r.f. Marine Affairs

## Overview

According to the latest National Ecosystem Assessment (NEA) for Grenada (2023), climate change significantly impacts the country’s agrifood sector, undermining agricultural productivity and food security. The assessment highlights the increasing frequency of extreme weather events, such as hurricanes and tropical storms, which devastate crops, livestock, and infrastructure, exemplifying the sector’s vulnerability. Additionally, shifting rainfall patterns have led to prolonged droughts and water scarcity, adversely affecting crop yields and livestock health. Rising sea levels contribute to coastal erosion and saltwater intrusion into freshwater systems, jeopardizing arable land and water quality, particularly in coastal agricultural areas. Warmer temperatures and changing precipitation patterns have also facilitated the proliferation of pests and diseases, further threatening crop productivity. Soil degradation caused by heavy rainfall and drought exacerbates these challenges, diminishing soil fertility and overall agricultural output. The assessment emphasizes the urgent need for adaptive measures, including climate-smart agricultural practices, improved water management, pest and disease monitoring, and sustainable land management, to safeguard Grenada’s agrifood sector against the adverse effects of climate change (Caribbean Natural Resources Institute, 2023).

The three main pillars of food security are affordability, accessibility, and availability. Grenada’s Medium-Term Action Plan (MTAP) 2022–2024 prioritizes these pillars within the realms of food and nutrition security, aligning with key goals of the Ministry of Agriculture and Lands, Fisheries & Cooperatives and the Ministry of Carriacou and Petite Martinique Affairs and Local Government, as well as the broader GoG. A significant emphasis is also placed on enhancing farmers’ capabilities in climate-smart agriculture, in collaboration with ministry partners (GoG, 2021).

The National Export Strategy (2017–2021) designates agriculture and fisheries as critical sectors. Additionally, the development of Grenada’s Blue Economy is a strategic focus, given its integral connection to fishing, as well as the health of coastal and marine ecosystems. Leveraging the Blue Economy’s synergies could substantially improve the climate resilience of the fisheries sector and related areas (GoG, 2017). Furthermore, the National Sustainable Development Plan (NSDP) 2020–2035 specifically targets fisheries and agriculture under its second goal: “Vibrant, Dynamic, Competitive Economy with Supporting Climate-and-Disaster Resilient Infrastructure.” This plan recognizes the agricultural sector’s adaptation to climate change as a priority (GoGa, 2019).

The NSDP lists four key areas relevant to climate resilient agriculture and fisheries:

- a) Facilitate the widespread application of climate-smart practices throughout the sector;
- b) Modernise irrigation systems and practices including capitalizing energy efficiency gains by introducing renewable energy where possible;
- c) Increase organic production to reduce the reliance on chemicals and pesticides and better support healthy eating;
- d) Strengthen hazard mitigation for the sector. Also, a comprehensive agricultural insurance framework must be developed.

The NSDP emphasizes the necessity of systematic improvements in zoning, land use planning, and management to aid the agricultural sector’s adaptation to climate change. The finalization and implementation of the National Land Policy are critical components of this strategy (National Plan Secretariat, 2021). Enhancing the resilience of the agri-food sector also requires significant advancements in agricultural research and development, farmer incentives, and a commitment to long-term, sustainable, and climate-smart production methods. To address the disproportionate impact of climate change on smallholder producers, there is an urgent need for increased access to climate information and innovative technologies, as recommended by the Global Commission on Adaptation in 2019.

Building on this foundation, the modernization of irrigation systems and practices is also crucial. Although some progress has been made with the introduction of innovative technologies to improve water efficiency and productivity across agricultural sectors, there is a substantial opportunity to expand upon the successes of existing AI irrigation pilot projects, such as those implemented by the Global Water Partnership (GWP).

Furthermore, strengthening the capacity for food security is essential, particularly in addressing the hazards associated with natural hazards and disasters. This necessitates the development of a comprehensive agricultural insurance framework and the modernization of hazard mitigation practices to provide robust protection for the sector.

## Current Situation

The NAP Progress Report 2022 reported completion of 14.3% measures in POA 4. In addition, almost one-third of planned actions were reported as ongoing and continuous (28.6%) and partially completed (28.6%) (GoG, 2022). The highly complex nature of four of every five measures in POA 4 (42.9%) could have hindered more aggressive implementation (GoG, 2022).

Measures from the NAP 2017-2021 reported as completed are:

- 4.5 Integration of climate change considerations applying the CCORAL (Caribbean climate online risk and adaptation tool) Tool in at least two programmes or policies for the agriculture and fisheries sectors.

- 4.10 Train more agriculture technicians in climate-smart agriculture (CSA) techniques and in monitoring the application of the new techniques.
- 4.24 Develop and mobilise resources for implementing a national fire prevention programme for the agricultural sector.
- 4.27 Develop at least one larger project proposal to support food security in times of climate change induced stress in the production sector

## Priority Actions

- i. Continue developing strategies to decrease reliance on imported food. Complete and thoroughly review the ongoing vulnerability assessment of the agri-food sector initiated during the COVID-19 pandemic, as an essential next step.
- ii. Climate vulnerability and risk assessments for the agriculture and fisheries subsectors should be conducted or continued to be conducted in some instances (like for the agrifood sector) to inform future planning.
- iii. Continue to provide technical support and incentives to farmers and fisherfolk to increase the adoption of recommended adaptation measures especially those where there are clear mitigation co-benefits. These adaptation measures include manure management and the promotion of bio-gas production.
- iv. Innovative technologies such as crop forecasting and drone technology should be integrated throughout the agri-food value chain to reduce vulnerabilities and build climate resilience.
- v. Climate-smart production systems need to be further developed and explained for clarity to enhance understanding and implementation.
- vi. Timely climate information must be provided to the farming and fishing communities.
- vii. Transformational climate education programs should be developed and implemented across all levels of education, from preschool to adult learning, to ensure long-term sustainability and awareness to climate challenges and food implications.
- viii. Efforts to mobilize and absorb available financing must be increased to strengthen national capacities for food security.
- ix. Risk transfer schemes and social protection programs must be established for more effective post-disaster recovery.
- x. Investment in climate research to support evidence-based programming, analyses and development of protocols.
- xi. Prioritize the completion of investigations into agriculture and fisheries insurance options and new risk transfer instruments by developing relevant policies and incentives, while actively engaging stakeholders to identify and address any remaining aspects of risk transfer
- xii. Prioritize the continuous enhancement of the agricultural gene bank at Mirabeau Plant Propagation Station, ensuring comprehensive management of both crop and livestock genetic materials. Engage with stakeholders to identify specific gaps in genetic resource management and distribution, particularly focusing on refining the effectiveness of seed and breed distribution programs through collaborations with IICA and SAEP to support vulnerable communities.
- xiii. Prioritize formalizing the Farmer Field School program by developing a clear curriculum, training facilitators, securing resources for field activities, and establishing a framework to track the adoption of climate-smart practices and assess the program's effectiveness.

## Tabulation of Specific Measures, Responsibilities, Costs, and Timelines for Achieving Each Objective

<b>Objective 4.1: Improve availability of sector-specific climate vulnerability data.</b>				
<b>#</b>	<b>Measures</b>	<b>Responsibility</b>	<b>Indicative cost (USD)</b>	<b>Timeline (2025-2030)</b>
4.1-1	Undertake technical vulnerability analysis to improve understanding of survival and productivity of current crop and livestock varieties to include recommendation of alternative resilient options.	Ministry w.r.f. Agriculture	300,000	5 years
4.1-2	Implement a comprehensive database system to gather, analyze, and forecast agricultural data, enabling predictions on crop yields, market trends, and potential risks such as pests and diseases, with field officers contributing real-time data to enhance the accuracy and timeliness of the forecasts	Ministry w.r.f. Agriculture	1,500,000	5 years
4.1-3	Deploy advanced physical monitoring technologies, such as drones and field sensors, alongside field officers for realtime monitoring of plant health, early detection of physiological stress, and identification of pests or diseases, ensuring timely interventions and improved agricultural productivity	Ministry w.r.f. Agriculture	400,000	5 years
4.1-4	Undertake a vulnerability analysis to improve understanding of the impacts of climate change on 5 to 10 commercial marine fisheries stocks (given that cost, and timeline is dependent on the number of species assessed)	Ministry w.r.f. Marine Affairs	2,000,000	5 years

**Objective 4.2:** Policy, legal, and institutional frameworks to support climate-smart practices in the agriculture and fisheries sector are strengthened.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
4.2-1	Train key stakeholders in the use of the CCORAL tool to enhance the resilience of policy, legal, and institutional frameworks, ensuring climate-proofing of workplans and corporate plans in the agriculture and fisheries sectors.	MocRERE	20,000	3 years
4.2-2	Establish a pilot demonstration site at Mirabeau Farm School to implement and showcase a new climate-smart agriculture system, incorporating greywater reuse and other sustainable practices to enhance resource efficiency	Ministry w.r.f. Agriculture, Ministry w.r.f. Finance	5, 000,000	5 years
4.2-3	Facilitate the adoption of good agricultural practices (e.g. use, low-cadmium fertilizers) with testing and guidance from the Grenada Produce Chemist Laboratory.	Ministry w.r.f. Agriculture, Grenada Bureau of Standards Grenada Produce Chemist Laboratory Produce	300,000	3 years

**Objective 4.3:** Substantially increase the technical capacities and technological options for climate-resilient agriculture and fisheries production systems.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
4.3-1	Enhance technical capacity for climate-smart agriculture in the Chemin Watershed by offering comprehensive refresher courses and new training programs to agricultural technicians and farmers, emphasizing drought-resilient techniques and effective monitoring of their implementation.	Ministry w.r.f. Agriculture, MCPMLG, CARDI, IICA, WRMU	1,000,000	5 years

**Objective 4.3:** Substantially increase the technical capacities and technological options for climate-resilient agriculture and fisheries production systems.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
4.3-2	Continue developing the four established climate-smart agriculture demonstration sites at Grand Bras Estate, Mirabeau Plant Propagation Station, and the two land bank pilot sites at Diamond and Grand Bacolet Estates to showcase a variety of technologies and techniques that promote sustainable agricultural practices with particular focus on manure management and biogas production and the use of renewable energy	Ministry w.r.f. Agriculture	2, 000,000	4 years
4.3-3	Expand the range of technological options and solutions for production, post-harvest handling, and agroprocessing, emphasizing innovation in both traditional and emerging crops.	Ministry w.r.f. Agriculture, MNIB, MCPMLG, IICA, Windward Islands Research & Education Foundation (WINDREF), Bureau of Standards	2, 000,000	5 years
4.3-4	Collaborate with farmers and fisherfolk to implement agro-production projects— such as apiculture, aquaculture, and livestock farming—to adapt to landscape changes caused by climate impacts, ensuring ongoing and continuous participation, with a target of engaging 50,000 people.	Ministry w.r.f. Agriculture, Ministry w.r.f. Lands	5, 000,000	5 years
4.3-5	Finalize the design and begin implementing responses to the results of the soil fertility mapping for sustainable agriculture in Grenada, building on the partially completed review of the 1950s map. Ensure that the Ministry of Agriculture’s identified responses are put into action, addressing delays caused by the COVID-19 pandemic	Ministry w.r.f. Agriculture	400,000	3 years

**Objective 4.3:** Substantially increase the technical capacities and technological options for climate-resilient agriculture and fisheries production systems.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
4.3-6	Establish a formal Farmer Field School program with a clear curriculum, trained facilitators, and field activities to encourage and monitor the uptake of climate-smart agricultural practices, while systematically providing climate change information and educating farmers on adaptation measures.	Ministry w.r.f. Agriculture, MCPMLG, IICA	250, 000	5 years
4.3-7	Maintain and recover genetic resources necessary for sustainable agriculture, e.g. by establishing agricultural crop gene bank and livestock, implementing local seed and breed distribution programme for vulnerable households.	Ministry w.r.f. Agriculture, CPMLG, CARDI, UWI	7, 000,000	2 years
4.3-8	Introduce construction codes for hurricane resistant poultry units including the use of renewable energy	Ministry w.r.f. Agriculture, MCPMLG, PDA	20,000	3 years

**Objective 4.4:** Increased disaster preparedness and social protection mechanisms for farmers, fisherfolk, and vulnerable households following adverse climatic events.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
4.4-1	Investigate agriculture/fishing options and new risk transfer instruments, develop respective policies and incentives.	Ministry w.r.f. Agriculture, Ministry w.r.f. Marine Affairs, MCPMLG	2,000,000	5 years
4.4-2	Develop a food and nutrition security alert system to identify and address inadequacies in the food supply for both local consumption and export markets.	Ministry w.r.f. Agriculture, MCPMLG	500,000	3 years

**Objective 4.5:** Knowledge and understanding about climate impacts, vulnerabilities, risks and resilience options increased among the farming and fishing communities.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
4.5-1	Launch a 'Climate Solution Expo' to increase knowledge among farming and fishing communities about climate risks and resilience strategies, focusing on practical lessons for vulnerable households by 2030.	Ministry w.r.f. Agriculture, MoCRERE	1,500,000	3 years
4.5-2	Continue to promote permaculture among farming communities to optimize land use and enhance resilience to climate impacts such as drought, erosion, temperature variability etc.	Ministry w.r.f. Agriculture	2,000,000	Ongoing
4.5-3	Develop educational campaigns for farmers/extension officers on soil conservation practices, water conservation measures and soil water management systems practices. Educate fisher folks in use of sustainable fishing practices e.g. appropriate fishing equipment.	Ministry w.r.f. Agriculture, MCPMLG	250, 000	2 years
4.5-4	Develop and implement an educational initiative that prevents the destruction of windbreaks and continue promoting their establishment and re-establishment within agroforestry efforts.	Ministry w.r.f. Agriculture, MCPMLG	300,000	1 year
4.5-5	Incorporate and enhance traditional and contemporary pest management techniques to improve sustainability and increase farmers' knowledge of effective practices, reducing reliance on chemical pesticides.	Ministry w.r.f. Agriculture - Pest Management Unit	500,000	2 years
4.5-6	Develop a comprehensive curriculum for all educational levels, from preschool to adult learning, and initiate educational workshops and workshop series for communities focusing on climate science, sustainable practices, and food system implications	Ministry w.r.f. Education, Ministry w.r.f. Agriculture	1,000,000	5 years

**Objective 4.6:** Funding for resilience-building initiatives to enhance food security has increased by 40%.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
4.6-1	Continue diversifying from low yield/ low return agricultural production by advancing the development and implementation of an Agricultural Export Development Training grant to support government agencies in developing countries with marketing, promotions, product development, and quality improvement, while also providing targeted capacity-building and export training for farmers and agribusinesses to enhance their competitiveness and market access.	Ministry w.r.f Agriculture, Grenada Food and Nutrition Council (GFNC)	2,000,000	3 years
4.6-2	Build on the completed project proposal by developing a follow-up proposal to support food security in times of climate change induced stress, using the initial proposal and its development process as a learning opportunity to inform and enhance future proposals, with the potential to increase the number of proposals submitted over time	National Authority for Zero Hunger Initiative Research, GFNC, Ministry w.r.f. Agriculture	300,000	3 years
4.6-3	Develop a disaster management investment fund to support farmers to mitigate and respond to climate impacts and challenges.	Ministry w.r.f. Agriculture, Grenada Development Bank (GDB)	2,000,000	4 years
4.6-4	Implement strategies to reduce food import dependency by conducting a baseline survey to determine current import levels and targeted reductions. Focus on increasing local agricultural production, improving processing capacities, and making local produce more affordable, aligned with the “25 by 25” initiative.	Ministry w.r.f. Agriculture, Ministry w.r.f. Finance, GFNC	800,000	5 years





View of Levera Pond from Historic Welcome Stone, St. Patrick

## Programme of Action 5: Ecosystem Resilience

### Goal

Strengthen the sustainable management and protection of Grenada's land, key ecosystems, and protected areas by 2030, to enhance resilience to climate impact.

**Objective 5.1** Policy, legal, regulatory, and institutional framework to build resilience of important ecosystems and land resources improved by the end of 2030 .

INDICATOR

**5.1.1** Enactment of two legal and/or regulatory instruments to effect ecosystem conservation and sustainable land management (i.e the Climate Resilience, Environment and Natural Resource Bill; instrument to implement the National Land Policy, and/or the Forest, Wildlife and Conservation Bill).

**Objective 5.2** Increased availability of ecosystem data and monitoring of critical ecosystems, with a particular focus on protected areas by end of 2030.

INDICATORS

**5.2.1** Climate research and ecological monitoring programmes expanded to incorporate 4 terrestrial and marine ecosystems (2 new MPAs and 2 additional ecosystems) with data available via publicly accessed online platform.

**5.2.2** Climate vulnerability and risk assessment for dry forest ecosystems inclusive of opportunities for sustainable livelihood completed.

**Objective 5.3** Ecosystem resilience and capacities for providing livelihood options strengthened/increased by 2030.

INDICATORS

**5.3.1** Protect and manage 25% of Grenada’s marine, coastal and terrestrial ecosystems by 2030.

**5.3.2** Participatory-based reforestation/ afforestation of degraded lands increased by 40%.

**Objective 5.4** Increased awareness about ecosystem-based adaptation and its benefits for sustainable development and coastal protection (and Sustainable Land Management [SLM]).

INDICATOR

**5.4.1** Levels of knowledge increase by 40%

**APPROXIMATE BUDGET:**

USD 35,860,000

**LEAD AGENCY:**

Ministry of Climate Resilience, the Environment and Renewable Energy (in close collaboration with Ministry w.r.f. Marine Affairs [Coastal Zone Management Unit] and Ministry w.r.f. Forestry)

## Overview

The term ‘resilience’ in ecology refers to an ecosystem’s capacity to absorb disturbances without shifting to an alternative state and losing function and services. This concept encompasses two distinct processes: resistance—the magnitude of disturbance that causes a change in structure— and recovery—the speed of return to the original structure (Côté & Darling, 2010).

According to Grenada’s National Ecosystem Assessment (NEA) 2023, the nation’s ecosystems play a pivotal role in enhancing resilience against climate change. The NEA emphasizes that healthy ecosystems, such as mangroves, coral reefs, and forests, provide essential services that mitigate climate impacts. For instance, mangroves and coral reefs act as natural barriers, reducing coastal erosion and buffering against storm surges, while forests contribute to carbon sequestration and regulate water cycles, supporting agricultural productivity and water security. However, these ecosystems face growing pressures from human activities and climate stressors.

A recent example is the construction of a new resort and luxury hotel, which resulted in the loss of white mangroves and buttonwood at La Sagesse, Grenada (BirdsCaribbean, 2020). It is further projected that mangrove vegetation will be lost at Mt. Hartman Estate, a private property adjacent to the Woburn Clarks Court Bay Marine Park, due to the proposed construction of a resort and marina, and at the Levera Ramsar wetland, due to plans for a mega-resort (BirdsCaribbean, 2020; Buckmire et al., 2022). The NEA underscores the urgent need for integrated management approaches that conserve and restore these ecosystems to maintain their resilience and the critical services they provide for sustainable development and climate adaptation (Caribbean Natural Resources Institute, 2023).

Grenada’s National Biodiversity Strategy and Action Plan (NBSAP) 2016–2020 aligns with these findings, emphasizing the integration of biodiversity conservation into national decision-making and the mainstreaming of sustainable use across all sectors of the national economy. The NBSAP highlights the importance of preserving critical ecosystems to safeguard the nation’s biodiversity and enhance resilience against climate change (GoG, 2016b)

According to the Grenada National Ecosystem Assessment, Summary for Policy Makers (2024), human activities that lead to changes in land use, hydrology, nutrient cycles, or increased pollution can reduce the resilience of ecosystems, especially when coupled with changing climate conditions. Key ecosystems identified within this Programme Area of Action include forests, mangroves, coral reefs, seagrass beds, beaches, and dry forests. In terms of management interventions, Grenada’s legislative framework is composed of a range of fragmented laws, policies, and plans, resulting in limited institutional coordination for effective ecosystem protection. There remains a pressing need for comprehensive legislation or overarching frameworks—such as the proposed Environmental Management Bill—that facilitate coordinated ecosystem management. Furthermore, the decentralization of ecosystem management from the historically centralized, colonial system has been highlighted, with co-management legislation—particularly in the fisheries sector and for mangrove conservation—recognized as a key approach to implementing conservation programmes.

In terms of physical development and mitigating the impacts of human activities on ecosystems, the Physical Development Planning Acts provide mechanisms for environmental protection through the Environmental Impact Assessment (EIA) framework. Recommendations have been made to improve this process. Other management interventions listed as part of ecosystem resilience include establishing biodiversity corridors, effective management of protected areas, ecosystem monitoring and mapping, ecosystem rehabilitation, and the management of invasive species, particularly the invasive lionfish.

Ecosystem-based adaptation is recognized as an overall adaptation strategy to reduce the effects of climate change, acknowledging that the natural environment is the nation’s first line of defense. As a result, an entire objective focused on increasing awareness of ecosystem-based adaptation was highlighted in this Programme Area of Action, prioritizing the need to include and introduce ecosystem valuation studies, particularly those that can help inform development goals and priorities.

Forests and marine ecosystems (mangroves, seagrass beds, and coral reefs) are crucial parts of the climate solution and critical to Grenada achieving its Nationally Determined Contributions (NDC) targets. However, conserving, protecting, and sustainably managing forests and marine ecosystems requires up-to-date, unbiased, accurate, and transparent information, as well as the capacity to generate such information. For example, the Forest Emission Reduction Programme will allow Grenada to engage all stakeholders in forest management and apply locally led adaptation solutions, building the necessary information systems to track forest carbon stocks and monitor interventions that help reduce emissions (National Forest Monitoring System).

## Current Situation

Within the NAP Progress Report, POA 5 reported the completion of 3% of planned measures. More than half of all measures (57.6%) were reported as partially completed, with an additional 15.2% considered ongoing or continuing. One completed measure was reported from the NAP 2017–2021 period: 5.13 Adopted a “Ridge to Reef” approach in Moliniere/Beausejour and in other watersheds adjacent to MPAs. In relation to legislative progress, efforts to finalize Grenada’s Environment Bill are ongoing.

While the bill is referenced in national documents such as the National Ecosystem Assessment (2023), a finalized version has not yet been made publicly available. The most recent draft dates back to 2018 and proposes a comprehensive framework for environmental management and biodiversity conservation. In late 2024, the Environment Division confirmed that revisions were in progress as part of updates to the National Environmental Management Strategy and supporting legislation. However, as of April 2025, no official publication of the final bill has been released.

## Priority Actions

- i. Use of nature-based solutions and ecosystem-based approaches to resource management.
- ii. Augmentation of the legislative and regulatory frameworks, and enforcement capacities for sustainable management of land and natural resources.
- iii. Continue the expansion of the protected area estate with improved focus on management, research, and monitoring.
- iv. Large-scale restoration and management of degraded and vulnerable lands, particularly on the island of Carriacou. “Carry a Tree to Carriacou” Campaign
- v. Implementation of select priority measures in the Carriacou and Grenada Land Use Policies.
- vi. Strengthened human resource capital in key government ministries.

**Tabulation of Specific Measures, Responsibilities, Costs, and Timelines for Achieving Each Objective**

**Objective 5.1: Policy, legal, regulatory and institutional framework to build resilience of important ecosystems and land resources improved by the end of 2030.**

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
5.1-1	Institutionalization of co management structures through policy and legislation. Formal legal arrangements that will legitimize local co management specific to (i) fisheries sector (ii) management of mangroves. Include legislation for the conservation of private lands	Ministry w.r.f. Forestry, Ministry w.r.f. Fisheries, Ministry w.r.f. Legal Affairs, PDA Ministry w.r.f. Environment MCPMLG	2,000,000	5 years
5.1-2	Finalize draft Sustainable Development Trust Act and enforce once enacted Grenada Sustainable Development Trust Fund	Ministry w.r.f. Fisheries, Ministry w.r.f. Environment MCPMLG	450,000	3 years
5.1-3	Finalize and pass Environment Bill 2024	Ministry w.r.f. Environment	150,000	2 years
5.1-4	Management of Wild Game populations through the monitoring and implementation of seasonal closure	Ministry w.r.f. Marine Affairs MCPMLG, Ministry w.r.f. Environment Ministry w.r.f. Forestry, NGOs	2,000,000	5 years

**Objective 5.2: Availability of ecosystem data and monitoring of critical ecosystems, with a particular focus on protected areas strengthened by end of 2030.**

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
5.2-1	Launch a user-friendly and accessible Protected Areas data collection system and database for reporting on key targets, including Marine Protected Areas (MPAs), water quality, and other environmental indicators.	Ministry w.r.f. Marine Affairs, MCPMLG MoCRERE, Ministry w.r.f. Health, Ministry w.r.f. Land Use, NAWASA, WRMU	1,000,000	2 years

**Objective 5.2:** Availability of ecosystem data and monitoring of critical ecosystems, with a particular focus on protected areas strengthened by end of 2030.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
5.2-2	Conduct biophysical monitoring of coral reef in all of Grenada’s MPAs using the GSTDF (AGGRA) survey as a baseline. More particularly conduct assessment to help understand key pressures including diving pressures i.e. acceptable diving limits (frequency and # of divers).	Ministry w.r.f. Marine Affairs, Coastal Zone Task Force, MoCRERE MCPMLG, Ministry w.r.f. Tourism, Dive Association	200,000	5 years
5.2-3	Continue and expand lionfish and sargassum monitoring and reporting including other invasives through citizen science.	Ministry w.r.f. Marine Affairs, Dive Associations, MCPMLG	500,000	4 years
5.2-4	Mangrove and dry forest monitoring and mapping using satellite imagery. Identify ownership of mapped areas to strategically replant littoral and mangrove forests.	Ministry w.r.f. Forestry, MoCRERE, Coastal Zone Task Force, MCPMLG	2,500,000	5 years
5.2-5	Conduct vulnerability assessment of dry forest ecosystems focusing on climatic hazards and human pressures.	MoCRERE, Ministry w.r.f. Forestry, MCPMLG	200,000	4 years

**Objective 5.3:** Ecosystem Resilience and Capacities for providing livelihood options strengthened/ increased by 2030.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
5.3-1	Establish Marine Protected Area (MPA)-biodiversity corridors by 2030, including a south-east and eastern corridor linking established MPAs in Woburn, Grand Anse, and Molinère/ Beauséjour, and proposed MPA in Gouyave; as well as a corridor among proposed MPA in Levera, White Island and established MPA-Sandy Island Oyster-bed, in Carriacou (to encourage ecological connectivity)	Ministry w.r.f. Marine Affairs MCPMLG, Ministry w.r.f. Forestry	7,500,000	5 years

**Objective 5.3: Ecosystem Resilience and Capacities for providing livelihood options strengthened/ increased by 2030.**

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
5.3-2	Develop an MPA Policy and Action Plan including the update of the Sandy Island Oyster Bed MPA Action Plan (2015 -2025)	Ministry w.r.f. Marine Affairs, MCPMLG	500,000	2 years
5.3-3	Develop a zoning plan for the Sandy Island Oyster Bed MPA including “no take” areas and other areas that permit nondestructive fishing practices, maintain mooring buoys, removal of derelict vessels and other debris etc.	MCPMLG, Ministry w.r.f. Marine Affairs	Covered under 5.32	3 years
5.3-4	Establish and expand coral nurseries and artificial reefs based on genetic and science research, in key locations including Grand Anse, Gouyave and Carriacou (Windward, Mabuya) in conjunction with local coastal communities for costal protection and research and dive marketing.	Ministry w.r.f. Marine Affairs, MoCRERE. Coastal Zone Taskforce, Dive Association, SGU, MCPMLG, Grenada Coral Reef Foundation, WINDREF	3, 000,000	5 years
5.3-5	Provide infrastructure support for the management and enforcement for new and existing MPA sites and within yachting zones including procurement of mooring buoys, patrol boats and hiring of field officers and rangers	Ministry w.r.f. Marine Affairs, Port Authority	5,000,000	4 years
5.3-6	Expand existing lionfish management program including the training of more fishers (especially those in remote areas) in collection and handling protocol, first aid and medical responders	Ministry w.r.f. Marine Affairs	100,000	3 years
5.3-7	Develop reforestation plan and program to replant degraded forests on the island of Carriacou and Petite Martinique and implement livelihood actions that support forest protection and terrestrial management	Forestry, MCPLG	500,000	5 years

**Objective 5.3: Ecosystem Resilience and Capacities for providing livelihood options strengthened/ increased by 2030.**

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
5.3-8	<p>Launch (Return) the “Carry a Tree to Carriacou and Petite Martinique” tree planning campaign that will:</p> <ul style="list-style-type: none"> <li>- Contribute to reducing soil erosion, improving soil fertility, beautifying and enhancing the environment, providing timber and other products and maintain biodiversity, encourage stakeholders (e.g. schools and other community groups/organisations) in tree planting in urban and rural areas.</li> <li>- Create incentives for tree planting on private lands.</li> <li>- Establish a tree seedling distribution programme for communities by the Forestry Department to support the tree planting programme .</li> <li>- Strengthen the Forestry Department’s extension services to control indiscriminate cutting of trees.</li> </ul>	<p>Ministry w.r.f. Forestry, Ministry w.r.f. Environment, MCPLG, NGOs, Civil Society, Ministry w.r.f. Agriculture</p>	500,000	5 years
5.3-9	<p>Identify sustainable practices for harvesting mangroves and implement programmes to promote sustainable use and protection of mangroves, including community co-management and alternative livelihoods.</p>	<p>Ministry w.r.f. Marine Affairs, Ministry w.r.f. Environment, Coastal Zone Taskforce. MCPMLG, Other major players: WINDREF KIDO Foundation, Grenada Fund for Conservation, Kipaji Development Initiative</p>	200,000	3 years
5.3-10	<p>Develop a programme to manage bamboo (promote for charcoal and arts, craft and furniture), mongoose and other invasive species.</p>	<p>Ministry w.r.f. Forestry, Ministry w.r.f. Environment, MCPMLG Ministry w.r.f. Agriculture- Vet Livestock- Ministry of Health- Vector Control</p>	1, 000,000	3 years

**Objective 5.3:** Ecosystem Resilience and Capacities for providing livelihood options strengthened/ increased by 2030.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
5.3-11	Use and further develop pilot projects to encourage participation of tourists in ecosystem management related efforts (e.g. charges for lionfish hunting, "adopt a mangrove", "adopt a coral" initiatives, plant a tree to reduce carbon footprint) and improve marketing of relevant eco-tourism sites.	Ministry w.r.f. Marine Affairs, Ministry w.r.f. Tourism, MoCRERE MCPMLG SPECTO, Ocean Sprits	200,000	4 years
5.3-12	Conduct research, develop and invest in action plans and project proposals with high feasibility and practicality for managing, harvesting, and utilizing sargassum, complemented by the execution of a small pilot demonstration project.	Ministry w.r.f. Marine Affairs, MoCRERE Sargassum Taskforce, Coastal Zone Taskforce, MCPMLG.	2,000,000	3 years
5.3-13	Replant and restore the mangrove population across Carriacou and Petite Martinique, with a special focus on Windward, Lauriston, and the Marine Protected Areas (MPAs), to replace losses caused by Hurricane Beryl.	MCPMLG Ministry w.r.f. Forestry, Ministry w.r.f. Marine Affairs MoCRERE KIDO	500,000	1 year
5.3-14	Eliminate inappropriate solid waste disposal through enforcement, cleanup initiatives, and public awareness in MPAs, as a model for national action.	MCPMLG Ministry w.r.f. Forestry, MoCRERE. Grenada Solid Waste Management Authority (GSWMA) Ministry w.r.f. Marine Affairs	500,000	4 years
5.3-15	Implement the Coastal Restoration Plan for Carriacou and Petite Martinique (CPM) developed by OECS.	MCPMLG Coastal Zone Taskforce Ministry w.r.f. Forestry		

**Objective 5.4:** Increase awareness about ecosystem-based adaptation and its benefits for sustainable development and coastal protection (and SLM).

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
5.4-1	MPA awareness raising: Conduct public awareness, education and interpretation activities and information sessions for local communities, concerned authorities and stakeholders to highlight the values, potential benefits and vulnerability of the MPA resources, to increase awareness of the value and vulnerability of coral reefs, and on the negative impact of inappropriate practices such as sand mining or non-selective fishing, on MPA zoning and rules, applicable regulations and enforcement.	Ministry w.r.f. Marine Affairs, MoCRERE, Ministry w.r.f. Education, MCPMLG Coastal Zone Management Unit	1,000,000	4 years
5.4-2	Conduct ecosystem valuation studies in key coastal areas particularly for the parish of Saint David to advocate for the benefits of ecosystem conservation and restoration to reduce vulnerability to climatic hazards and human pressures.	MoCRERE Ministry w.r.f. Marine Affairs MCPMLG NGOs e.g. EPIC, OCEAN SPIRITS	1,300,000	2 years
5.4-3	Conduct participatory mapping activities together with communities, government officials and the private sector to understand and identify coastal assets and ecosystem services within key areas particularly the parish of Saint David.	MoCRERE Ministry w.r.f. Marine Affairs, Coastal Zone Taskforce, NGO's and CBO's	800,000	2 years
5.4-4	Expand the 'Reef Guardians' outreach and education programme, particularly, Moliniere/Beausejour MPA, Saint John MPA and to all the other MPAs.	Ministry w.r.f. Marine Affairs, MCPMLG Coral Reef Foundation	1,000,000	2 years

**Objective 5.4:** Increase awareness about ecosystem-based adaptation and its benefits for sustainable development and coastal protection (and SLM).

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
5.4-5	Conduct programmes to raise awareness about the role of herbivore fish in reef health including sea urchins & hawksbill turtles.	Ministry w.r.f. Marine Affairs, MCPMLG Collab. With major players: KIDO, SPECTO Ocean Spirits	500,000	4 years
5.4-6	Organize and participate in information sharing events (conferences, seminars) about marine management.	Ministry w.r.f. Marine Affairs MCPMLG CBOs, CSOs, All stakeholders.	500,000	5 years
5.4-7	Conduct programmes to increase awareness on the importance of mangroves.	Ministry w.r.f. Forestry, MoCRERE, MCPMLG	80,000	5 years
5.4-8	Promote more lionfish consumption in collaboration with the private sector and hotels.	Ministry w.r.f. Marine Affairs, MCPMLG	80,000	5 years
5.4-9	Increase awareness in communities and among science and geography teachers on the benefits of coastal protection; adopt a river; MPAs and Ridge to Reef.	Ministry w.r.f. Education	200,000	5 years





Grand Anse Beach, St. George

## Programme of Action 6: Integrated Coastal Zone Management (ICZM)

### Goal

Effective integrated management of the coastal zones of the tri-island state by end of 2030.

**Objective 6.1** Initiate the development of a database on relevant ecosystems and coastal structures.

INDICATORS

**6.1.1** A comprehensive database is established that includes all identified private and governmental coastal structures within the target area. o 6.1.2 The database is integrated with existing coastal management tools to enhance its utility and accessibility.

**6.1.2** The database is regularly used in making regulatory decisions or planning coastal development projects, reflecting its practical value.

**Objective 6.2** Improve technical capacity for integrated coastal zone management.

INDICATORS

**6.2.1** A specific number of beach profiles are completed annually to measure progress and ensure coverage of necessary areas.

**6.2.2** Profile data from the beaches is used effectively in making informed coastal management decisions.

**6.2.3** Beach stabilization projects show improvement based on the data collected from the beach profiles, demonstrating a direct impact on environmental management efforts.

**Objective 6.3** Improve legal and institutional arrangements for effective ICZM established and implemented.

INDICATORS

**6.3.1** A Coastal Zone Management Unit is established and active.

**6.3.2** Coastal zone plan is cabinet approved.

**6.3.3** Legislation supporting the Coastal Zone Policy is accompanied by enacted regulations, adequately trained staff, and the institutional capacity necessary for effective implementation.

**Objective 6.4** Plan and Simultaneously Execute Coastal Restoration and Resilience Efforts for Carriacou.

INDICATORS

**6.4.1** Percentage of Coastal Areas Restored or Rehabilitated.

**6.4.2** Reduction in Sand Mining Activities and Increased Use of Sustainable Building Materials

**APPROXIMATE BUDGET:**

USD 19,850,000

**LEAD AGENCY:**

Ministry w.r.f. Environment (in close collaboration with Ministry w.r.f. Marine Affairs [Coastal Zone Management Unit])

## Overview

As an island state, integrated coastal zone management (ICZM) is central to climate change adaptation and disaster risk management. Within the last decade a number of notable achievements were achieved in strengthening the systemic framework for ICZM. Key among these was the completion of the Coastal Zone Management Policy in 2015. Subsequently, the ICZM Act for Grenada, Carriacou and Petite Martinique was passed in 2019, however, it was not yet formally implemented. In addition, a Coastal Zone Management Unit, which is responsible for implementing an integrated framework for coastal zone management, has not yet been established. These deficiencies in the policy, legal, and institutional framework continue to delay more effective management of the coastal zone. It is important to recognize the significance of marine protected areas along Grenada's coastal zones. By 2035, Grenada aims to designate 50% of its marine areas as protected, as outlined in the National Sustainable Development Plan (NSDP) 2020-2035. While this increase is targeted under the NSDP, there are several monitoring and enforcement challenges that need addressing both existing and proposed marine protected areas, which this POA also seeks to address.

The coastal zone is also increasingly threatened by climatic hazards. The devastation wrought by Hurricane Beryl on July 1 highlighted the acute susceptibility of these areas to such events. The hurricane exacerbated the already critical conditions caused by sea level rise and increased wave energy, further aggravated by anthropogenic activities. These factors are already threatening select parts of the coastal zone, such as Tibeau Carriacou, Madame Pierre Petite Martinique, and Conference Bay mainland Grenada, where increased coastal erosion is observed and projected to worsen by 2050 and beyond. Additionally, the degradation of coastal vegetation, including mangrove forests by natural or human-induced activities, is further diminishing the capacity of the coastal zone to protect communities. Moreover, efforts at beach monitoring have stalled, affecting the projection of trends and undermining the business case to policymakers for greater investment in ICZM. Scaling up action to mitigate the principal drivers and pressures affecting coastal areas is central to any effort at enhancing climate resilience.

## Current Situation

Within the NAP Progress Report 2022, none of the measures in POA 6 were reported as completed. Quite promising, one-third of the measures were reported as partially completed (33.3%) compared to 13.3% as ongoing and continuous.

Through a series of consultations with stakeholders, measures from the NAP 2017-2021 cycle reported as completed or partially completed are:

**6.2.** Undertake regular profiles of prioritized beaches in Grenada, CPM. This will inform which areas are vulnerable to sea level rise, storm surge, and are experiencing coastal erosion. This will provide important data on the coastal processes which can then inform stabilization efforts either through hard or soft engineering, EbA practices, and coastal planning. o This is ongoing, with continuous profiling of prioritized beaches in Grenada and CPM to understand coastal vulnerabilities. It's noted that some activities and training have already started.

**6.3.** Initiate the collection of wave and current data. This will provide important data on coastal processes which can inform the coastal zone management unit in reviewing coastal developments and in the creation of a coastal zone management plan.

- This is partially completed. It mentions that equipment for collecting wave and current data was piloted and tested but didn't reach its intended location in Carriacou and PM. Training and coastal engineering expertise are noted as ongoing needs.

**6.4.** Set-up seagrass monitoring programme involving at minimum, an annual survey in order to determine areal extent, presence of disease, presence of invasive species richness and diversity, density etc.

- This is partially completed. Seagrass monitoring is already ongoing as part of the annual monitoring done for Marine Protected Areas (MPAs). It is suggested that this monitoring should now move beyond the initial setup to more expansive and regular activities.

**6.5.** Involve communities and schools in data and information collection for ecosystem monitoring as well as coastal and marine processes. o This was described as ongoing and continuous, involving communities and schools in data collection for ecosystem monitoring, which requires further HR support.

**6.9.** Develop regulations Coastal Zone Management Act, based on existing Coastal Zone Management Policy.

- The Act passed in 2019. Regulations to be developed.

**6.12.** For Carriacou and PM; start the preparation of a Coastal Zone Management Plan for CPM building on recommendations from the "Carriacou and Petite Martinique Coastal Rehabilitation Plan."

- Some initial work has started through the regional Ecosystem-based Adaptation project with the OECS for Carriacou and Petite Martinique.

**6.13.** Address sand mining on beaches and removal of sand from offshore sources.

- Ongoing discussion and public education about the impacts of climate change on coastal communities are mentioned as important continuing actions.

**6.14.** Address sand removal from beaches and offshore sources.

- This measure has been completed and is ready to transition into the second phase, which is detailed as a separate measure.

## Priority Actions

- i. Legislative reform and strengthen regulatory enforcement.
- ii. Launch targeted education and awareness campaigns to educate communities about ICZM frameworks, using workshops, materials, and digital outreach to emphasize responsibilities and benefits these frameworks bring to communities, businesses, and other stakeholders, facilitating broader compliance and participation.
- iii. Establishment of climate-resilient governance structure for ICZM.
- iv. Capacities in place for ecological monitoring and data management to ensure effective implementation
- v. Intensified investments in participatory-based sustainable coastal ecosystem management to include nature-based solutions and EbA approaches.
- vi. BLUE ECONOMY
- vi. Protect culturally significant coastal sites, including cemeteries, from slow-onset climate impacts like sea level rise and erosion by assessing vulnerability, implementing shoreline stabilization (e.g., nature-based buffers), and developing community-informed relocation protocols to preserve heritage and support long-term adaptation.

### Tabulation of Specific Measures, Responsibilities, Costs, and Timelines for Achieving Each Objective

<b>Objective 6.1: Initiate the development of a database on relevant ecosystems and coastal structures.</b>				
<b>#</b>	<b>Measures</b>	<b>Responsibility</b>	<b>Indicative cost (USD)</b>	<b>Timeline (2025-2030)</b>
6.1-1	Conduct an inventory of all coastal structures, integrating detailed cost estimates for surveying each land parcel to enhance financial precision. Use the findings to develop and implement recommendations that prevent coastal dynamics alteration and inform regulations under the Coastal Zone Management Act.	Ministry w.r.f. Lands and Agriculture, PDA, Ministry w.r.f. Environment, MCPMLG	5,000,000	4 years
6.1-2	Update and integrate the inventory of coastal structures, utilizing ongoing geodetic surveys and existing activities, to enhance coastal zone management and inform sustainable regulatory measures under the Coastal Zone Management Act.	Coastal Zone Task Force, Ministry w.r.f. Environment, Ministry w.r.f. Lands and Survey, Ministry w.r.f. Marine Affairs and Blue Economy NGOs MCPMLG	300,000	5 years
6.1-3	Advance the collection of wave and current data to better inform the coastal zone management plan. This initiative will include training local personnel to at least Master's level in coastal engineering and the acquisition of specialized analysis software. It is critical to extend the deployment of previously tested equipment to Carriacou and PM to complete this measure.	Ministry w.r.f. Environment, Coastal Task Force, MCMPALG, NGOs	2,000,000	5 years
6.1-4.	Continue seagrass monitoring program that includes an annual survey to assess areal extent, disease presence, invasive species, species richness, diversity and density. Establish an open-access data platform and also expand this initiative to include Coral Reef Monitoring, employing permanent transects for regular observations both within and beyond Marine Protected Areas (MPAs).	Ministry w.r.f. Marine Affairs, Ministry w.r.f. Environment Coastal Zone Task Force, MCMPLG, NGOs	500,000	5 years
6.1-5	Continue to Involve communities and schools in data and information collection for ecosystem monitoring as well as coastal and marine processes.	MoCRERE Ministry w.r.f. Education	400,000	5 years

**Objective 6.2:** Improve technical capacity for integrated coastal zone management.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
6.2-1	Establish the Coastal Zone Management Unit and Board on the foundation of the existing Task Force, utilizing a phased approach that starts with the recruitment of coastal engineers and environmental lawyers to address critical gaps, and progresses to integrating essential operational staff as required by the 2019 Coastal Zone Management Act.	Ministry w.r.f. Environment Ministry w.r.f. Marine Affairs and Blue Economy	1,000,000	2 years
6.2-2	Strengthen the skills of Coastal Zone Task Force and Unit members across key areas such as coastal water quality analysis, coastal planning, engineering, project management, hydrographic surveying, draughtsmanship, and data analysis, and archiving for coastal vegetation. Include training on culturally sensitive adaptation planning, such as assessing climate risk to culturally significant coastal sites (e.g., cemeteries), shoreline stabilization techniques near heritage areas, and development of relocation or preservation protocols. Tailor training and development to meet the specific environmental and operational needs of Carriacou and Petit Martinique also.	Ministry w.r.f. Environment, Coastal Zone Task Force	1,000,000	3 years

**Objective 6.3:** Improve legal and institutional arrangements for effective ICZM established and implemented.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
6.3-1	Resume regular meetings of the Coastal Zone Task Force, focusing on capacity building. Ensure funding for meeting-related expenses such as catering and workshops, remuneration for members who actively participate and organize these events. Continue to enhance the Task Force by including experienced members from relevant agencies, ensuring consistent regulatory compliance.	Ministry w.r.f. Environment	50,000	2 years

**Objective 6.3:** Improve legal and institutional arrangements for effective ICZM established and implemented.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
6.3-2	Develop detailed regulations to enforce the Coastal Zone Management Act, focusing on the protection of mangroves, seagrass, and coral species to ensure effective implementation and sustainability.	Ministry w.r.f. Environment Coastal Zone Task Force, Legal Affairs.	50,000	2 years
6.3-3	Develop a monitoring and evaluation framework for the Coastal Zone Management Policy to track progress and identify enforcement gaps, implement the Integrated Coastal Zone Management (ICZM) Act, and build enforcement capacities through targeted training for the Coastal Zone Task Force and police officers, ensuring a continuous feedback loop between policy effectiveness and enforcement actions.	Ministry w.r.f. Environment, Coastal Zone Task Force, MCPMLG, RGPF-Coast Guard	100,000	2 years
6.3-4	Hire a consultant to guide the development of the Coastal Zone Management Plan, incorporating assessments from the existing Coastal Zone Management Policy (CZP) and roadmap, supported by ongoing data collection efforts as outlined in Objective 1.	Ministry w.r.f. Environment Coastal Zone Task Force	80,000	2 years
6.3-5	Revisit all coastal cells within the delineated Coastal Zone Management Area to adapt Integrated Coastal Zone Management (ICZM) strategies for each, determining appropriate and restricted activities, and broaden the scope of the Coastal Zone Task Force to oversee ecosystem-based adaptation efforts across the tri-island state as part of the Coastal Zone Management Plan, ensuring alignment with stakeholder input for clarity and effectiveness.	Ministry w.r.f. Environment Coastal Zone Task Force, MCPMLG	150,000	2 years

**Objective 6.3:** Improve legal and institutional arrangements for effective ICZM established and implemented.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
6.3-6	Begin the preparation of a Coastal Zone Management Plan for Carriacou and Petite Martinique, building on recommendations from the “Carriacou and Petite Martinique Coastal Rehabilitation Plan” and leveraging progress made through the regional Ecosystem-Based Adaptation (EBA) project, “Reducing Risk to Human and Natural Assets Resulting from Climate Change” with the OECS, while simultaneously initiating urgent restoration planning and actions to address the severe devastation caused by Hurricane Beryl (Category 4) to Carriacou’s coastal area (Refer to Objective 4).	MCPMLG Coastal Zone Task Force,	1,000,000	4 years
6.3-7	Launch a comprehensive public education and advocacy campaign in partnership with the private sector and civil society, focusing on the impacts of climate change on coastal communities, the value of beaches, and exploring sustainable alternatives to beach sand mining by the Grenada Gravel Concrete & Emulsion Production Corporation, which will be detailed in a white paper for discussion in Cabinet and Parliament.	Coastal Zone Task Force Ministry w.r.f. Environment, MCPMLG	100,000	2 years
6.3-8	Establish a monitoring and regulatory framework by setting up a hotline or reporting app for the public to report illegal sand mining activities, consulting with stakeholders to draft and enforce stringent penalties for unauthorized sand removal, and ensuring these efforts are supported by ongoing public service announcements.	Coastal Zone Task Force Ministry w.r.f. Environment, MCPMLG RGPF	300,000	3 years
6.3-9	Develop a strategic transition plan with key stakeholders to phase out dependence on traditional beach sand mining, shifting the construction sector towards sustainable sand sources, facilitated by a consultant who will guide the integration of these initiatives with current environmental and regulatory standards.	Coastal Zone Task Force Ministry w.r.f. Environment, MCPMLG	250,000	3 years

**Objective 6.3:** Improve legal and institutional arrangements for effective ICZM established and implemented.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
6.3-10	Initiate Phase 2 of the sand removal project by beginning a comprehensive sediment transport study, expanding from specific coastal zones in the ICCAS pilot to the entire tri-island state.	Coastal Zone Task Force, Ministry w.r.f. Environment, MCPMLG, NAWASA, NGOS, Ministry w.r.f. Marine Affairs	2,500,000	4 years
6.3-11	Revise and incorporate a climate resilience mandate into the building codes and guidelines with a focus on coastal areas, taking into account recent hurricane damage and also taking into account opportunities in energy efficiency gains.	PDA Ministry w.r.f. Environment Coastal Zone Task Force	200,000	1 year
6.3-12	Implement and enforce compliance measures to prevent the disposal of all types of liquid and solid waste, particularly addressing the increasing problem of illegal dumping along the coast.	GSWMA, Ministry w.r.f. Marine Affairs, NAWASA, Ministry w.r.f. Health, Ministry w.r.f. Environment	3,500,000	2 years

**Objective 6.4:** Plan and simultaneously execute coastal restoration and resilience efforts for Carriacou.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
6.4-1	Strengthen enforcement of regulations to reduce sand mining in Carriacou's coastal areas, as it contributes to coastal erosion, sea-level rise vulnerability, and compromises the structural integrity of homes built using this sand. Launch community awareness campaigns to educate residents on the risks associated with sand mining and the benefits of adopting safer, more sustainable construction practices for long-term coastal and housing resilience.	RGPF, PDA, MCPMLG	800,000	4 years

**Objective 6.4:** Plan and simultaneously execute coastal restoration and resilience efforts for Carriacou.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
6.4-2	Launch a targeted coastal vegetation restoration program aimed at reintroducing native plants, grasses, and hedges along vulnerable coastlines to mitigate erosion. Collaborate with the mainland (Grenada) to provide the necessary plants, trees, and hedges, ensuring the vegetation is resilient to coastal conditions and sea-level rise.	Ministry w.r.f. Forestry, Ministry w.r.f. Environment MCPMLG, NGOs	500,000	1 year
6.4-3	Initiate a mangrove restoration project, replanting mangrove species critical for coastal protection, biodiversity, and erosion control, alongside continuous monitoring to track restoration progress.	Ministry w.r.f. Forestry, Ministry w.r.f. Environment MCPMLG NGOs	Covered in 5.3-13	1 year
6.4-4	Launch “Carry a Tree to Carriacou” Reforestation Campaign Revive the community-driven “Carry a Tree to Carriacou” initiative, encouraging individuals, organisations, and mainland supporters to donate coastal trees, hedges, and mangroves to Carriacou. This campaign, modeled after the successful effort of the 1970s, will aim to restore biodiversity and coastal resilience while fostering community involvement and stewardship.	MCPMLG., Ministry w.r.f. for Forestry, Ministry w.r.f. Environment, NGOs	Covered in 5.3-13	1 year
6.4-5	Provide technical and logistical support to community groups and local leaders in Carriacou to lead coastal restoration efforts. Encourage partnerships with NGOs, local authorities, and mainland resources to ensure sustained efforts in restoring Carriacou’s coastal ecosystems, with a focus on resilience to sea-level rise and storm surges.	Ministry w.r.f. Forestry, Ministry w.r.f. Environment, MCPMLG.	75,000	2 years



Exterior of the newly rebuilt St. Mark's Secondary School, showcasing climate-smart infrastructure supported by the OECS Human Mobility Project

## Programme of Action 7: Modern Climate-Resilient Infrastructure and Sustainable Land Management

### Goal

By 2030, develop and maintain resilient infrastructure across Grenada, Carriacou, and Petit Martinique to withstand the impacts of climate change, built and retrofitted according to national and international regulations and incorporating sustainable land management.

**Objective 7.1** Enhance the Planning and Development Authority’s capacity to enforce the Building Code and the Planning and Development Control Act, and improve relevant policy, legal, regulatory, and institutional frameworks to support resilient infrastructure and sustainable land management.

INDICATORS

**7.1.1** Percentage of planned organisational improvements completed, including the establishment of the PDA Sub-Office in Carriacou, completion of a comprehensive needs assessment, and revision of the organisational structure of the PDA.

**7.1.2** Proportion of new and revised policies and regulations, including those related to climate risk mitigation and sustainable infrastructure, that are fully integrated and enforced across relevant projects by 2030.

**7.1.3** From the last baseline established, the proportion of PDA staff trained and actively involved in enforcement activities will increase by an appropriately determined percentage by the end of 2030 with progress validated through annual documentation of training sessions and the percentage of staff involved in enforcement activities, monitored annually and cumulatively over the five-year period.

**Objective 7.2** Develop comprehensive climate vulnerability profiles for key airports and tourism sites in Grenada, ensuring the availability and accessibility of data on land and infrastructure at risk due to climate change impacts.

INDICATORS

**7.2.1** Climate vulnerability and risk assessments completed for the two airports in Grenada, Carriacou, and Petite Martinique, as well as for essential transportation infrastructures such as seaports and roads, ensuring compliance with local environmental regulations and geographic-specific guidelines.

**7.2.2** Vulnerability and risk assessments conducted and integrated into the development and approval of adaptation plans for at least three major tourism sites, ensuring that the infrastructure is resilient to climate impacts and incorporates the requirements for environmental clearances in accordance with the natural resource management bill to ensure regulatory compliance.

**Objective 7.3** Implement sustainable infrastructure upgrades, community-driven adaptation strategies, and strengthened regulatory frameworks that enhance climate resilience in vulnerable communities, aligning with national and regional guidelines (i.e. OECS Building Codes and Guidelines<sup>3</sup>).

INDICATOR

**7.3.1** Percentage of infrastructure upgrades and community adaptation projects completed against the total planned, aiming for an annual increase in project completions to demonstrate effective implementation

<sup>3</sup> While Grenada has formally adopted the OECS Building Code (6th Edition, 2015) via SRO No. 42 of 2016, the OECS Building Guidelines (2018) provide updated, regionally harmonized technical recommendations—particularly for enhancing climate resilience in small buildings. These Guidelines support the implementation of sustainable infrastructure and adaptation strategies referenced in Objective 7.3

**Objective 7.4** Strengthen climate resilience across critical sectors by establishing resilience baselines, enhancing infrastructure capacity, reducing vulnerability to floods, rockfalls, and landslides by 25%, and promoting sustainable vegetation management.

## INDICATORS

**7.4.1** Percentage of key infrastructure assets with completed climate resilience assessments.

**7.4.2** Reduction in reported incidents of flood, rockfall, and landslide damage in targeted intervention areas.

**Objective 7.5** Establish a 2025 baseline for the number of government and private sector officials trained in the use and management of spatial data for climate change adaptation (CCA) planning. This includes applications related to sea level rise (SLR), storm surge, flooding, and other extreme climate events. Using this baseline, aim to significantly increase the number of trained officials by 2030.

## INDICATORS

**7.5.1** Percentage increase in the number of government and private sector officials trained in the use of spatial data for climate change adaptation and climate risk management, compared to the 2025 baseline. Progress will be measured every five years.

**7.5.2** Increase in the number of documented climate risk 88nvironme outputs produced biennially, measured from a 2024 baseline. Each output must meet defined quality and relevance criteria to be included in this count.

**APPROXIMATE BUDGET:**

USD 250,010,000

**LEAD AGENCY:**

Ministry w.r.f. Infrastructure with support from Ministry w.r.f. Land Use, Port Authority and PDA

## Overview

Grenada’s built infrastructure plays a pivotal role in driving socioeconomic development, enhancing human health and well-being, ensuring environmental sustainability, and empowering our communities. It is particularly crucial for protecting vulnerable populations in low-lying coastal areas. Given the escalating threats from extreme climate events, compromising on the quality and integrity of essential infrastructure—such as utility transmission lines, water supply systems, educational and medical facilities, and transport networks—is not an option for Grenada. Continued investment is imperative to ensure that all infrastructure projects integrate climate vulnerability and risk assessments in their design, location selection, and construction processes. Moreover, upgrading existing critical infrastructure to be climate-resilient remains a high priority on our national agenda.

This POA focuses on safeguarding and climate-proofing public assets and promoting sustainable building practices and infrastructure investments. It also emphasizes the enhancement of existing planning instruments and the capacity-building of the Physical Planning Unit (PPU) and Physical Development Authority (PDA) to effectively execute their functions. According to the National Sustainable Development Plan (NSDP), “an updated National Physical Development Plan must be supported by new regulations under the Physical Planning and Development Control Act No. 23/2016. Fundamental institutional strengthening of the Physical Planning Unit is also required” (National Plan Secretariat, 2021).

Incorporating “Vision 75” into this POA aligns with the vision to foster a healthier, more educated, and industrious nation over the next 25 years, under the pillars of Health, Education, Agriculture, Energy Security, and Society. This vision includes initiatives such as enhancing medical infrastructure to support a booming medical tourism sector and bolstering local agriculture and agro-processing to secure food production and healthier lifestyles. By synchronizing “Vision 75” with infrastructure goals, Grenada’s long-term prosperity will likely be cohesive and sustainable.

## Current Situation

Measures planned under POA 7 were reported as incomplete in the NAP Progress Report. However, 10% of the measures were partially completed, compared to 15% that are ongoing and continuous. This situation may be attributed to the 30% of measures in POA 7 that were rated as “highly complex” (GoG, 2022). Measures from the NAP 2017-21 reported as partially completed and ongoing include:

**7.14.** Improving the resilience of other selected infrastructure (schools, old age homes, water supply, etc.) based on results from detailed vulnerability assessments.

**7.15.** Designing and implementing mitigation and construction works to stabilize areas prone to floods, rockfalls, and landslides.

**7.18.** Improving the use of data, GIS, and remote sensing for climate change adaptation and preparing a plan of action for long-term sustainability of spatial data management.

Additionally, two infrastructure project proposals/feasibility studies, “Climate Smart Cities” and “Small States Project,” have been submitted for funding through the GCF. Moreover, certain priority actions were identified as partially complete or ongoing in the objectives but were not outlined as specific measures in the previous NAP including:

### Under Priority Actions and Progress for Objective 1:

- Mobilize Resources: Partial completion reported for the action to “ensure that technical capability exists in the Physical Planning Unit (PPU) to enforce the Building Code and Physical Planning and Development Control Act and Regulations.” Notable shortfalls include capacity requirements for Carriacou and Petite Martinique and collaboration with RGPF.
  - Publish a Coastal Development Guide: Action to “Publish a short guide for coastal developers/investors/builders which includes rules, regulations, processes that summarise the main points of the new development manual” is near completion.

### Objective 3:

- Safe & Climate-Smart Hospitals/Health Facilities Program: Started the action to “Implement/mobilise resources to implement recommendations from the WHO/ Pan American Health Organization (PAHO) ‘Safe Hospital Index’ assessment related to disaster and climate risk reduction. Set-up a ‘Safe & Climate-Smart Hospitals/Health Facilities’ Programme.”
  - The action to “Improve resilience of other selected infrastructure (schools, old age homes, water supply etc.) based on results of detailed” has also been reported as partially completed.

**Objective 4:**

- Data and GIS Utilization: Identified as an ongoing action is to “Improve the use of data, GIS and remote sensing for climate change adaptation and prepare a plan of action for long-term sustainability for spatial data management,” with suggestions of optimizing the use as there’s a lack of integration across departments, which hampers full potential and efficiency.
- Risk Modelling Capacity: Establish and improve capacity for risk modelling for sealevel rise (SLR), storm surges, inland flooding, and land slippage. Further specific suggestions on enhancing capacities have been identified, aiming to improve data collection and predictive analytics.

**Priority Actions**

- i. Update the National Physical Development Plan of Grenada to reflect the country’s sustainable development priorities, which necessitate: (a) spatial balance of all sectors and industries; (b) socioeconomic development in all parishes; (c) land use that supports balanced development and proper zoning; and (d) multi-sectoral and spatial linkages.
- ii. Increase investment to improve drainage systems targeted at entire road network.
- iii. Undertake fundamental reforms of the Physical Planning Unit to improve efficiency. Reforms must be geared at strengthening governance and institutional arrangements, building human and technical capacities, mainstreaming technology in operations, and improving monitoring, evaluation, enforcement, and accountability.
- iv. Improve capacities for analyzing spatial data for climate change adaptation planning and to conduct risk monitoring
- v. Introduce new and progressive regulations to support balanced spatial development. vi. Increase investments in sea defences/ barriers along coastal roads vulnerable to SLR and other coastal hazards.
- vii. Increase the number of climate resilient infrastructure.
- viii. Implement projects to protect infrastructures along Point Saline, MBIA, the Marquis to Grenville Corridor, and Grand Anse Beach from sea level rise (Climate-Smart Cities project)
- ix. Examine the need for Local Area Plans (LAPs) (or watershed drainage plans) within the ongoing urban planning and develop associated policy and strategy for their implementation.
- x. Construct a new climate-resilient airport in Carriacou or retrofit existing on taking on board climate considerations in design process.

**Tabulation of Specific Measures, Responsibilities, Costs, and Timelines for Achieving Each Objective**

**Objective 7.1:** Enhance the Planning and Development Authority’s capacity to enforce the Building Code and the Planning and Development Control Act, and improve relevant policy, legal, regulatory, and institutional frameworks to support resilient infrastructure and sustainable land management.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
7.1-1	Establish a PDA Sub- Office in Carriacou.	PDA	2,000,000	5 years
7.1-2	Address the shortfall in human resources to ensure the PDA has the technical capabilities required for enforcing the Building Code and complying with the Physical Planning and Development Control Act and Regulations, by completing a comprehensive needs assessment.	PDA, RGPF	100,000	5 years
7.1-3	Revise the organisational structure and functions of the Planning and Development Authority (PDA) as a precursor to clearly defining roles, responsibilities, and cross-cutting issues, and improving regulatory compliance. <i>Consider under the National Environmental Management Strategy and the draft 2018 Environment Bill establishment of CEC/ EIA committee proposed new role and function of the Environmental Department.</i>	PDA	100,000	1 year
7.1-4	Integrate and closely monitor climate considerations into all enforcement activities under the Physical Planning and Development Control Act and the Building Code by incorporating them into EIAs and Archaeological Impact.	PDA, RGPF, MoCRERE	300,000	1 year
7.1-5	Update the National Physical Development Plan to account for climate risks including a focus on drainage work, and identify critical areas needing conservation and regeneration, while incorporating existing plan updates and proposals (like those of LAPs). Strongly consider the development of LAPS to further strengthen the NAP.	MoCRERE	50,000	2 years

**Objective 7.1:** Enhance the Planning and Development Authority’s capacity to enforce the Building Code and the Planning and Development Control Act, and improve relevant policy, legal, regulatory, and institutional frameworks to support resilient infrastructure and sustainable land management.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
7.1-6	Implement appropriate and measurable climate change risk mitigation measures within EIA TORs and set measures in place to allow for consistent monitoring and enforcement of these measures.	MoCRERE	50,000	2 years
7.1-7	Integration of climate change mitigation and adaptation strategies into the revised Airport Master Plan, emphasizing sustainable infrastructure, energy efficiency, and reduced carbon emissions, guided by the latest environmental standards and practices.	Ministry w.r.f. Tourism and Civil Aviation, Airports Authority, Ports Authority, PDA	300,000	2 years
7.1-8	Complete and publish a short guide for coastal developers/investors/builders which includes rules, regulations, processes which summarises main points of the new development manual.	PDA, Government Printery, Ministry w.r.f. Environment	250,000	1 year
7.1-9	Approve the Carriacou Land Policy and selectively incorporate and align key measures from the policy into the implementation process of revised NAP, focusing on initiatives that are feasible to implement within a five-year timeframe to ensure higher implementation rates and measurable impact.	MCPMLG, PDA	80,000	2 years
7.1-10	Develop a strategic and climate-smart plan for inland and coastal tourism development zones to reduce coastal ecosystem stress by diversifying offerings into cultural, culinary, hiking, and agro-tourism sectors, and ensure effective implementation by incorporating outcomes into updated tourism plans with clear timelines and responsibilities.	Ministry w.r.f. Tourism, GTA, PDA, Grenada Industrial Development Corporation (GIDC), Coastal Zone Task Force, Ministry w.r.f. Lands and Surveys	200,000	2 years

**Objective 7.2:** Develop comprehensive climate vulnerability profiles for key airports and tourism sites in Grenada, ensuring the availability and accessibility of data on land and infrastructure at risk due to climate change impacts.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
7.2-1	Conduct a detailed Climate Change Vulnerability Assessment for the operational airports, Lauriston in Carriacou and Maurice Bishop International in Grenada, the inactive Pearls Airport, as well as the proposed Dumfries airport in Carriacou and assess impacts such as sea-level rise, erosion, increased temperatures, and flooding on airport facilities including runways and parking areas. Implement initial erosion control measures where necessary.	Ministry w.r.f. Tourism and Civil, Ministry w.r.f. Aviation, Grenada Airports Authority, PDA, MoCRERE, NaDMA	1,000,000	2 years
7.2-2	Assess the climate change vulnerability of at least three existing tourism sites and potential new sites in Grenada, using the University of the West Indies assessment for St. George—Impact of Sea-Level Rise on Grenada’s Southwest Peninsula as a foundational resource. Evaluate the vulnerability of additional tourism infrastructure such as ports, resorts, roads, and bridges. Use the data gathered (or ensure it’s open accessibility) to inform recommendations for physical adaptation measures, which should be incorporated into relevant tourism plans.	Ministry w.r.f. Tourism, GTA, Ministry w.r.f. Environment, Ministry w.r.f. Works, Ministry w.r.f. Lands and Survey, PDA, NaDMA	500,000	2 years

**Objective 7.3:** Implement sustainable infrastructure upgrades, community-driven adaptation strategies, and strengthened regulatory frameworks that enhance climate resilience in vulnerable communities, aligning with national and regional guidelines.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
7.3-1	Expand and operationalize the Ministry of Social Development’s funding program to support climate resilience initiatives for vulnerable households, including the rollout of quick-impact projects such as climate-resilient agriculture and emergency medical infrastructure, in alignment with Vision 75.	Ministry w.r.f. Social Development, Ministry w.r.f. Lands, Ministry w.r.f. Infrastructure and Physical Development, Credit Unions, Local Banks	1,000,000	2 years

**Objective 7.3:** Implement sustainable infrastructure upgrades, community-driven adaptation strategies, and strengthened regulatory frameworks that enhance climate resilience in vulnerable communities, aligning with national and regional guidelines.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
7.3-2	Mobilize resources to revise and implement the updated “OECS 2013 Climate Change Adaptation Plan for Lower Sauteurs,” incorporating current climate data, technological advancements, and community input to ensure effectiveness and relevance.	Coastal Zone Task Force, PDA, Ministry w.r.f. Infrastructure and Physical Development, Ministry w.r.f. Lands, MoCRERE, NaDMA	300,000	2 years
7.3-3	Mobilize Resources for Preliminary Implementation of the Greater Grenville Local Area Plan: Assessments and Planning: <ul style="list-style-type: none"> <li>- Identify and assess drainage issues, existing pumping stations, and potential retention sites.</li> <li>- Review and update engineering studies for central sewer services in Grenville.</li> <li>- Establish culvert development standards and draft a Harford Watershed management plan.</li> <li>- Maintenance and Regulation: Develop maintenance protocols for the drainage system and strategies to prohibit development on hazard-prone lands.</li> <li>- Initiate educational programs on septic treatment and relocate water services to prevent contamination.</li> <li>- Data and Risk Reduction Gather data for a coastal zone management plan and flood mitigation strategies.</li> <li>- Mobilize resources to apply WHO/PAHO “Safe Hospital Index” recommendations and start a “Safe &amp; Climate-Smart Hospitals/Health Facilities” Program.</li> </ul>	PDA, Ministry w.r.f. Infrastructure and Physical Development, Bureau of Standards, Ministry w.r.f. Agriculture and Lands, Coastal Zone Task Force, Ministry w.r.f. Environmental, Ministry w.r.f. Health, NAWASA	3,000,000	4 years

**Objective 7.3:** Implement sustainable infrastructure upgrades, community-driven adaptation strategies, and strengthened regulatory frameworks that enhance climate resilience in vulnerable communities, aligning with national and regional guidelines.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
7.3-4	Continue to target infrastructure upgrades by strengthening the resilience of other selected facilities such as schools, homes for the elderly, and access roads and water supply systems, utilizing findings from detailed vulnerability assessments.	Ministry w.r.f. Education, Ministry w.r.f. Infrastructure and Physical Development, NAWASA, Social services, Ministry w.r.f. Climate Resilience	85,000,000	4 years
7.3-5	Design and implement construction projects to stabilize areas prone to floods, rock falls, landslides using inter alia, PDA Data and/or Mapping, and strengthen vulnerable bridges. <i>Continuously refine this measure by identifying additional high-risk areas and drawing insights from local knowledge as well as interventions like the recent Moliniere Rock Slip Project.</i>	Ministry w.r.f. Infrastructure and Physical Development, PDA, CSOs	115,000,000	3 years
7.3-6	In Carriacou, intensify shoreline and cliff stabilization efforts to safeguard public infrastructure of socio-economic importance, particularly addressing the recent vulnerabilities and risks exposed by Hurricane Beryl. And prioritizing nature-based solutions, such as reforestation and restoration initiatives, in line with POA 6 Objective-6.4 to plan and execute coastal restoration and resilience efforts simultaneously.	MCPMLG, Ministry w.r.f. Infrastructure and Physical Development	20,000,000	1 year
7.3-7	Initiate a comprehensive program to support local governments and building industry stakeholders in integrating climate resilience measures into building codes as per updated OECS Building Codes, providing training, resources for implementing Local Area Climate Adaptation Plans (LAPs), and organizing workshops to connect stakeholders with funding opportunities, thereby improving access to both domestic and external financial resources for building climate resilience in vulnerable households.	Ministry w.r.f. Climate Resilience, PDA	500,000	3 years

**Objective 7.4:** By 2030, enhance climate resilience across key sectors including education, water, transportation, coastal, and social services by establishing baselines and increasing infrastructure capacity. Additionally, aim to reduce vulnerabilities to floods, rockfalls, and landslides by 25% through targeted interventions and sustainable vegetation management.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
7.4-1	Conduct detailed assessments and audits of infrastructure across relevant sectors to establish baselines for functionality and resilience in response to local climate change impacts.	Ministry w.r.f. Infrastructure and Physical Development, MoCRERE	1,000,000	2 years
7.4-2	Based on the assessments, audits, and utilizing updated geographical data, implement targeted interventions to strengthen the most highly vulnerable structures. Increase the resilience and functionality of these infrastructures by a targeted percentage from the established baseline, with a focus on aiming to reduce vulnerabilities to floods, rockfalls, and landslides by 25%.	Ministry w.r.f. Lands, Ministry w.r.f. Infrastructure and Physical Development, Ministry w.r.f. Planning	25,000,000	3 years
7.4-3	Implement a targeted training program for de-bushing teams in Grenada, focusing on sustainable vegetation management practices that preserve critical flora essential for preventing rockfalls and landslides, ensuring ecological balance and infrastructure safety.	Ministry w.r.f. Infrastructure and Physical Development, Ministry w.r.f. Lands	150,000	1 year

**Objective 7.5:** Establish a 2025 baseline for the number of government and private sector officials trained in using and managing spatial data for climate change adaptation planning and conducting risk modelling for sea level rise (SLR), storm surge, flooding, and other extreme climatic events. From this baseline, aim to increase this number by an appropriate amount by the end of 2030.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
7.5-1	Complete the action plan to optimize the use of data, GIS, and remote sensing for climate change adaptation, focusing on the long-term sustainability of spatial data management and integration of these tools into decision-making processes.	Ministry w.r.f. Lands, Ministry w.r.f. Environment, NaDMA, Grenada Meteorological Office	50,000	1 year

**Objective 7.5:** Establish a 2025 baseline for the number of government and private sector officials trained in using and managing spatial data for climate change adaptation planning and conducting risk modelling for sea level rise (SLR), storm surge, flooding, and other extreme climatic events. From this baseline, aim to increase this number by an appropriate amount by the end of 2030.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
7.5-2	Implement detailed capacity-building measures to enhance risk modeling capabilities for sea level rise, storm surges, inland flooding, and land slippage. <i>These measures should include specific training programs for current and future personnel at undergraduate and postgraduate levels, internships, and the procurement of advanced technology and licenses for various modeling software. Also, standardize data collection methods to support these enhancements.</i>	Grenada Meteorological Office, Ministry w.r.f. Land-Use, PDA, Ministry w.r.f. Environment. NAWASA	2,500,000	2 years
7.5-3	Incorporate climate-resilient, green building concepts into secondary school curricula and introduce students to sustainable construction materials, energy efficiency, and practical applications such as solar panel installation and green roofing through technical courses like building technology and technical drawing.	Ministry w.r.f. Education, MoCRERE	80,000	4 years
7.5-4	Develop specialized training programs in collaboration with the National Training Agency, T.A. Marryshow Community College (TAMCC), and New Life Organisation (NEWLO) to equip tradespeople, contractors, and engineers with sustainable building skills. Offer workshops, certifications, and hands-on training in the latest green building technologies and practices.	Ministry w.r.f. Education, PDA	500,000	2 years
7.5-5	Establish a sustainability plan for Project 500 that ensures the initiative remains affordable and accessible to all, particularly targeting vulnerable and at-risk groups, and serves as a community education hub for sustainable housing practice.	Ministry w.r.f. Mobilisation, Implementation & Transformation	1,000,000	2 years



Aftermath of Hurricane Beryl on Carriacou, July 1<sup>st</sup>, 2024

## **Programme of Action 8: Disaster Risk Reduction**

### **Goal**

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**Strengthen Disaster Risk Reduction Capacities to Enhance Climate Resilience at All Levels by 2030.**

**Objective 8.1** Identify communities in need of better access to early warning systems and measure the percentage increase in those communities receiving improved access over time.

INDICATORS

**8.1.1** Number and characteristics of communities identified as needing improved access to early warning systems, based on their vulnerability, geographic location, and current access to infrastructure.

**8.1.2** Percentage increase in the number of identified communities with improved access to early warning systems over a defined period.

**Objective 8.2** Strengthen technical capabilities to achieve at least 95% coverage and accuracy in data collection (80%), analysis (90%), storage (100%), and protection (100%) of hazard-related data, including floods, hurricanes, and landslides, by 2030.

INDICATORS

**8.2.1** Reduction in data gaps from historical events and improvement in data transparency scores.

**8.2.2** Increase in national capacity to conduct loss and damage assessment.

**Objective 8.3** Fully utilize the Disaster Management Act 2023 to transition the National Disaster Management Authority (NaDMA) into an effective, autonomous statutory body.

INDICATOR

**8.3.1** Completion of the transition process to a statutory body and active usage of the Disaster Management Act 2023 in policy application.

**Objective 8.4** Enhance the functionality and standards of shelters and community centres to meet emergency requirements effectively.

INDICATOR

**8.4.1** Retrofitting of existing shelters to withstand Category 4 and 5 hurricanes based on national building codes.

**Objective 8.5** Increase internal capacities and improve coordination among stakeholders by achieving a 25% faster response rate in disaster simulations and streamline communication to ensure that all stakeholders can mobilize within 24 hours of an alert, by the end of the fiscal year.

INDICATOR

**8.5.1** Increase in trained personnel and improved coordination as reported in stakeholder reviews.

**Objective 8.6** Expand opportunities for capacity building in disaster management through scholarships and international exchange programs.

**INDICATOR**

**8.6.1** Number of scholarships awarded annually, and international exchange programs conducted to expose local students to global best practices in disaster management.

**APPROXIMATE BUDGET:**

USD 35,050,000

**LEAD AGENCY:**

National Disaster Management Agency (NaDMA)

## Overview

The previous NAP combined the POA on Disaster Risk Reduction with Disease Prevention into a single POA. This integration, while strategic, encompassed a vast array of measures—some closely related and others distinct—which necessitated a reevaluation of their alignment. As a result, disease prevention is now comprehensively addressed in the Grenada Health National Adaptation Plan (HNAP), detailed in POA 14 of this plan. Consequently, POA 8 has been redefined as a standalone programme focusing exclusively on disaster risk reduction (DRR), allowing for more targeted strategies and clearer priorities in addressing the unique challenges of disaster management.

This POA is an integral component of the revised National Adaptation Plan for Grenada (2025–2030). It aims to enhance Grenada’s resilience to climate impacts by fostering effective integration of climate change adaptation (CCA) and disaster risk reduction (DRR) into national and local level planning and budgeting processes across various sectors and governmental levels. The strategic actions under this cross-cutting area are designed to overcome barriers such as the limited alignment and integration across policies and the challenges of translating a diverse and evolving policy landscape into actionable and practical measures on the ground.

The necessity for this POA is emphasized by the increasing frequency and intensity of climate-related hazards that threaten to undermine sustainable development gains, push more individuals into poverty, and escalate humanitarian crises. In this context, it is also critical to recognize the irreversible Loss and Damage (L&D) resulting from climate change impacts—particularly in cases where adaptation and risk reduction efforts prove insufficient. Loss of life, destruction of infrastructure, displacement of communities, and environmental degradation are realities that must be addressed alongside adaptation and disaster risk management efforts. Recognizing these challenges, the POA aligns with global frameworks such as the Paris Agreement, the Sendai Framework for Disaster Risk Reduction 2015–2030, and the 2030 Agenda for Sustainable Development, which collectively call for enhanced resilience, reduced vulnerability, and an approach that acknowledges both recoverable and permanent losses stemming from extreme weather events.

The development of this POA encountered significant hurdles due to unforeseen circumstances. During the initial revision phase, consultation with the National Disaster Management Agency (NaDMA) was not possible because the agency was fully engaged in responding to Hurricane Beryl, which struck Carriacou in July as a Category 4 storm and escalated to Category 5. This event not only underscored the urgency of disaster risk reduction but also demonstrated the scale of Loss and Damage Grenada faces—including widespread destruction, economic disruption, and community displacement. Subsequent consultations and bilateral meetings were held with NaDMA; however, follow-up inputs and validations were obtained approximately six months later due to their ongoing and intensive disaster response commitments during the finalization of this revised NAP. This limitation highlights the need for flexible and responsive disaster preparedness mechanisms that can balance both long-term planning and immediate emergency response while also addressing the lasting impacts of disasters.

In light of these challenges, the POA prioritizes the strengthening of institutional frameworks, the advancement of technical knowledge and expertise in risk management, and the promotion of coherent policies and investments that integrate CCA, DRR, and considerations for Loss and Damage into broader development strategies. These efforts are crucial for building a resilient Grenada that can withstand and recover from increasing and evolving climate and disaster risks— including those that result in irreversible losses requiring financial and policy interventions beyond adaptation and risk reduction.

## Current Situation

Grenada has implemented a variety of strategies to mitigate disaster risks, including:

- **Disaster Resilience Strategy (DRS) (2021):** This plan covers policies, financing, and costs aimed at bolstering Grenada’s resilience against natural hazards and disasters and climate change, structured around three main areas: structural, financial, and recovery resilience.
- **National Hazard Mitigation Plan:** This is a cooperative initiative involving the national government, regional disaster management bodies, and other stakeholders, designed to lessen the effects of both natural and man-made hazards.
- **Comprehensive Disaster Management (CDM) Act:** Legislation that enhances the legal and operational structure for managing disasters.
- **Emergency Response Plan:** This plan specifies institutional roles and responsibilities for mobilizing resources and minimizing disruption to essential public services during emergencies
- **Disaster Risk Financing Strategy:** Supported by the World Bank and other climate initiatives, this strategy helps to fund disaster risk reduction efforts effectively.
- **Insurance System for Nutmeg and Cocoa Trees:** An operational insurance product specifically designed to prepare and respond to natural hazards and disasters impacting nutmeg and cocoa plantations.
- **Risk Management Datasets:** Utilizes satellite data, drone mapping, and participatory GIS data integrated into disaster risk management workflows to enhance decision-making.
- **Home-Grown Reform Program (HGRP):** Launched in 2014, this program is progressively implemented to support internal reforms and enhance national resilience capabilities.

The Disaster Management Bill, 2023: The latest legislative effort, providing updated and stringent guidelines to further strengthen disaster management practices in Grenada. The Bill establishes a comprehensive disaster risk management framework, integrating climate change adaptation into all disaster phases—prevention, preparedness, response, recovery, and mitigation. It promotes gender analysis to ensure equitable disaster responses and mandates data collection on climate vulnerabilities for targeted risk reduction. The bill encourages community involvement in disaster planning and integrates climate considerations into national and local development plans, strengthening resilience against future climate impacts.

## Priority Actions

- i. Develop and execute tailored community training programs and regular emergency response drills to improve readiness and response capabilities across high-risk communities.
- ii. Upgrade and expand early warning systems to ensure they are accessible and responsive to the needs of all communities, with special focus on inclusivity for vulnerable groups. Maintain a robust database for ongoing system audits and updates. iii. Develop a Grenada’s Climate Resilience and Sustainable Recovery Strategy as a pivotal framework for defining resilience metrics, setting achievable targets and milestones. It will serve as an umbrella document that draws upon existing climate and government plans and proposals, elaborating a strategy to build resilience against natural hazards and disasters integrated into a credible macro-fiscal framework
- iv. Engage external experts to assess and upgrade shelters and community centres to meet enhanced safety and functionality standards, ensuring they can serve both emergency and community purposes.
- v. Accelerate the transition of NaDMA into an autonomous statutory body, fully utilizing the Disaster Management Act 2023 to enhance its effectiveness and governance capabilities.

It would be necessary for Grenada to set up a Climate Resilience Fund with sound oversight and fiduciary standards in which funding from local and international sources can be housed. The Climate Resilience Fund could serve a “National Financing Vehicle” for all climate related investments, which will channel all the grants, loans and any other forms of financial support into the country and would be the primary financial structure from which community disaster-related, public health and climatic crisis (drought, flooding, pandemics, etc) recovery efforts will be funded.

Despite Grenada’s comprehensive measures for disaster risk management, the evolving nature of climate threats necessitates further enhancement and expansion of these initiatives. This POA on Disaster Risk Reduction within the revised NAP for 2025 to 2030 addresses this need by aiming to bolster disaster resilience at all levels of society.

The NAP outlines several key objectives: improving early warning systems and community preparedness, enhancing data management capabilities, and strengthening institutional frameworks for disaster management. It also focuses on upgrading infrastructure to better serve both emergency and community purposes and increasing coordination among stakeholders to improve disaster response times and mobilization following alerts (highlighting the close connection with supporting measures for the new POA on Climate Mobility, also known as climate-related human mobility).and with most of the other POAs including the following interventions to build climate resilience:

- Climate risk and vulnerability assessments, disclosure and monitoring
- Early warning systems and early action
- Preparedness: contingency plans/emergency response
- Climate risk governance and capacity-building
- Nature-based solutions used to reduce risks across sectors
- Climate-proofing infrastructure and services
- Risk transfer: insurance and social protection
- Sharing of knowledge and best practices on climate risk management
- Volume, quality and access of public and private finance.

This comprehensive approach underscores Grenada’s commitment to proactive disaster risk.

### Tabulation of Specific Measures, Responsibilities, Costs, and Timelines for Achieving Each Objective

**Objective 8.1:** Identify communities in need of better access to early warning systems and measure the percentage increase in those communities receiving improved access over time.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
8.1-1	Carry out comprehensive vulnerability and risk assessments (using GIS and remote sensing), combined with community surveys to systematically identify high-risk communities lacking sufficient early warning systems.	NaDMA, MoCRERE	500,000	2 years
8.1-2	Develop and deploy community-specific training programs in EWS tailored to local risks and languages, including the use of mobile alerts and local sirens, data collection, ensuring to include local leaders.	NaDMA, Ministry w.r.f. Transportation, Community Leaders	200,000	1-2 years

**Objective 8.1:** Identify communities in need of better access to early warning systems and measure the percentage increase in those communities receiving improved access over time.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
8.1-3	Implement localized early warning systems that are responsive to the needs of all communities, prioritizing accessibility and inclusivity for children, women, people with disabilities, and other vulnerable groups. Adapt communication methods to diverse needs, ensuring timely and actionable alerts for all.	NaDMA, Ministry w.r.f. Social Development	200,000	3 years
8.1-4	Conduct regular community and district level emergency response drills, including simulation of natural hazards like floods and hurricanes.	NaDMA, Ministry w.r.f. Education	500,000	5 years
8.1-5	Create and distribute age-appropriate, multi-modal educational materials online and offline, including interactive sessions and digital games. Use social media, local influencers, and community leaders to disseminate information through tailored campaigns. Hire a coordinator or consultant for effective implementation.	Ministry w.r.f. Education, NaDMA, Media Partners	1,000,000	2 years
8.1-6	Establish a database for regular updates and audits of early warning systems to maintain data accuracy and relevance.	Grenada MET Office, NaDMA	1,000,000	1 year
8.1-7	Conduct regular evacuation drills, including scenario-based exercises for climate-induced disasters (e.g., hurricanes, floods), with a focus on testing and improving evacuation routes and systems to ensure efficiency and accessibility for all communities.	NaDMA, NGO Partners	100,000	3 years

**Objective 8.2:** Strengthen technical capabilities to achieve at least 95% coverage and accuracy in data collection (80%), analysis (90%), storage (100%), and protection (100%) of hazard-related data, including floods, hurricanes, and landslides, by 2030.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
8.2-1	Integrate real-time data sharing mechanisms into the revised climate finance system upon its implementation.	NaDMA, Central Statistics Office	300,000	1 year
8.2-2	Update legislation that outlines protocols for data collection, storage, sharing, and privacy.	Legal Affairs Department	200,000	2 years

**Objective 8.3:** Fully utilize the Disaster Management Act 2023 to transition NaDMA into an effective, autonomous statutory body.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
8.3-1	Update two (2) critical plans- NaDMA’s hazard-specific plans, incorporating climate resilience and adaptation. Update the CDM Policy and Strategy accordingly.	NaDMA	500,000	2 years

**Objective 8.4:** Enhance the functionality and standards of shelters and community centres to meet emergency requirements effectively.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
8.4-1	Design and construct four dual-purpose emergency shelters—two in Grenada (north & south) and one in central Carriacou, with capacities of up to 400 people, and a smaller one in Petite Martinique—equipped for community use during non-emergency periods.	Ministry w.r.f. Infrastructure, PDA, Architects, Civil Engineers	30,000,000	3 years

**Objective 8.5:** Increase stakeholder participation and conduct more drills to enhance coordination and disaster response efficiency.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
8.5-1	Maintain and strengthen a network of focal points across ministries, the private sector, and NGOs while providing ongoing training on advanced disaster management techniques, ensuring that key response entities (e.g. the Fire Department, Red Cross, Airport, Ports, etc.) are also continuously trained.	NaDMA, Ministry w.r.f. Education, Professional Training Organisations	150,000	1 year

**Objective 8.6:** Identify and secure five scholarship opportunities annually and organize international exchange programs to expose students to global best practices in disaster management.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
8.6-1	Identify scholarships opportunities (5 each year) and organize international exchange programs to expose students to global best practices in disaster management.	Ministry of Education, International NGOs, Partner Universities	400,000	2 years



Rain Gauges, at NAWASA Plant in Grand Roy, St. John

## Programme of Action 9: Climate-Related Data & Projections

### Goal

By 2030, strengthen institutional arrangements for the collection, analysis, and provision of climate and hazard-related data to improve decision-making and support early warning systems for disaster risk reduction.

**Objective 9.1** Establish a comprehensive system for collecting, analyzing, and utilizing climate and hazard-related data to improve decision-making, resilience, and early warning systems.

<b>INDICATORS</b>	<b>9.1.1</b> Historical climate data digitized and accessible through local data portals by 2025.
	<b>9.1.2</b> Quality control measures established to ensure the reliability of historical climate data by 2025.
	<b>9.1.3</b> Grenada Meteorological (MET) Service formally mandated to maintain hydromet stations.
	<b>9.1.4</b> Grenada MET Service legally recognized as a national authority beyond weather forecasting.
	<b>9.1.5</b> Grenada MET Service attains individual membership in the World Meteorological Organization by 2030.

**APPROXIMATE BUDGET:**

USD 20,980,000

**LEAD AGENCY:**

Grenada Meteorological Service

## Overview

Improving the availability of, and access to climate data is of fundamental importance in enhancing national capacities for evidence-based decision making and development and advancement of the climate change adaptation agenda. In the past years, more than 15 water level recorders and 20 weather stations were installed across the tri-island state with support of the HYDROMET<sup>4</sup> project. The collection, processing and dissemination of accurate and quality data is a key prerequisite for efficient national and sectoral planning (e.g. water, agriculture, health, infrastructure). It is also very useful in preparing investment proposals for external funding. A more broad-based integration of climate information in all aspects of development planning and implementation must become a way of life in Grenada, Carriacou and Petite Martinique (GoG, 2022).

The current sea-level rise in the Caribbean is  $3.40 \pm 0.3$  mm/year (1993–2019), which is similar to the  $3.25 \pm 0.4$  mm/year global mean sea-level (GMSL) rise (1993–2018).

## Current Situation

According to the NAP Progress Report, none of the measures in POA 9 were completed. Measures reported as partially completed were 11.1%, compared to 33.3% as ongoing and continuous.

Partially completed measures include:

**9.6.** Inclusion of Carriacou and Petite Martinique in expanded hydrometeorological network with equipment to measure rainfall, temperature, sea-surface temperature and sea-level rise.

<sup>4</sup> All data collected is available, via a central online public platform or selected data hub, that can be easily accessed with user name and password

**Ongoing measures:**

**9.7.** Enhance climate data products in collaboration with the Caribbean Institute for Meteorology and Hydrology (CIMH) to support decision making in key sectors.

**9.8** Enhance the collaboration of the Meteorological Office with regional climate modelling groups.

**9.9** Build and maintain capacity among decision makers to access and use climate-related data.

**Priority Actions**

- i. Continue implementing Grenada’s National Strategic Plan and Framework for Weather, Water, and Climate Services (WWCS), assess progress to date, and update priorities for the post-2025 period.
- ii. Finalise and adopt the National Meteorological Services Bill currently under legal review to formalize the operation of meteorological services.
- iii. Strengthen national capacity for climate data analysis, modelling, and application across key sectors.
- iv. Complete the process for Grenada to become a full member of the World Meteorological Organization (WMO) by 2030.

**Tabulation of Specific Measures, Responsibilities, Costs, and Timelines for Achieving Each Objective**

**Objective 9.1:** Establish a comprehensive system for collecting, analyzing, and utilizing climate and hazard-related data to improve decision-making, resilience, and early warning systems.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
9.1-1	Establish, equip, and maintain the National Meteorological Service to serve as the lead agency for coordinating the collection, analysis, and dissemination of climate-related data to key sectors (e.g., aviation, agriculture, water, disaster management, health). <i>This should consider the institutional roles and service objectives outlined in Grenada’s WWCS.</i>	Grenada Meteorological Service Land Use Division, Ministry w.r.f. Agriculture, NAWASA, CSO	10,000,000	3 years
9.1-2	Develop a national climate data management policy, including agreements, regulations, and institutional arrangements to facilitate coordination and access, supported by human resources. <i>The policy should reflect, as much as possible, the guidance and objectives outlined in the WWCS.</i>	Grenada Meteorological Service, Ministry w.r.f. Land Use, Ministry w.r.f. Agriculture, NAWASA, CSOs	500,000	2 years
9.1-3	Digitize historical climate and disaster impact data (e.g., temperature, rainfall, sea surface temperatures, hurricane damages, flood impacts, storm surges) for integration into a national data hub. Establish data sharing agreements and regulations to ensure accessibility and governance.	Grenada Meteorological Service, NAWASA, Ministry w.r.f. Agriculture	2,500,000	2 years

**Objective 9.1:** Establish a comprehensive system for collecting, analyzing, and utilizing climate and hazard-related data to improve decision-making, resilience, and early warning systems.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
9.1-4	Monitor and map changes in rainfall patterns, intensity and distribution (automized weather station in all main water sheds). The data must be easily accessible and distributed to all relevant agencies and public based on needs.	Grenada Meteorological Service, NAWASA, Ministry w.r.f. Agriculture	5,000,000	2 years
9.1-5	Become a member of the World Meteorological Organization to benefit from their climate information support.	Grenada Meteorological Service, Ministry w.r.f. Foreign Affairs, CIMH	100,000	1 year
9.1-6	Documentation of traditional knowledge and anecdotal information on climaterelated impacts to supplement gaps in the data record.	Grenada Meteorological Service, Ministry w.r.f. Tourism, NAWASA, NaDMA, Ministry w.r.f. LandUse.	80,000	3 years
9.1-7	Include Carriacou and Petite Martinique in an expanded AgroMET and hydro-met network - with equipment to measure rainfall, temperature, sea-surface temperature, and sea-level rise.	Grenada Meteorological Service, Ministry w.r.f. Finance.	2,500,000	5 years
9.1-8	Enhance climate and hazard data products in collaboration with CIMH to support decision-making in key sectors. Strengthen capacity for climate data analysis, impact-based forecasting, and disaster risk assessment through targeted training. This includes climate-sensitive data such as rainfall patterns and disaster risk insights (see 9.1- 3).	Grenada Meteorological Service, Ministry w.r.f. LandUse, NAWASA, NaDMA	250,000	2 years
9.1-9	Enhance the collaboration of the Meteorological Office with regional climate modelling groups. Including training for radiation measurement, sunlight measurement, multi-hazard risk analysis, disaster forecasting, and capacity-building for local scientists in data interpretation.	Grenada Meteorological Service	50,000	5 years



MoCRERE leads 2025 infant campaign on "Youth in Action for Climate Adaptation."

## Programme of Action 10: Sustained Public Education and Participation

### Goal

By 2030 and beyond, cultivate an informed and engaged public and private sector that actively supports climate-resilient policies and benefits from increased green job opportunities through education, participation, and innovation.

**Objective 10.1** By 2030, enhance the knowledge, attitudes, and behaviors regarding climate change policies, principles, and practices among decision-makers, students, and households, ensuring activities are accessible to individuals with disabilities and considerate of both boys’ and girls’ perspectives to promote inclusive and equitable engagement.

INDICATOR

**10.1.1** By 2030, the most recent Knowledge, Attitudes, and Practices (KAP) survey on Climate Change in Grenada shows a measurable increase in awareness and improved behaviors compared to the baseline established in the 2016 OECS survey, with detailed analysis disaggregated by age, sex and gender to ensure inclusive policy impact assessment.

**Objective 10.2** Increased opportunities for jobs in the fields of climate change and resilience.

INDICATORS

**10.2.1** Implementation of policies which promote green jobs.

**10.2.2** A public that is informed and aware of job opportunities relating to implementation of climate resilience activities, in collaboration with media, CSOs, etc.

**10.2.3** Creating jobs for educating the public, for example through social media.

**APPROXIMATE BUDGET:**

USD 7,630,000

**LEAD AGENCY:**

Ministry w.r.f. Climate Resilience (in close collaboration with Ministry w.r.f. Education)

**Overview**

Most climate projects integrate education and public awareness activities into their measures thereby acknowledging the fact that the general population in Grenada plays a key role in ensuring sustainable uptake of adaptation to climate change. A KAP Survey undertaken by the G-CREWS Project showed that 63% of respondents believed that climate change has a current impact on the water supply today. However, the survey flagged that a trend towards social media-based information sources is increasing with the threat of disinformation campaigns that foster conspiracy theories, including denial of climate change (Charles (2021)).

Prioritization of climate education cannot be overstated. The NSDP 2020-2035 recognises the urgent need for education sector transformation to reach key developmental outcomes.

## Current Situation

The NAP Progress Report 2022 reported the completion of 10% planned measures and 40% of measures were reported as ongoing and continuous. Measures from the NAP 2017-2021 reported as completed are:

- Promote the use of the Grenada-specific “Greenz Climate Champion” interactive toolkit within primary schools and after school programmes in the tri-island state. The toolkit includes: a teacher manual, worksheet collection, stickers, passport and posters.
- Integrate the toolkit into the regular school curriculum.

### Ongoing measures include:

**10.6** Include climate change projects into the activities done by students at the secondary schools, T.A. Marryshow Community College and St. George’s University.

**10.7** Continue to raise awareness in communities regarding the importance of coastal ecosystems for climate change adaptation.

## Priority Actions

- i. Strengthened the knowledge base among government, decision makers, teachers, students and communities with regard to climate change and adaptation as well as linkages to the NDCs
- ii. Provide mechanisms for increase dialogue and engagement with key stakeholders and communities on the thematic area
- iii. Consider setting up an innovative, small grant for financing NGOs for implementation of community-based adaptation projects (synergy with GEF SGP).
- iv. Create climate change adaptation champions as influencers to select priority target groups.

## Tabulation of Specific Measures, Responsibilities, Costs, and Timelines for Achieving Each Objective

**Objective 10.1:** Knowledge, attitudes and behaviours on climate change policies, principles and practices increases among decision makers, students and households by 2030.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
10.1-1	Develop bi-annual/year-end Cabinet Updates on “Recent Developments in Climate Change” aimed at keeping government service abreast of new developments in the understanding of the science and impacts of climate change and the implications for Grenada. This also includes the progress made towards NAP implementation and NDC achievements and cost-benefit analysis on action on climate change mitigation and adaptation vs. No action.	NCCC	In house	2 years
10.1-2	Conduct targeted sensitisation presentations, school debates, and seminars of updates on NAP and NDC and their co-benefits Climate Change Policy, Conventions, Gender, Health in the Climate Nexus, International and Current Affairs and other climate related topics to public and private sector.	Ministry w.r.f. Climate Resilience	500,000	1 year
10.1-3	Facilitate the availability of the climate interactive toolkit to teachers at school in Grenada, Carriacou & PM.	Ministry w.r.f. Education	500,000	2 years
10.1-4	Ensure the continued integration of “Greenz Climate Champion” material into course material for teacher education by producing teaching courses, seminars and other materials.	Ministry w.r.f. the Environment, Education, TAMCC	500,000	Ongoing
10.1-5	Continue to integrate climate change projects into the activities done by secondary school students at T.A. Marryshow Community College and St. George’s University through science fairs and other climate conscious activities. Projects can be more integrated to highlight the cobenefits between adaptation and mitigation and made subject friendly. E.g. Ecological footprints, Carbon credits, GHG emissions in relation to their field of interest.	Ministry w.r.f. Education, NCCC, TAMCC, SGU	300,000	2 years

**Objective 10.1:** Knowledge, attitudes and behaviours on climate change policies, principles and practices increases among decision makers, students and households by 2030.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
10.1-6	Expansion of Climate Change and Adaptation Education (programmes and schools). Expanding the Support for Education, Empowerment and Development (SEED) programme. Moreover, Climate change and adaptation education, starting from the pre-school level, incorporates materials and lessons (building on the Greenz Climate Champion initiative) into the curriculum for both boys and girls. This education focuses on how climate change affects boys and girls differently and how they respond.	Ministry w.r.f. Education	200,000	2 years

**Objective 10.2:** Increased opportunities for jobs in the fields of climate change and resilience.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
10.2-1	Continue to raise awareness in communities regarding the importance of coastal ecosystems for climate change adaptation as well as climate mitigation	Ministry w.r.f. the Environment, Education, CSOs, Media	60,000	2 years
10.2-2	Continue community level presentations, discussions and public fora on climate change and its implications for Grenada, Carriacou and PM (similar to the community sensitisation activities during consultations)	Ministry w.r.f. the Environment, SDC, Key Stakeholders Private Sector, Media, CSOs	80,000	Ongoing
10.2-3	Continue implementation of practical demonstration projects at the community level that can be used to highlight the impacts of climate change with the potential of community led response activities as well as the livelihood opportunities (if applicable).	Ministry w.r.f. Environment, Community Development, GSDF	5,000,000	5 years
10.2-4	Conduct training for the media on climate change.	Ministry w.r.f. Environment	40,000	2 years
10.2-5	Reach out to Conference of Churches and other social partners as key agents for dissemination of climate change information.	Ministry w.r.f. Environment	200,000	1 year
10.2-6	Increasingly enforce regulations change and adaptation amongst private sector stakeholders and identify areas of collaboration between public and private sector. and raise awareness about climate	NCCC	250,000	1 year





Hand holding the mace and shell of nutmeg (*Myristica fragrans*)

## Programme of Action 11: Adaptation Finance

### Goal

By 2030, increase the mobilisation and absorption of external climate finance, including support for green recovery following COVID-19 and Hurricane Beryl.

**Objective 11.1** Enhance the capability to secure and utilize increased adaptation finance by developing strategic partnerships, improving project implementation frameworks, and establishing a robust monitoring and evaluation system to regularly assess and report on the impact and utilization of climate adaptation financing.

## INDICATORS

**11.1.1** Adaptation finance mobilised biennially (every two years) increases by a percentage based on whether there is a natural hazard or not, using the 2024 budget allocation of XCD\$10M as a baseline to start the 2025-2030 implementation period.

**11.1.2** Average utilisation of climate/adaptation financing increases annually by an appropriate amount, reflective of the current situation, annually (with justification).

**APPROXIMATE BUDGET:**

USD 20,200,000

**LEAD AGENCY:**

Ministry w.r.f. Department of Economic and Sustainable Development Planning (DESDP)

## Overview

Recently, Grenada successfully created a pipeline of potential climate finance funding. The need for external support to support climate change and its negative effects, remains urgent. The National Designated Authority (NDA) to the GCF is the Head of the DESDP, located within the Ministry of Climate Resilience, the Environment and Renewable Energy.

This strategic positioning of the NDA is useful for several reasons:

- It allows for coordination and alignment of financial and technical assistance from various foreign sources.
- It is ideal for coordination with PSIP processes.
- The cross-cutting nature of the work of the Ministry of Climate Resilience, the Environment & Renewable Energy corresponds well to the cross-cutting nature of climate finance.

Within the previous NAP implementation period, efforts have been made to strengthen the institutional set up of the GoG to access external climate finance. This has resulted in several newly funded projects. However, a key challenge and ongoing concern is the lack of human resources.

There are Institutional framework conditions available to address these constraints. Grenada's NDAs' Toolkit for Engaging with the GCF is a case in point. The Toolkit "aims to explain the support available to access the Fund's resources and elaborate on the roles and responsibilities of Grenada's NDA as the interface between Grenada and the Fund. The Toolkit also provides a structure that ensures any future project or programme is consistent with Grenada's laws, climate policies, and strategies while meeting the Fund's requirements" (Grenada NDA Toolkit, 2019). Additionally, a comprehensive GCF Country Programme was developed and is continuously updated, offering interested donor agencies a clear pathway on Grenada's vision based on the country's identified needs on mitigation and adaptation.

Furthermore, Grenada provides an overview over its climate finance pathways and related projects and publications over its digital platform <https://climatefinance.gov.gd/> and has also coordinated with the GCF country program for co-financing opportunities and linked its NDC and NAP with the PSIP. Lastly, the Eastern Caribbean Central Bank’s pilot for the Partnership’s new Greening Central Banks Initiative is also another potential window of opportunity.

## Current Situation

Under the previous implementation period of 2017-2021, no planned measures in POA

11 were reported as “completed” in the NAP Progress Report (2022). 18.2% of Measures were reported as “partially completed” while 36.4% were labelled as “ongoing and continuous” (GoG, 2022).

Partially completed measures from the NAP 2017-21 are:

- 11.6 Seek accreditation for GCF National Implementing Entity (NIE) in Grenada.
- 11.9 Develop and implement climate change themed training programme on bankable proposal development to state and non-state actors. Programme to include mentoring and refresher courses as required.

## Ongoing and continuous measures from the NAP 2017-2021 are:

**11.1** Explore the design of the new economic and other fiscal instruments to raise funds for adaptation. Reform incentive systems to change behaviours such that people adapt.

**11.4** Position Grenada to benefit from bilateral funds and multilateral funds, preferably in the form of grants where appropriate. Apply for funding where there is alignments between Grenada’s needs and funder priorities.

**11.7** Improve the investment risk profile and the attractiveness of the country to private foreign direct investment, through enhanced ease of business.

## Priority Actions

- i. Increase opportunities for private sector investment in climate adaptation.
- ii. Complete the process of the Grenada Development Bank becoming a GCF accredited entity.
- iii. Educate the private sector on the advantages of the cost and benefits of investing in climate resilience as a prerequisite to future investments
- iv. Strengthen national capacity to access and manage climate finance by establishing a Climate Finance Unit (CFU) within the Ministry w.r.f. Climate Resilience, with dedicated human resources to prepare bankable proposals and support Project Management Units (PMUs) in increasing implementation rates.
- v. Explore innovative options for mobilization of climate finance (e.g green financing, green bonds).
- vi. Support PURC to engage in outreach projects with private individuals to incentivise participation/ adoption of renewable energy/other practices.
- vii. Promote the concessions on the port for citizens in renewable energy products, hybrid and electric vehicles through the Ministry of Climate Resilience, the Environment & Renewable Energy, while ensuring readiness and mechanisms to develop and implement projects by establishing a PMU at the Ministry of Climate Resilience and creating a dedicated Fund.

**Tabulation of Specific Measures, Responsibilities, Costs, and Timelines for Achieving Each Objective**

**Objective 11.1:** Enhance the capability to secure and utilize increased adaptation finance by developing strategic partnerships, improving project implementation frameworks, and establishing a robust monitoring and evaluation system to regularly assess and report on the impact and utilization of climate adaptation financing.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
11.1-1	Explore the design of new economic and other fiscal instruments to raise funds for adaptation. Reform incentive systems to change behaviours such that people adapt.	Ministry w.r.f., DESDP, MoCRERE	500,000	2 years
11.1-2	Complete process of assessment of debt swap model to finance marine conservation and ecosystem-based adaptation to climate change; proceed according to assessment results and setting new areas of financing i.e. blue and green bonds.	Ministry w.r.f. DESDP, MoCRERE, Ministry w.r.f. Debt Unit, TNC	2,000,000	1 year
11.1-3	Assess private sector challenges to/ market for building resilience and the role of government. Identify actions to be undertaken to increase private sector involvement, focusing on the agriculture, beverage (rum distillery), energy and tourism sectors.	NCCC, Ministry w.r.f. DESDP	60,000	2 years
11.1-4	Apply for funding, specifically grants, where there is alignment between Grenada’s needs and funding priorities. At least 15 (5-near, 5-medium, 5-long term) bi-lateral and multi-lateral applications should be submitted over the implementation period.	Ministry w.r.f. DESDP, NCCC	2,500,000	5 years
11.1-5	Apply for and implement Climate Finance Readiness support provided by the GCF.	Ministry w.r.f. DESDP, MoCRERE, NCCC	2,000,000	2 years
11.1-6	Complete accreditation for GCF National Implementing Entity (NIE) in Grenada and start the process for two other entities including the Ministry of Climate Resilience.	Ministry w.r.f., DESDP	1,000,000	1 years
11.1-7	Improve the investment risk profile and the attractiveness of the country to private foreign direct investment, through enhanced ease of doing business incentives.	Ministry w.r.f. DESDP, NCCC, GIDC	200,000	2 years

**Objective 11.1:** Enhance the capability to secure and utilize increased adaptation finance by developing strategic partnerships, improving project implementation frameworks, and establishing a robust monitoring and evaluation system to regularly assess and report on the impact and utilization of climate adaptation financing.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
11.1-8	Review and revise Grenada’s PPP policy in light of the recommendations provided in the June 2023 World Bank report on emerging trends in integrating climate resilience in large scale, multi-sector infrastructure projects.	Ministry w.r.f. DESDP, MoCRERE, Ministry w.r.f. Policy Unit NCCC	40,000	1 year
11.1-9	Develop and implement four (4) climate change-themed training programmes focused on bankable proposal development for both state and non-state actors. Each programme will include mentoring and refresher sessions in the following areas: <ul style="list-style-type: none"> <li>- Proposal Writing and Development</li> <li>- Electrical Inspectorate Review of Renewable Energy Installations</li> <li>- PDA to assess EIA procedures</li> <li>- Resource Mobilisation (increase capacity by approximately 20% annually)</li> </ul>	Ministry w.r.f. DESDP, Environment Division, NCCC	800,000	1 year
11.1-10	Imitate the model of the previous Enhancing Direct Access (EDA) project exchange program with Antigua by supporting two staff exchange programmes. <i>These exchanges would involve government staff spending time working at the Caribbean Climate Change Community Centre offices or with another appropriate Accredited Entity to build capacity or participating in reciprocal placements with personnel from other Caribbean countries or governments.</i>	Ministry w.r.f. DESDP, Environment Division Department of Public Administration, NCCC	100,000	2 years
11.1-11	Mobilization of external climate funding to specifically finance the implementation of Local Area Climate Adaptation Plans, ensuring increased and more effective absorption of these funds through targeted, accountable, and transparent allocation mechanisms	Ministry w.r.f. Climate Resilience	10,000,000	2 years
11.1-12	Establish and operationalize a Climate Finance Unit within the Ministry of Climate Resilience to coordinate climate finance mobilization, proposal development, manage funding pipelines and strengthen exiting PMUs	MoCRERE, Ministry w.r.f. Finance	1,000,000	2 years





Wreckage in coastal wetlands near Hog Island—evidence of human impact on sensitive ecosystems

## Programme of Action 12: Monitoring, Evaluation & Learning

### Goal

Develop and implement a comprehensive, gender-responsive Monitoring, Evaluation, and Learning (MEL) mechanism for climate actions that tracks progress on the National Adaptation Plan (NAP), enhances accountability and learning, supports evidence-based decision-making, and promotes continuous improvement while addressing gender-specific needs.

**Objective 12.1** Establish a gender-sensitive monitoring and evaluation system that effectively supports the implementation of the National Adaptation Plan (NAP), ensuring equitable tracking and impactful policy insights.

<b>INDICATORS</b>	<b>12.1.1</b> Annual progress reports published, highlighting gender impacts in NAP implementation.
	<b>12.1.2</b> M&E Coordinator with gender expertise hired within the first year.
	<b>12.1.3</b> Updated Gender Action Plan, integrating UNFCCC and GCF standards, approved by end of year one.
	<b>12.1.4</b> 50% of national budget officers trained in climate tagging and performance monitoring, with demonstrated application and integration of gender and climate considerations.

**APPROXIMATE BUDGET:**

USD 2,620,000

**LEAD AGENCY:**

Ministry of Climate Resilience, the Environment and Renewable Energy (in close collaboration with Ministry w.r.f. Implementation)

## Overview

The NAP and the NCCP mandate the establishment of a monitoring and evaluation (M&E) system for the NAP to achieve four main purposes:

1. Track the delivery of agreed measures
2. Establish its effectiveness in reducing vulnerability
3. Create an opportunity for learning and adaptive management
4. Fulfill reporting requirements under the United Nations Framework Convention on Climate Change and the Paris Agreement.

Understanding progress in the implementation of the National Adaptation Plan (NAP) is essential for assessing how effectively Grenada is adapting to climate impacts. It also serves as a critical information source for adjusting implementation strategies to better protect the population. Both the National Climate Change Policy (NCCP) and the NAP call for a progress report on the NAP process to be compiled every two years. It is also important to note that the Nationally Determined Contribution (NDC) requires regular monitoring through mechanisms such as the Global Stocktake. In addition, the NDC Implementation Report provides quarterly updates on progress.

According to the NCCP 2017–2021, the NAP progress report is to be submitted to Cabinet and:

“will be used to check if Policy, NAP and NDC implementation and concrete interventions are on track and whether the process or actions should be adjusted accordingly.” • “will also inform the revision of the NAP and NDC, which will occur at least by 2022” (GoG, 2017, p. 28).

A NAP M&E training and consultation with over 40 participants from 10 ministries, national entities, and civil society took place on July 24–26, 2019, in St. George’s, as part of support from the NAP Global Network. The exercise was funded by the governments of Canada, Germany, and the United States. The report, “Developing a Climate Adaptation Monitoring and Evaluation System for Grenada’s National Adaptation Plan” in 2020 was the primary output of the consultation. It lists several recommendations for the next NAP revision to incorporate into POA 12, including the formulation of indicators per sector that provided sufficient detail to inform the progress reports in the future (GOG, 2020a). The report further recommended the following:

- The report could be kept concise and “mission-focused”, i.e., focusing on recommendations for next steps;
- A simple presentation of implementation progress on each of the POA could form the basis, similar to the NAP progress reports of other countries;
- The proposed NAP indicators could be used but are not a prerequisite. Any lack of data on some of the indicators should not hamper producing a report;
- The report could be informed by insights from the climate change focal points, i.e., by speaking to people and organisations involved in each POA;
- NCCP and NAP mention that its findings could be used to inform reporting to UNFCCC.

The previous NAP and the NCCP already mandated the establishment of a NAP M&E system. The remaining decisions primarily pertain to operational details and institutional arrangements. The NAP M&E system will incorporate indicators aligned with the Global Goal on Adaptation, ensuring that progress on adaptation is systematically tracked and reported in accordance with UNFCCC requirements, including through BTRs and Adaptation Communications, to enhance transparency and demonstrate Grenada’s contributions to global adaptation objectives. The options for the M&E system outlined below are not mutually exclusive, allowing stakeholders to select multiple relevant and applicable options for implementation.

### **Option 1: Efficient implementation of NAP M&E system**

The SMB decides (or mandates the coordinating Ministry of the NAP) to:

- Appoint a NAP M&E Coordinator to ensure the Programme of Action 12 of the NAP can be implemented in a timely manner so that Grenada can fulfill its reporting requirements under the Paris Agreement
- For all government entities to closely collaborate and support the NAP M&E process including:
- Provision of agreed data and information in a timely manner o Integration of relevant activities into their internal planning (as appropriate).
- Enhance the list of NAP indicators to be used for tracking NAP goal achievement to ensure their full measurability as far as existing data and resources permit
- Use the NAP M&E system to also measure achievement of the adaptation-specific outcomes defined in the National Climate Change Policy to avoid duplication of efforts
- Track implementation of the 14 Programmes of Action via annual feedback from responsible entities to the Ministry of Climate Resilience, the Environment and Renewable Energy. A lean process to gather information on implementation without creating an excess load of indicators for every measure is both efficient and provides relevant input for the NAP progress report
- Emphasize the role of learning as part of NAP M&E to understand what works well and why. This is crucial to enable the steering function of M&E.

**Option 2: Efficient implementation of NAP M&E system and evaluation of effectiveness  
The SMB decides (or mandates the coordinating Ministry of the NAP) to:**

- Same bullet points as under option 1 plus the following:
- Assess the feasibility of a national climate vulnerability assessment including scope, methods, resource and data requirements, and possible funding sources
- Compile an inventory of existing climate vulnerability and risk assessments conducted in Grenada
- For selected measures of the NAP, develop a method to analyse their contribution to vulnerability reduction and estimate their contribution in time for the second NAP progress report

**Option 3: Co-benefits of NAP & NDC, M&Es**

Monitoring, Reporting and Verification (MRV) Mechanism for Climate Actions are needed which would enable monitoring-data collections, tracking, reporting and verification of:

- Develop and implement an integrated Monitoring, Reporting and Verification (MRV) mechanism for climate action that supports both NAP and NDC implementation and reporting under the Paris Agreement
- The MRV mechanism will cover five core areas: GHG emissions inventory (in line with IPCC 2006 guidelines), impact of mitigation (NDC) actions, impact of adaptation (NAP) activities, climate finance flows (support received and needed), and SDG impacts (using tools such as the UNDP Climate Action Impact Tool – CAIT).
- Ensure close coordination between relevant ministries and agencies to provide timely and consistent data across these areas
- Align MRV processes with existing national systems to reduce duplication and improve efficiency
- Use MRV outputs to inform national planning, strengthen transparency, and improve access to climate finance

**Current Situation**

The NAP Progress Report 2022 reveals that measures planned in POA 12 remain incomplete, even those that were of low complexity and minimal resource requirements. Further, there was no structured system for data collection and monitoring to track progress in achieving measurable NAP indicators. Any relevant data gathered for the progress report was incidental and primarily aimed at fulfilling sector-specific program requirements. A qualitative approach was used to evaluate the extent of goal achievement and their relevance for future NAP implementation.

A priority action from the NAP 2017-2021 cycle reported as partially completed is the documentation of implementation progress and its inclusion in the National Communication.

## Priority Actions

- i. Adopt a result-based management system, with clear and measurable indicators.
- ii. Baseline national climate vulnerability and risk assessment for Grenada, Carriacou and Petite Martinique completed.
- iii. Appoint an M&E coordinator (and consider an assistant) by 2025 to collaborate with established CCFPs across ministries, overseeing monitoring and supporting report writing and engagement.
- iv. Develop and adopt a system to track and report the status of implementation efforts.

## Tabulation of Specific Measures, Responsibilities, Costs, and Timelines for Achieving Each Objective

**Objective 12.1:** Establish a gender-sensitive monitoring and evaluation system that effectively supports the implementation of the National Adaptation Plan (NAP), ensuring equitable tracking and impactful policy insights.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
12.1-1	Appoint an M&E coordinator to collaborate with the Climate Change Focal Points (CCFPs) (possibly establishing an M&E Unit), ensuring access to necessary tools, training, and support for effective monitoring, tracking, and learning from implementation experiences to improve adaptation actions.	MoCRERE	500,000	1 year
12.1-2	Develop a MRV tracking tool and establish a systematic process to collect and aggregate sexdisaggregated data and other relevant information from Climate Change Focal Points across all ministries and agencies involved in the National Adaptation Plan (NAP). This process should be initiated prior to the implementation of the NAP to establish a comprehensive baseline and continued during implementation to monitor progress and effectiveness	MoCRERE, CCFPN	1,000,000	1 year
12.1-3	Conduct tailored M&E training and build capacity of climate change focal points and national budget officers, including training on climate tagging, performance monitoring, and the integration of gender and climate considerations into planning and budgeting processes.	MoCRERE, CCFPN	200,000	1 year

**Objective 12.1:** Establish a gender-sensitive monitoring and evaluation system that effectively supports the implementation of the National Adaptation Plan (NAP), ensuring equitable tracking and impactful policy insights.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
12.1-4	Conduct an analysis (annually) of the country's adaptive capacity, focusing on critical sectors such as water resources and agriculture. Evaluate the effectiveness of current government policies in mitigating vulnerabilities within these sectors and incorporate lessons learned to enhance future policy interventions. Each report should outline the impact of specific government interventions, measure their success against predefined benchmarks, and provide recommendations for policy improvements based on past experiences.	MoCRERE, Relevant CCFPs	200,000	1 year
12.1-5	Conduct assessments (annually) of adaptive capacity and vulnerability reduction at select local, household and individual levels, evaluating specific interventions such as infrastructure improvements (e.g., flood defenses, drought-resistant systems) and economic supports (e.g., insurance schemes, grants).	MoCRERE, Relevant CCFPs	500,000	1 year
12.1-6	Analyse and report on progress addressing gender dimensions where applicable and outcomes can be considered for the implementation of the GAP.	MoCRERE	20,000	2 years
12.1-7	Continue to report progress on NAP implementation and update within the Second National Communication and future BTR.	MoCRERE	200,000	2 years



100 low-income housing units in Dumfries, Carriacou

## Programme of Action 13: Climate Mobility

### Goal

By 2030, Grenada, Carriacou, and Petite Martinique will have achieved climate mobility readiness. They will have in place fully operational, resilient institutions and coordinated support systems that uphold rights-based, gender-sensitive, and culturally appropriate approaches—ensuring safe, orderly, and dignified climate-related mobility or relocation.

**Objective 13.1** Develop institutional and policy frameworks to address climate mobility systems and measure the percentage increase in communities receiving improved access over time.

INDICATOR

**13.1.1** Integration of migration policies and regulations into future relevant national strategies drafting and updates, such as disaster management plans, housing regulations, integrated coastal zone plans and land use planning.

**Objective 13.2** Strengthen data collection, modelling, and public awareness on climate mobility risks and impacts.

INDICATOR

**13.2.1** Comprehensive data on at-risk populations and mobility patterns, used to inform policies.

**Objective 13.3** Build resilient infrastructure and services to support displaced populations.

INDICATOR

**13.3.1** Number of climate-resilient infrastructures built to host displaced and relocated populations by 2030.

**Objective 13.4** Diversify and strengthen local economies to support displaced populations and create climate-resilient livelihoods.

INDICATOR

**13.4.1** Increase in climate-resilient jobs and sustainable livelihoods for displaced populations by 2030.

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**APPROXIMATE BUDGET:**

USD 16,090,000

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**LEAD AGENCY:**

National Disaster Management Agency (NaDMA) & Ministry of Climate Resilience, the Environment and Renewable Energy

## Overview

The devastating impact of Hurricane Beryl on July 1, 2024, highlights the acute vulnerabilities of Grenada, particularly in the regions of Carriacou and Petite Martinique. This Category 4 hurricane, characterized by winds of up to 140 mph and severe storm surges, not only caused significant structural damage but also exacerbated the day to day challenges faced by these communities. With 98% of infrastructure in Carriacou and Petite Martinique reported destroyed and critical facilities like the only hospital on Carriacou island devastated, the storm has emphasized the urgent need for comprehensive strategies to enhance resilience and adaptive capacity against such climatic threats.

Following the hurricane, immediate needs such as emergency shelter, food assistance, and basic utilities became more pronounced, impacting over 12,000 people who required humanitarian assistance. The destruction extends across various sectors, with roads, water systems, and electrical infrastructure severely affected, further complicating recovery efforts. This situation is aggravated by Grenada's geographic and economic conditions, where limited diversification and heavy reliance on climate-vulnerable sectors like tourism and agriculture heighten the risk and potential impacts of such disasters.

In response to the devastating impact of Hurricane Beryl on Grenada, Carriacou, and Petite Martinique, vigorous and coordinated humanitarian efforts were initiated to address the urgent needs of the affected populations. As of mid-July, the National Emergency Operations Center (NEOC) was fully activated, playing a central role in orchestrating the relief efforts across the islands, particularly in the severely hit areas of Northern Grenada. The relief operation has seen significant international and local participation, with 19 organisations including UN agencies, international and national NGOs actively involved in providing crucial services such as health care, shelter, water, sanitation, and hygiene (WASH).

Transitioning from these immediate disaster response efforts to longer-term strategic planning, the introduction of Programme of Action 13 (POA 13) on Climate Mobility within the National Climate Change Adaptation Plan is timely. POA 13 aims to address the complexities of climate induced displacement (due to extreme weather events, rising sea levels, and other climate-related factors) by enhancing the structural, ecological, and community resilience of Grenada's most vulnerable areas. As per UNFCCC terms since the Cancun Adaptation Framework of 2010, human mobility would include migration, displacement and planned relocation. By focusing on sustainable infrastructure development, diversified economic recovery strategies, and robust data collection and public awareness initiatives, POA 13 seeks to fortify Grenada's capacity to manage and adapt to the inevitable challenges posed by climate change and extreme weather events.

This POA begins by developing comprehensive institutional and policy frameworks aimed at managing and facilitating the evacuation and relocation of populations displaced due to climate impacts. These frameworks are not just theoretical; they are tied directly into national disaster plans, ensuring that human mobility is considered a critical aspect of the national response to climate emergencies. By strengthening data collection, modelling, and public awareness, this strategy ensures that government agencies and communities are well-informed and prepared for the realities of climate mobility, particularly in identifying and assisting at-risk populations. The infrastructure component of the plan focuses on providing safe, resilient, and accessible housing and services for those displaced by environmental changes, ensuring that all new developments can support populations that may need to relocate due to climate threats. Additionally, by diversifying local economies and bolstering disaster preparedness, the plan aims to reduce the economic vulnerability of displaced communities, fostering economic resilience and ensuring that communities are ready to respond effectively to climate-induced displacements. Through these targeted actions, the plan addresses both the immediate and long-term needs of climate-induced migrants, ensuring they receive the support necessary for dignified and secure relocation considering health, gender and disability inclusiveness.

## Priority Actions

- i. Review and revise existing laws and policies to integrate climate mobility considerations, ensuring all measures have solid legal backing and provide clear guidelines on land rights, resettlement protocols, and disaster responses.
- ii. Set up a robust system for the continuous collection, updating, and analysis of data on climate risks and population dynamics using advanced technologies like GIS and remote sensing, which will inform risk assessments and facilitate precise relocation planning.
- iii. Implement a wide-reaching program to educate and train communities on climate mobility issues and resilience measures through workshops, simulations and community-based planning exercises, enhancing their preparedness and active participation in evacuation and relocation strategies.
- iv. Develop a comprehensive funding strategy to identify and secure sources of national and international finance, apply for relevant funds, and establish partnerships, guaranteeing sustained financial support for all climate mobility and capacity building initiatives.
- v. Establish or enhance an existing authoritative body, such as NaDMA, to oversee all aspects of climate mobility, ensuring coordinated action across various sectors including housing, education, health, and infrastructure for harmonized policy execution and response.

### Objective 13.1: Develop institutional and policy frameworks to manage climate-induced displacement and mobility.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
13.1-1	Establish a multi-sectoral taskforce focusing on climate mobility, including representatives from housing, amenities, and education sectors, to manage the response to climate mobility with special emphasis on vulnerable groups such as people with disabilities, women, youth and children.	Ministry w.r.f. Environment, Ministry w.r.f. Housing, Ministry w.r.f. Education, Ministry w.r.f. Health, Ministry w.r.f. Social Development and Gender Affairs	50,000	1 year
13.1-2	Implement legislation on land rights, develop specific legislation to address relocation ethics, and support for climate migrants.	Ministry w.r.f. Legal Affairs, Ministry w.r.f. Housing, NaDMA	200,000	3 years

**Objective 13.1:** Develop institutional and policy frameworks to manage climate-induced displacement and mobility.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
13.1-3	Develop and activate a Planned Relocation Strategy for communities displaced by climate impacts, focusing on preemptive relocation plans for at-risk areas.	Ministry w.r.f. Housing, MoCRERE	1,000,000	3 years
13.1-4	Create a Climate Mobility Fund to support relocation.	Ministry w.r.f. Finance, Ministry w.r.f. Environment, International Donor Agencies	500,000	2 years
13.1-5	Integrate climate mobility and resettlement strategies into national disaster plans.	NaDMA, MoCRERE, Ministry w.r.f. Legal Affairs	100,000	3 years
13.1-6	Update disaster response plans to address displacement and relocation strategies for climate-impacted populations, focusing on at-risk areas.	NaDMA, Ministry w.r.f. Housing, Ministry w.r.f. Health, Ministry of Infrastructure and Physical Development, Public Utilities, Civil Aviation & Transportation	100,000	2 years
13.1-7	Implement clear zoning regulations that prioritise vulnerable communities likely to face displacement due to climate impacts (e.g., coastal and flood-prone areas).	Ministry w.r.f. Lands, Ministry w.r.f. Environment, Ministry w.r.f. Infrastructure	100,000	2 years
13.1-8	Integrate psychosocial support services in response plans for climate mobility, with a focus on gender-sensitive and culturally appropriate relocation processes and responding to the needs of displaced persons	Ministry w.r.f. Social Development and Gender Affairs, Ministry w.r.f. Mental Health and Wellness, NGOs	20,000	1 year

**Objective 13.2:** Strengthen data collection, modelling, and public awareness on climate mobility risks and impacts.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
13.2-1	Develop systems for collecting and analyzing data on communities vulnerable to climate change and potential displacement (e.g., coastal erosion, rising sea levels).	Ministry of Climate Resilience, the Environment and Renewable Energy, Central Statistics Office, Local Colleges/ Universities	100,000	1 year
13.2-2	Conduct annual Knowledge, Attitudes, and Practices (KAP) surveys focusing on climate mobility awareness.	Central Statistics Office, MoCRERE	120,000	1 year
13.2-3	Implement community engagement and public awareness campaigns on climate mobility and adaptation (seasonally and annually), including radio, television, and local outreach, with even more engagements occurring in preparation for rainy/hurricane season.	MoCRERE, Local Media Outlets	200,000	1 year
13.2-4	Perform annual climate mobility forecasting, focusing on high-risk areas and potential climate migrants.	Meteorological Office, Ministry of Climate Resilience, the Environment and Renewable Energy, Regional Climate Centers	100,000	1 year

**Objective 13.3:** Build resilient infrastructure and services to support safe relocations and displaced populations.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
13.3-1	Design and construct four dual purpose emergency shelters—two in Grenada (north & south) and one in central Carriacou, with capacities of up to 400 people, and a smaller one in Petite Martinique—equipped for community use during nonemergency periods.	Ministry w.r.f. Housing, Ministry w.r.f. Public Works, Local Governments, Universities	Refer to POA 8.4-2	5 years
13.3-2	Procurement and deployment of four (4) hurricane-proof container homes as a pilot measure to enhance climate resilience and support displaced populations.	Ministry w.r.f. Housing, NaDMA	1,000,000	3 years
13.3-3	Procure 4 amphibious vehicles for emergency evacuations across Grenada and ensure appropriate vehicles are in place to restore access to areas cut off by disasters	Ministry of Infrastructure and Physical Development, Public Utilities, Civil Aviation & Transportation	10,000,000	2 years
13.3-4	Establish MOUs with private sector partners and NGOs to ensure essential services (e.g.health care, water supply, etc.) for relocated communities.	Ministry w.r.f. Economic Development, Chamber of Commerce, Industry Associations	500,000	1 year
13.3-5	Launch a user-friendly and accessible Protected Areas data collection system and database for reporting on key targets, including Marine Protected Areas (MPAs), water quality, and other environmental indicators.	Ministry w.r.f. Foreign Affairs Immigration, RGPF, Ministry w.r.f. National Security	50,000	2 years

**Objective 13.4:** Diversify and strengthen local economies to support displaced populations and create climate-resilient livelihoods.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
13.4-1	Create employment programs specifically targeting populations displaced by climate change impacts, focusing on sustainable industries such as climate-resilient agriculture, tourism, and renewable energy.	Ministry w.r.f. Labor, Ministry w.r.f. Agriculture, Tourism Board	500,000	3 years
13.4-2	Develop grant support programs for business recovery and reactivation in areas affected by climate displacement.	Ministry of Finance, Ministry of Economic Development	1,000,000	3 years
13.4-3	Facilitate access to microfinance, insurance, and financial support for small businesses and farmers affected by climate-induced displacement.	Ministry w.r.f. Agriculture, Local Banks, Insurance Companies	500,000	2 years



Gouyave Health Centre, St. John

## Programme of Action 14: Climate Resilient Health Systems and People

### Goal

Improved capacities for climate resilient health systems at the national and district levels, and intensified protection of human health from climatic hazards through comprehensive adaptation strategies.

## Objectives

As outlined in the Executive Summary of the Grenada Health National Adaptation Plan (HNAP) 2023–2027, the objectives are aligned with the UNFCCC and LEG Technical Guidelines for National Adaptation Plans (NAPs), and are as follows:

- a. To reduce vulnerability to the impacts of climate change by strengthening adaptive capacity and resilience within the health sector.
- b. To facilitate the coherent integration of climate change adaptation into relevant new and existing policies, programmes, and activities—particularly within development planning processes and strategies—across all relevant sectors and at all appropriate levels (UNFCCC Decision 5/CP.17, paragraph 1).

In addition to these overarching objectives, the HNAP identifies eight Priority Areas, as defined by the Ministry of Health’s Management Team. Each Priority Area is supported by specific objectives, which are translated into time-bound adaptation measures outlined in the HNAP Implementation Strategy and Plan.

For the purposes of this document, specific objectives have been renumbered to ensure consistency and alignment across related national planning instruments. The following are the specific objectives:

### Objective 14.1 Mainstream climate change into ongoing MOH governance and operational decisionmaking.

#### INDICATORS

14.1.1 Adaptation measures from HNAP included in annual Corporate Plan.

14.1.2 Adaptation measures from HNAP included in Health Strategic Plan.

14.1.3 Climate Change Focal Point appointed and functional.

14.1.4 CCORAL Report for capital initiatives in Annual Corporate Plan Committee Reports.

### Objective 14.2 Strengthen and enforce applicable policies, strategies and supporting legislation.

#### INDICATORS

14.2.1 Committee reports from internal standing committees.

14.2.2 Proposals for revised policies and strategies.

### Objective 14.3 Update and implement the Disaster Management Plan for the Health sector.

#### INDICATOR

14.3.1 Committee Reports of ad hoc committee.

14.3.2 Updated Disaster Management plan for the health sector.

14.3.3 Reports on roll out of Disaster Management Plan.

**Objective 14.4** Proactively educate the general public on the risks of climate change and the required adaptive measures.

INDICATORS

14.4.1 KAP Study conducted on the risks of Climate Change and adaptive measures.

14.4.2 Knowledge products produced for public awareness.

**Objective 14.5** Ensure coordination and information exchange between health sector and other health influencing sectors.

INDICATORS

14.5.1 Protocol documents developed with relevant sectors.

4.5.2 Minutes of Standing Health Committee.

**Objective 14.6** Strengthen the Vector Control Division's (VCD) capacity to respond to disease outbreaks and improve surveillance of climate-associated diseases.

INDICATOR

14.6.1 Availability and use of required equipment, tools and supplies within VCD.

**Objective 14.7** Ensure that MOH is adequately staffed with appropriate combination of professionals in specialised areas.

INDICATORS

14.7.1 Completed HR Audit Report.

14.7.2 Completed HR upgrade plan.

14.7.3 Implementation of measures within HR plan.

**Objective 14.8** Ensure that MOH front line personnel are sensitised to the risks of climate change and health and trained to respond.

INDICATORS

14.8.1 Climate Change and Health included in Nurses Training Curriculum.

14.8.2 Completed training programs for all nurses and frontline medical personnel.

**Objective 14.9** Strengthen Health Information and Surveillance Systems, to proactively identify emerging threats from climate change and (b) trends in occurrence of existing diseases.

INDICATORS

14.9.1 Registry of climate information established and functional o Climate Data management policy and protocol available and utilized o Protocol to engage research institutions available and utilized.

14.9.2 Functional National Research Centre.

14.9.3 Research Officer to monitor global trends appointed and functional.

14.9.4 Laboratory facilities to analyze climate change related contribution to disease outbreaks functional.

14.9.5 Disease trends reports shared with primary health care system.

**Objective 14.10** To make the health sector infrastructure and equipment resilient to climate change.

INDICATORS

14.10.1 Assessment reports of all health facilities produced.

14.10.2 Completed implementation plan to upgrade all facilities over a ten year period.

**Objective 14.11** To ensure up-to-date response and treatment protocols for all identified climatesensitive diseases and health-related impacts.

INDICATORS

14.11.1 Completed up to date protocols for responding to main climate sensitive diseases.

14.11.2 Completed protocol for responding to impacts of climate change on mental health.

**Objective 14.12** To improve biomedical waste disposal capacities.

INDICATORS

*No indicators were stated in the HNAP; however, suggested indicators could include:*

14.12.1 Assessment report on current biomedical waste management practices complete.

14.12.2 Number of health facilities with upgraded biomedical waste disposal systems.

14.12.3 Training sessions conducted on safe biomedical waste handling and disposal.

**Objective 14.13** Urgently respond to heat impacts.

INDICATORS

*No indicators were stated in the HNAP; however, suggested indicators could include:*

**14.13.1** Early warning system for extreme heat events established and functional.

**14.13.2** Heat response protocols developed and implemented in all health facilities

**Objective 14.14** Ensure availability of appropriate medicines and emergency equipment and supplies for current and emerging diseases.

INDICATORS

**4.14.1** Completed protocol for providing information on emerging diseases by the *Epi Unit* to the Drug and Therapeutic Committee

**14.14.2** Availability of appropriate storage facilities for full range of required medicines.

**14.14.3** Heat response protocols developed and implemented in all health facilities.

**Objective 14.15** Ensure that vulnerable communities are identified, sensitized and supported in addressing health impacts from climate change.

INDICATORS

**14.15.1** Listing of vulnerable communities and districts where physical conditions increase health risk.

**14.15.2** Specific risk reduction plan developed and being implemented for each vulnerable district/ community.

**14.15.3** Provisions in MOH Disaster Management Plan for relevant protocols.

**Objective 14.16** Ensure that the health needs of vulnerable populations are addressed during climate change impacts.

INDICATORS

**14.16.1** Listing of differently abled persons in each community.

**14.16.2** Completed protocols to support vulnerable persons in the event of exposure to climate hazards.

**Objective 14.17** Ensure that gender considerations are factored into the design and implementation of HNAP programmes, projects and activities.

## INDICATORS

14.17.1 Report on trainings conducted with Senior Management team at MOH.

14.17.2 Evidence of gender sensitive workplans.

**Objective 14.18** Ensure that climate change policies being developed in non-health sectors, including through the implementation of the NDC and the NAP do not pose a risk to health.

## INDICATOR

14.18.1 Explicit consideration of health implications in plans from non-health sectors.

**APPROXIMATE BUDGET:**

The indicative budget for implementing the Health National Adaptation Plan (HNAP) is USD 50,960,000.

*Note: This figure may not exactly match the original total in the HNAP document, as adjustments and updates have been made to more clearly reflect indicative costs and to account for recent developments since the initial drafting. However, the revised estimate remains closely aligned with the original budget. Moreover, a 10% contingency, consistent with the approach used in the HNAP, brings the overall estimated budget to approximately USD 56,056,000.*

**LEAD AGENCY:**

Ministry of Health, Wellness and Religious Affairs

**Overview**

In 2018, Caribbean health ministers agreed to implement a series of actions aimed at more effectively controlling vectors that transmit diseases such as malaria, dengue, Zika, and Chagas disease. Climatic factors, including increases in temperature and precipitation, have been shown to influence vector distribution and disease transmission patterns. Grenada, recognizing these risks, addressed the challenge in its previous National Adaptation Plan (NAP) through several proposed measures to strengthen vector control and public health preparedness.

Grenada's climate change health profile identified the highest priority climate-sensitive health risks for Grenada as direct effects (e.g. health impacts from extreme weather events and heat related illness); indirect effects (water and food security issues, and air pollution); and diffuse effects (e.g. mental/psychosocial health and non-communicable disease) (WHO, 2020). These findings were similarly reported in Grenada's Climate Change and Health Vulnerability and Adaptation Assessment, which stress the high vulnerability of key social groups to climate change. Building the requisite systems to effectively prevent and mitigate these risks through a comprehensive approach at building the pillars of a resilient health system is crucial.

The government has started to integrate climate change considerations into all new relevant legislations, policies and plans, such as the Strategic Plan for Health 2016-2025.

As part of this integration, the Strategic Plan for Health acknowledges the sector's vulnerability to natural hazards and climate change and "makes provision for the development of a climate change adaptation action plan to build resilience" (GOG, 2016a, p.65). "This action plan will also feed into the National Adaptation Plan, coordinated by the Ministry responsible for Climate Resilience and the Environment" (GOG, 2016a, p.36) [which has been incorporated into this revised NAP]. At the institutional level, while the Ministry of Health does have a Health Disaster Committee (HDC) comprising senior officers, there is currently no formal framework or dedicated unit within the Ministry to lead climate change programming. The development of the adaptation plan therefore presents an opportunity to strengthen institutional coordination and better integrate climate considerations into health disaster planning.

What was previously addressed under POA 8—largely subsumed within the broader themes of disaster risk reduction and disease prevention—has now been redefined and elevated as POA 14. This revision reflects a more comprehensive and streamlined approach, aimed at addressing the wider determinants of health system resilience. The existing Climate Change and Health Country Programme, together with the HNAP currently under development by the PAHO, articulates the priority actions to be implemented over the next five-year cycle of the NAP.

## Current Status

No measures were reported as completed for POA 8, which included disease prevention, in the NAP Progress Report. 12.5% of measures were reported as partially completed, 50% were ongoing and continuous, 12.5% started and 25% no action had started.

## Priority Actions (equivalent of "Priority Areas" as titled in the HNAP)

- i. Access to Essential Medicines
- ii. Vulnerable Communities and Populations
- iii. Health Systems Financing
- iv. Health Workforce
- v. Leadership and Governance
- vi. Health Service Delivery
- vii. Health Information and Surveillance Systems
- viii. Interface with Non-health Sectors

### Tabulation of Specific Measures, Responsibilities, Costs, and Timelines for Achieving Each Objective.

**Note:** Objectives 14.12 and 14.13 were not included in Grenada’s HNAP Table 14 – *HNAP Implementation Strategy and Plan*; this table below reflects that omission to maintain consistency with the original document. Note also, that *Priority Area #3 – Health Systems Financing* – does not appear in the cost estimate table. This may reflect the fact that financing interventions (e.g., policy frameworks or insurance schemes) were not costed as standalone items in the HNAP, or that they are considered enabling mechanisms integrated across other areas, rather than direct cost centers.

Additionally, while the overall HNAP analysis was informed by the World Health Organization’s (2010) **Building Blocks of an effective health system** – namely: *Leadership and enabling environment; Cross-sectoral coordination and policy coherence; Comprehensive coverage of climate-sensitive health risks; Comprehensive coverage of adaptation options and actions; Resourcing; and Monitoring, evaluation and reporting* – this table is organized around the **Priority Areas** identified in the HNAP. These Priority Areas reflect the thematic goals of Grenada’s health sector adaptation strategy and were used to group objectives and actions throughout the plan. Although not identical, the Priority Areas broadly align with the Building Blocks, and organizing the table in this way maintains consistency with the original HNAP structure and supports clearer assignment of responsibilities across thematic program areas.

#### Priority Area #1: Leadership and Governance

**Objective 14.1:** Mainstream climate change into ongoing MOH governance and operational decisionmaking.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
14.1-1	Incorporate climate change measures into Annual Corporate Plan.	Health Planner, Permanent Secretary	10,000 (In-House)	5 years
14.1-2	Incorporate climate change measures into Health Strategic Plan.	Health Planner, Permanent Secretary, w.r.f. Health	20,000 (In-House)	5 years
14.1-3	Establish a climate change focal point with responsibility for climate change at a senior level in management structure – Health Disaster Management Officer.	Permanent Secretary w.r.f. Health	25,000	1 year
14.1-4	Incorporate climate change into planning processes using CCORAL tool.	Health Planner	10,000 (In-House)	5 years

**Objective 14.2:** Strengthen and enforce applicable policies, strategies and supporting legislation .

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
14.2-1	Set up an internal standing committee to revise and implement applicable policies, strategies and supporting legislation including Public Health Act – supported by legal consultant.	Permanent Secretary, w.r.f. Health	20,000	5 years

**Objective 14.3:** Update and implement the Disaster Management Plan for the Health sector.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
14.3-1	Set up an ad hoc committee to review the Disaster Management Plan for the health sector and make recommendations.	Permanent Secretary, w.r.f. Health	10,000 (In-House)	1 year
14.3-2	Finalise updated Disaster Management Plan.	Health Disaster Management Officer	20,000 (In-House)	1 year
14.3-3	Roll out implementation of the Disaster Management Plan across the various departments in the Ministry Health.	Health Disaster Management Officer	40,000	2 year

**Objective 14.4:** Proactively educate the general public on the risks of climate change and the required adaptive measures.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
14.4-1	Conduct KAP Study.	MOH Information Unit (MIU)	20,000	1 year
14.4-2	Initiate ongoing social media programming.	MIU	100,000	5 years
14.4-3	General information materials e.g brochures, community led meetings.	MIU	200,000	5 years

**Objective 14.5:** Ensure coordination and information exchange between health sector and other health influencing sectors.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
14.5-1	Establish MOU/protocols for interfacing with health influencing sectors, including insurance sector, water, agriculture, meteorological office.	Permanent Secretary w.r.f. Health, Health Disaster	20,000 (In-House)	1 year
14.5-2	Establish a Standing Health Committee to facilitate ongoing coordination and information with sectors.	Permanent Secretary w.r.f. Health, Chief Medical Officer	20,000 (In-House)	1 year

**Objective 14.6:** Strengthen the Vector Control Division's (VCD) capacity to assess, interpret and respond to disease outbreaks.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
14.6-1	Equip the Vector Control Division's (VCD) with the necessary equipment, tools and supplies to function effectively.	Permanent Secretary w.r.f. Health, Head of VCD	500,000	2 years

## Priority Area #2: Health Workforce

**Objective 14.7:** Ensure that MOH is adequately staffed with appropriate combination of professionals in specialised areas.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
14.7-1	Conduct a Human Resource Audit of the sector - build on PAHO project and include climate change requirements.	Permanent Secretary, Personnel Officer (PO)	40,000 (Build on ongoing PAHO project)	1 year
14.7-2	Develop a HR upgrade plan for the sector.	Permanent Secretary, Personnel Officer	20,000 (In-House)	1 year
14.7-3	Implement HR upgrade plan.	Permanent Secretary, Personnel Officer	25,000	3 years

**Objective 14.8:** Ensure that MOH front line personnel are sensitised to the risks of climate change and health and trained to respond.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
14.8-1	Introduce climate change and health into the Nurses Training Curriculum.	Permanent Secretary w.r.f. Health, Management of Training School	10,000	2 years
14.8-2	Conduct in-house training in climate change and health for all nurses and frontline medical personnel.	Permanent Secretary w.r.f. Health, Management of Training School	60,000	2 year

### Priority Area #3: Health Information and Surveillance Systems

**Objective 14.9:** Strengthen Health Information and Surveillance Systems, to proactively identify emerging threats from climate change and (b) trends in occurrence of existing diseases.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
14.9-1	Establish and maintain electronic registry of climate information that links with updated, electronic patient records and is accessible to relevant personnel - DHIS.	Epidemiologist in MOH in collaboration with Meterological Office and Land Use Department	260,000	3 years
14.9-2	Establish Climate Data Management policy and protocol with Grenada MET Service Ministry of Agriculture, NAWASA, NaDMA and other sources and users of climate data re data access and assessment for trends on an ongoing basis.	Epidemiologist in MOH in collaboration with Meterological Office and Land Use Department	100,000	3 years
14.9-3	Develop protocol to engage research institutions or initiatives, including SGU, to ensure MOH is engaged formally at the inception phase and that the MOH is aware of the policy and financial implications both long term and short term and the relevance to the MOH strategic agenda.	Permanent Secretary, Chief Medical Officer	40,000	3 years

**Priority Area #3: Health Information and Surveillance Systems**

**Objective 14.9:** Strengthen Health Information and Surveillance Systems, to proactively identify emerging threats from climate change and (b) trends in occurrence of existing diseases.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
14.9-4	Reinstate National Research Centre Appoint Research Officer(s) to monitor global trends and analyse local data and provide specialised training as required	Permanent Secretary, Chief Medical Officer	210,000	5 years
14.9-5	Strengthen MOH laboratory facilities to analyze climate change related contribution to disease outbreaks	Permanent Secretary, Chief Medical Officer	225,000	5 years
14.9-6	Share information on disease trends with primary health care system so that adequate preparation for responding can be made at the community level	Permanent Secretary, Chief Medical Officer	20,000	

**Priority Area #4: Health Service Delivery**

**Objective 14.10:** To make health sector infrastructure and equipment resilient to climate change incorporating lessons learnt from PAHO Smart Hospital Project (including low carbon technologies for all new equipment).

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
14.10-1	Conduct assessment of all health facilities using PAHO Hospital Safety Index tool and including location re flooding and sea level rise	Health Planner with support from PAHO (access to assessors)	120,000	1 year
14.10-2	Develop a phased implementation plan and upgrade all facilities over a ten-year period starting with most urgent, for effective delivery health services	Health Planner with support from PAHO (access to assessors)	46,000,000	5 years

**Objective 14.11:** To ensure up- to-date response and treatment protocols for all identified climate-sensitive diseases and health-related impacts.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
14.11-1	Set up a Standing Committee to update, and develop where absent, protocols for responding to outbreaks of climate sensitive diseases	Epidemiologist, Chief Medical Officer	30,000	5 years
14.11-2	Develop protocol for responding to impacts of climate change on mental health	Chief Medical Officer in collaboration with Ministry of Social Development	40,000	2 years

**Note:** For clarification regarding the absence of Tables 14.12 and 14.13, please refer to the explanation provided on page 148.

#### Priority Area #5: Access to Essential Medicines

**Objective 14.14:** Ensure availability of appropriate medicines and emergency equipment and supplies for current and emerging diseases.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
14.14-1	Protocol for providing information on emerging diseases by the <i>Epi Unit</i> to the Drug and Therapeutic Committee to guide procurement of required medicines	Epidemiologist	20,000	1 year
14.14-2	Assessment and upgrading/provision of appropriate storage facilities for full range of required medicines incl cold chain (8/-20/-70/-80 degrees)	Pharmacy	2,000,000	3 years
14.14-3	Appropriate transportation facilities for moving medicines around the island in the context of rising temperatures e.g. refrigerated vehicles	Pharmacy	300,000	2 years

**Priority Area #6: Vulnerable Communities and Populations**

**Objective 14.15:** Ensure that vulnerable communities are identified, sensitized and supported in addressing health impacts from climate change.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
14.15-1	Vector Control Division (VCD) and Community Health Nurses (CHN) collaborate to identify vulnerable communities/districts where physical conditions increase health risk	Chief Community Health Nurse	40,000	2 years
14.15-2	For each community/district VCD and CHN work with community to sensitise on the risks and develop measures to minimize the occurrence of risk	Chief Community Health Nurse	40,000	3 years
14.15-3	MOH Disaster Management Plan includes protocols for working with “at risk” communities and districts in the event of the impact of a climate hazard	Disaster Management Officer	100,000	1 year

**Objective 14.16:** Ensure that the health needs of vulnerable populations are addressed during climate change impacts.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
14.16-1	Develop and maintain a listing of differently-abled persons in each community/district who may need support in the event of the impact of a climate hazard	Chief Community Health Nurse	10,000	2 years
14.16-2	Develop protocols for supporting these persons in the event of the impact of a climate hazard	NaDMA, Ministry w.r.f. Health, Grenada National Council of the Disabled (GNCD)	10,000	2 years

**Objective 14.17:** Ensure that gender considerations are factored into the design and implementation of HNAP programmes, projects and activities.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
14.17-1	Senior Management team at the MOH to participate in training on gender sensitive programming and implementation	Permanent Secretary w.r.f. Health	25,000 In house with PAHO support	1 year
14.17-2	Implementation workplans developed for the HNAP clearly indicating the gender considerations including complementary and differential impacts being addressed on women and men, and the design of the programme to accommodate these differential impacts	Health Planner	20,000	5 years
14.17-3	Evaluation of the implementation of the HNAP should capture the complementary and differential impacts on women and men	Health Planner	100,000	5 years

**Priority Area #7: Interface with Non-Health Sectors**

**Objective 14.18:** Ensure that climate change policies being developed in non-health sectors, including through the implementation of the NDC and the NAP do not pose a risk for health.

#	Measures	Responsibility	Indicative cost (USD)	Timeline (2025-2030)
14.18-1	Specific measures relevant to these sectors have to be monitored by health sector e.g. construction, water, food security, education	Permanent Secretary through interaction at Senior Management Board and appointment of health representatives to relevant Committees and monitoring bodies	40,000 US Note: In which, \$25,000 is for logistics	5 years



## 6.0 Scenario-Based Climate Change Adaptation Using POAs

Scenario planning for climate change adaptation involves constructing plausible, relevant, divergent, and challenging future scenarios to help resource managers navigate uncertainty (Peterson, Cumming, & Carpenter, 2003; U.S. Geological Survey, 2023). This strategic approach enables managers to evaluate which current practices may succeed or fail under varying conditions, explore critical uncertainties, and develop resilient goals and strategies (Star et al., 2016). As the impacts of climate change are often unpredictable, scenario planning also serves to challenge assumptions and foster innovative thinking.

Recent research underscores the importance of combining scenario planning with structured decision-making (SDM). For example, Miller et al. (2023) discuss how Scenario-Based Decision Analysis (SBDA) integrates the qualitative aspects of scenario planning with the quantitative rigor of SDM, leading to better-informed decision-making under uncertainty. Likewise, Oriol et al. (2024) highlight the usefulness of scenario planning in providing managers with tools to anticipate a variety of climate conditions, such as increased droughts or shifting ecosystems, enabling better preparation and adaptation. This method is particularly effective in addressing the complex, nonlinear impacts of climate change and guiding strategic management practices (Miller et al., 2023; Oriol et al., 2024).

The method used for developing scenarios across the Programme of Actions (POAs) was Miradi software, a strategic tool employed in project management and conservation planning. Miradi employs results chains (logic models) to map out the sequence of actions leading to desired outcomes, such as enhancing resilience or reducing vulnerability to climate impacts. These results chains are particularly useful for visualizing how interventions interact under different scenarios and can be adjusted to explore various pathways towards achieving targeted conservation or adaptation results.

For practical POAs like Water Availability (POA 3), Food Security (POA 4), Ecosystem Resilience (POA 5), Integrated Coastal Zone Management (ICZM) (POA 6), Resilient Infrastructure & Sustainable Land Management (POA 7), Disaster Risk Reduction (POA 8), and Climate Mobility (POA 13), scenarios were designed by building and adjusting results chains. In summary, these results incorporate both immediate actions (like infrastructure upgrades or community preparedness training) and long-term outcomes (such as enhanced climate resilience or reduced displacement due to extreme weather).

In designing these scenarios, climate change projections played a key role. Different climate pathways, including Representative Concentration Pathway 2.6 (RCP2.6), RCP4.5, and RCP8.5, were considered to evaluate how various climate impacts (such as sea level rise, increased storm intensity, temperature increases, and shifts in rainfall patterns) would influence the effectiveness of planned interventions. By linking actions in the results chains to climate change projections, the scenarios enable policymakers and stakeholders to visualize how infrastructure, policies, and community adaptation strategies will perform under different climate conditions.

Summary of Key Projections by End of Century (2071–2100 compared to 1981–2010) as determined by WHO and UNFCCC (2020):

- Temperature increase: +2.9°C (RCP8.5) vs. +0.9°C (RCP2.6)
- Total annual precipitation decrease: -24% (RCP8.5) vs. -6% (RCP2.6)
- Percentage of hot days: ~100% (RCP8.5) vs. ~90% (RCP2.6)
- Proportion of rainfall from very wet days: 25% (RCP8.5) vs. little change (RCP2.6)
- Drought severity (SPI12): -0.8 (RCP8.5) indicating more severe droughts, with large variability remaining.

The climate scenario categorization for Grenada reflects the diverse range of future pathways the country may experience based on varying levels of global greenhouse gas emissions and adaptive measures. These scenarios provide a structured way to assess the potential climate impacts under different conditions, from a low-emissions future to a high-emissions pathway, with varying degrees of adaptation. The categories help policymakers, researchers, and stakeholders envision how Grenada could be affected by climate change, offering insights into the potential consequences of action or inaction on emissions reduction and adaptation strategies. The four distinct scenarios—Low-Emissions Resilient Grenada, High-Emissions Vulnerable Grenada, High-Emissions Adaptive Grenada, and Moderate-Emissions Transition Grenada—offer a spectrum of possible futures. This categorization accounts for not only the physical climate hazards (such as temperature rise, sea level rise, and changes in precipitation) but also the socioeconomic responses, particularly Grenada’s capacity to build resilience through investments in a blue-green economy. By framing these scenarios, it becomes possible to explore how Grenada can mitigate risks and adapt to climate impacts, ensuring that future planning is grounded in both scientific projections and practical resilience measures.

### 1. Low-Emissions Resilient Grenada

- Grenada follows a low emissions pathway (RCP2.6), focusing on a sustainable blue-green economy. The country experiences mild climate impacts, including a temperature rise of ~0.9°C and minimal sea level rise (~0.3m) by 2100. A ~6% decrease in precipitation occurs, but these changes are manageable.

### 2. High-Emissions Vulnerable Grenada

- Definition: Grenada experiences severe climate impacts under the high emissions pathway (RCP8.5), with temperatures rising by ~2.9°C, sea level rise (~0.5m), and frequent intense hurricanes. Precipitation drops by ~24%, leading to severe droughts and water scarcity.

### 3. High-Emissions Adaptive Grenada

- Definition: Despite following the high emissions pathway (RCP8.5), Grenada builds resilience through a blue-green economy, adapting to severe climate impacts like rising temperatures (~2.9°C) and sea level rise (~0.5m). Frequent hurricanes and droughts strain the economy, but the country invests heavily in climate-smart solutions.

### 4. Moderate-Emissions Transition Grenada

- Definition: Grenada follows a moderate emissions pathway (RCP4.5), facing moderate climate impacts, including a temperature rise of ~1.5°C and moderate sea level rise (~0.4m). Precipitation decreases by ~10-15%, with occasional droughts and moderate flooding.

## Scenarios for POA 3: Water Availability

Scenario	Objective 3.1: Governance	Objective 3.2: Water Efficiency	Objective 3.3: Watershed Management	Objective 3.4: Supply Infrastructure	Outcomes	Potential Negative Impacts
<b>Low-Emissions Resilient Grenada</b>	Climate-responsive legislation is enacted to manage projected temperature rise (~0.9°C increase) and modest changes in precipitation (<6% decrease). WRMU is fully operational and able to adapt to limited climate variability under the RCP2.6 pathway.	40% increase in adoption of water security measures, driven by anticipation of milder drought conditions and reduced water demand (due to modest decreases in rainfall, ~5%). New buildings feature rainwater systems to mitigate reduced rainfall (~6% decrease).	Enhanced data for climate-proofing priority watersheds accounts for milder drought risk (SPI12 projections show slight decrease) and modest reduction in precipitation.	Climate-proofing of supply networks accounts for the lower risk of extreme drought or heat stress under this low emissions scenario. Rehabilitation of cisterns focuses on resilience against smaller decreases in rainfall and milder drought.	Reduced water scarcity impacts due to moderate projections for temperature and precipitation changes under RCP2.6. Improved ecosystem sustainability.	Over-reliance on community engagement may delay initiatives despite mild climate risks. Potential funding gaps if underestimated.
<b>High-Emissions Vulnerable Grenada</b>	Water Resource Management Unit (WRMU) although established but faces operational challenges due to inadequate funding and delays in legislative improvements. Climate-responsive legislation is not fully enacted, limiting the unit's effectiveness.	Limited adoption of water-efficient technologies. Rainwater harvesting systems are inconsistently installed, and overall water efficiency remains low. Water demand increases as temperatures rise and rainfall decreases.	Watershed management is underfunded, and degradation increases. Limited actions are taken to address watershed protection, leaving the country vulnerable to more frequent droughts and severe water shortages.	Supply infrastructure upgrades are delayed or underfunded, resulting in inefficiencies during peak demand and drought events. Aging systems cannot cope with the extreme climate variability projected under RCP8.5.	Inconsistent policy application, lack of funding, and insufficient community engagement may lead to unequal water distribution and exacerbate water scarcity during droughts.	RCP8.5 projects severe droughts and a 24% decrease in annual precipitation by the end of the century. Rising temperatures (~2.9°C) increase water demand, and the lack of robust infrastructure leads to chronic water shortages.

Scenario	Objective 3.1: Governance	Objective 3.2: Water Efficiency	Objective 3.3: Watershed Management	Objective 3.4: Supply Infrastructure	Outcomes	Potential Negative Impacts
<b>High-Emissions Adaptive Grenada</b>	Strong climate-responsive governance is critical as temperature increases by ~2.9°C and precipitation decreases by 22% on average. The WRMU needs to be highly adaptable to respond to frequent extreme weather and droughts.	Mandatory adoption of advanced water-efficient systems to combat extreme drought conditions (SPI12 decrease to -0.8) and near 100% hot days. Mandatory rainwater harvesting in new buildings to manage severe precipitation decline.	Full climate-proofing of watersheds using advanced technologies is essential to mitigate severe drought risk. Advanced monitoring needed to manage highly variable rainfall (uncertainty range from -5.5% to +5%).	Comprehensive overhaul of supply networks, including desalination and rainwater systems to offset the projected severe water scarcity from decreasing rainfall and increased heat stress (~100% hot days by the end of the century).	Significant improvements in water security and resilience, but dependent on high-cost technology that mitigates severe climate impacts like extreme droughts and heat stress under RCP8.5.	High costs and technological dependency may cause issues if future funding falters, and infrastructure may not adapt fast enough to unforeseen climate extremes. Ecosystem stress from severe droughts could reduce sustainability.
<b>Moderate-Emissions Transition Grenada</b>	WRMU is established but faces operational challenges responding to unpredictable climate variability (due to large uncertainty ranges in precipitation changes, -52% to +3%). Delays in legislative action due to uncertain climate projections.	Limited adoption of water-efficient technologies leaves Grenada vulnerable to inconsistent precipitation patterns and moderate droughts projected in RCP4.5. Inconsistent installation of rainwater systems fails to mitigate projected variability.	Underfunded watershed management leads to inadequate climate-proofing as drought risks increase (SPI12 decrease, indicating more frequent moderate droughts). Management actions are not fully prepared for precipitation declines (~22% under RCP8.5).	Sporadic updates to supply infrastructure during peak demand caused by projected temperature rises and increased drought events. Inadequate infrastructure adaptation to moderate increases in heat stress and decreased precipitation.	Some improvements in water management, but vulnerable to climate extremes like increased droughts and heat stress, especially during dry seasons.	Fragmented policy execution could lead to unequal water distribution during drought events, exacerbating water scarcity.

Scenarios for POA 4: Food Security

Scenario	Objective 4.1: Climate Vulnerability Data	Objective 4.2: Legal and Policy Framework	Objective 4.3: Climate-Resilient Systems	Objective 4.4: Disaster Preparedness	Objective 4.5: Knowledge and Understanding	Objective 4.6: Funding for Resilience	Potential Downfalls/Negative Impacts
<b>Low-Emissions Resilient Grenada</b>	Complete vulnerability and risk assessments focus on 4 priority crops and livestock, utilizing climate projections that anticipate a 0.9°C rise in temperature and slight reductions in rainfall (~6%). The data informs adaptation strategies that prepare for mild drought and moderate climate variability.	Updated Agriculture Policy and Drought Management Strategy fully incorporate projected climate impacts (slight precipitation decrease) and gender considerations. Policies are aligned with low-risk scenarios for drought and temperature rise under RCP2.6, ensuring sustainability and resilience.	Climate-resilient technologies are adopted to ensure resilience against modest climate risks, such as drought-resistant crops and advanced irrigation. These measures respond to projections of moderate water scarcity and temperature rise. Four major adaptation projects improve food security under mild climate scenarios.	Two risk transfer schemes operational for moderate climate events. These include financial security for farmers and fisherfolk in case of climate events, and an early warning system for food and nutrition aligned with regional disaster protocols.	Systematic climate education programs address the moderate risks projected for the agriculture and fisheries sectors, ensuring that farmers and fisherfolk understand and apply adaptive measures. Programs focus on preparing for modest increases in heat and drought risk.	40% increase in funding for resilience, enabling large-scale projects that address mild climate risks (like drought resilience and improved irrigation). This ensures sustainable food security in line with the lower emissions scenario.	Overreliance on high-tech solutions may not be adaptable in local contexts. This could result in long-term dependency on external funding/support, especially when considering low climate variability.
<b>High-Emissions Vulnerable Grenada</b>	Partial climate vulnerability assessments are conducted, focusing on a few crops and livestock due to resource constraints. Assessments lack the depth needed to fully prepare for severe climate impacts like frequent droughts and intense heatwaves.	Policy frameworks are underdeveloped, with delays in enacting climate-resilient policies. The agricultural sector remains vulnerable to frequent weather disruptions, and adaptation strategies are insufficient.	Limited implementation of climate-smart agriculture due to funding constraints. Most farmers rely on traditional methods, making food production highly vulnerable to extreme droughts and storm damage.	Basic disaster preparedness measures are in place, but risk transfer schemes remain underdeveloped, leaving the agricultural sector unprotected against economic losses from frequent extreme weather events.	Inconsistent educational programs mean that climate-smart agriculture practices are not widely adopted. Farmers are unprepared for the increasing climate variability under this high emissions scenario.	Funding falls short of the required targets, leading to scaled-down projects. Many initiatives to support food security and climate adaptation are delayed or underfunded.	Inconsistent policies, limited funding, and fragmented implementation prevent widespread adoption of climate-resilient agriculture practices, leaving food systems vulnerable to severe climate impacts.

Scenario	Objective 4.1: Climate Vulnerability Data	Objective 4.2: Legal and Policy Framework	Objective 4.3: Climate-Resilient Systems	Objective 4.4: Disaster Preparedness	Objective 4.5: Knowledge and Understanding	Objective 4.6: Funding for Resilience	Potential Downfalls/Negative Impacts
<b>High-Emissions Adaptive Grenada</b>	Comprehensive climate vulnerability assessments are completed for all targeted crops and livestock, using detailed climate modeling. These assessments take into account significant temperature increases (~2.9°C) and precipitation decreases (~22%), providing actionable data for extreme drought scenarios and severe climate impacts under RCP8.5.	Complete overhaul of policies integrates robust climate resilience measures to respond to extreme temperature and precipitation changes. Policies are based on detailed vulnerability assessments and are proactive, addressing severe droughts, increased heat stress, and reduced rainfall.	Extensive implementation of climate-resilient technologies includes drought-resistant crop varieties, advanced irrigation systems, and sustainable aquaculture. These measures are designed to respond to extreme drought risk and increased heat stress, ensuring that productivity remains high despite intense climate impacts.	Advanced disaster preparedness systems provide comprehensive coverage for all stakeholders. This includes effective risk transfer schemes and a fully operational early warning system to protect farmers and fisherfolk from severe climate events like extreme droughts, floods, and heatwaves.	Comprehensive climate education programs are based on the latest climate science and target all stakeholders in the sector. These programs are designed to prepare for significant climate risks (like severe droughts and temperature increases) under RCP8.5. They enhance community resilience and adaptive capacity.	Funding exceeds the 40% target, supporting a wide range of projects aimed at mitigating severe climate risks. This includes large-scale projects addressing severe water scarcity and food security threats in the face of extreme climate impacts.	High initial costs and complexity of implementing advanced technologies may delay immediate benefits. There is also a risk of dependency on external funding and expertise, which could become unsustainable if future support diminishes in the face of severe climate variability.
<b>Moderate-Emissions Transition Grenada</b>	Partial completion of vulnerability assessments focuses on a subset of priority crops and livestock, using limited climate projection data. This lack of comprehensive data limits the ability to fully prepare for climate variability (e.g., inconsistent rainfall and moderate droughts).	Some policy updates integrate climate data, but inconsistently. Policies lag behind emerging climate data and do not fully address potential moderate droughts and extreme rainfall variability, reducing their effectiveness.	Limited adoption of climate-resilient technologies due to funding constraints. Some climate-smart practices are implemented, but these efforts fail to prepare the sector for moderate climate risks (e.g., less effective against drought and temperature increases).	Basic disaster preparedness measures are in place, but comprehensive risk transfer schemes are still in development. These leave farmers and fisherfolk vulnerable to climate variability, particularly inconsistent precipitation and temperature extremes.	Moderate knowledge increase in climate risks, but inconsistent delivery of educational programs means patchy understanding of climate-smart practices. This inconsistency leaves gaps in preparedness for moderate climate impacts.	Funding increases but does not reach the 40% target, resulting in scaled-down projects. Insufficient funding prevents full adaptation to moderate climate extremes like prolonged dry spells or unexpected weather patterns.	Fragmented policy implementation and insufficient funding lead to suboptimal resilience, leaving the sector vulnerable to moderate climate impacts. This may exacerbate vulnerabilities and lead to greater reliance on imported food during climate events.

## POA 5: Ecosystem Resilience

Scenario	Objective 5.1: Legal and Policy Implementation	Objective 5.2: Data Collection and Monitoring	Objective 3: Protected Areas and Reforestation	Objective 5.4 Community Engagement	Outcomes	Climate Change Projection Considerations
<b>Low-Emissions Resilient Grenada</b>	"Climate Resilience, Environment and Natural Resource Bill" and "National Land Policy" are enacted, providing a robust legal framework for ecosystem management in line with milder climate impacts (e.g., slight temperature increase and moderate drought risk).	A fully operational Protected Areas Data Collection Inventory ensures extensive ecosystem monitoring, responding to projected modest climate risks such as slight changes in rainfall and temperature. The data supports adaptive management of ecosystems, ensuring their resilience.	Establishment of five new Marine Protected Areas (MPAs) and 40% increase in reforestation efforts help mitigate climate impacts, such as moderate sea level rise and coastal erosion. 25% of ecosystems are protected, aligned with projected modest climate threats.	High community involvement ensures wide participation in ecosystem restoration and conservation activities, building resilience against milder climate impacts (e.g., mild increases in temperature and drought).	Enhanced biodiversity conservation and increased ecosystem resilience to moderate climate change impacts, alongside sustainable economic growth through eco-tourism. The mild climate impacts anticipated in RCP2.6 allow for sustainable management of natural resources.	Temperature rise (~0.9°C) and slight precipitation decrease (~6%) projected under RCP2.6 support the focus on biodiversity conservation and mild adaptation measures like reforestation and MPAs to mitigate coastal and biodiversity vulnerabilities.
<b>High-Emissions Vulnerable Grenada</b>	Neither key legal instruments are enacted, leaving regulatory gaps that expose ecosystems to severe climate risks, such as a temperature increase of ~2.9°C, significant precipitation decrease (~22%), and more frequent extreme weather events (e.g., floods, droughts).	The lack of comprehensive data collection systems severely limits the ability to manage and protect ecosystems under severe climate change impacts. Without reliable data, the government struggles to plan for rapidly changing ecosystem vulnerabilities caused by extreme droughts and flooding.	Failure to establish new MPAs or expand reforestation efforts results in increased ecosystem vulnerability to extreme climate impacts, such as coastal erosion and intense droughts. Biodiversity loss accelerates, with ecosystems unable to cope with projected climate stress.	Minimal community engagement in conservation efforts leads to low participation in ecosystem protection activities, exacerbating the negative effects of extreme climate events on natural habitats.	Increased vulnerability to climate-related risks (e.g., extreme droughts, floods, and coastal erosion) leads to continued ecosystem degradation and loss of biodiversity. The lack of action worsens economic opportunities related to natural resources and eco-tourism.	Extreme temperature increase (~2.9°C) and precipitation decrease (~22%) under RCP8.5 make ecosystems highly vulnerable to severe droughts, erosion, and extreme weather events. Without policy and reforestation, climate impacts become harder to mitigate, accelerating biodiversity loss and ecosystem collapse.

Scenario	Objective 5.1: Legal and Policy Implementation	Objective 5.2: Data Collection and Monitoring	Objective 3: Protected Areas and Reforestation	Objective 5.4 Community Engagement	Outcomes	Climate Change Projection Considerations
<b>High Emissions Adaptable Grenada</b>	Legal frameworks for ecosystem resilience, including the Climate Resilience, Environment, and Natural Resources Bill, are fully implemented. Policies promote sustainable development and focus on climate-proofing ecosystems, even under high emissions.	Advanced data collection systems are in place, utilizing satellite monitoring and remote sensing to track ecosystem changes and biodiversity loss. Data is used to inform adaptation strategies in response to frequent extreme weather events.	Protected areas are expanded, with a 30% increase in Marine Protected Areas (MPAs) and reforestation projects that cover key degraded areas. Reforestation efforts focus on drought-resistant species, helping ecosystems adapt to climate impacts.	High community engagement in ecosystem restoration and conservation projects. Education programs and local participation drive a sense of stewardship, ensuring communities are involved in protecting their environments despite frequent climate risks.	Despite high emissions, Grenada builds resilient ecosystems through focused reforestation and the expansion of protected areas. Ecosystem services improve, supporting livelihoods and biodiversity.	High initial costs of monitoring systems and reforestation projects may lead to funding challenges. Dependency on technology could also cause issues if systems are not well maintained.
<b>Moderate-Emissions Transition Grenada</b>	Only the "Climate Resilience, Environment and Natural Resources Bill" is enacted, but "National Land Policy" is delayed, limiting ecosystem management under moderate climate variability (e.g., uncertain precipitation patterns and moderate drought risk).	Ecosystem monitoring is operational but covers fewer areas than planned, making it harder to adapt to moderate climate risks (such as unpredictable rainfall patterns). Data gaps affect ecosystem resilience planning.	Partial success in establishing new MPAs and reforestation efforts means Grenada falls short of the 25% protection target and 40% reforestation goal. This leaves ecosystems vulnerable to moderate climate impacts, such as longer dry periods and coastal erosion.	Moderate community engagement in ecosystem resilience activities results in inconsistent participation, which affects the ability to adapt to moderate climate threats (e.g., droughts and erosion).	Improved but inconsistent ecosystem management enhances resilience, but gaps in policy implementation and monitoring result in slower recovery from environmental degradation. Ecosystems are vulnerable to moderate climate extremes and natural hazards and disasters.	Moderate temperature increase (~1.5-2°C) and precipitation changes require stronger adaptive measures. Gaps in policy and monitoring create vulnerabilities in coastal areas and forests, which may not be able to withstand more frequent climate variability.

## POA 6- Integrated Coastal Zone Management

Scenario	Objective 6.1: Database Development	Objective 6.2: Technical Capacity	Objective 6.3: Legal and Institutional Arrangements	Objective 6.4: Coastal Restoration	Potential Downfalls/Negative Impacts	Climate Change Projection Considerations
<b>Low-Emissions Resilient Grenada</b>	Fully operational coastal database is developed, integrating coastal structure and ecosystem data. This database helps plan moderate coastal restoration efforts, accounting for mild sea level rise and coastal erosion under milder climate projections.	Improved technical capacity through training programs and beach profile completion helps address the mild erosion and stabilization needs associated with moderate climate impacts like mild sea level rise and storm surges under RCP2.6.	The Coastal Zone Management Unit is fully operational, with the coastal zone plan approved and enacted. Legislation is aligned with low-risk climate projections, ensuring the coastal area is protected from minor sea level rise and erosion risks.	Coastal restoration efforts in Carriacou focus on rehabilitating key areas to mitigate moderate erosion and flooding. Reduced sand mining and sustainable materials support resilience to mild climate impacts such as slight sea level rise and reduced storm intensity under RCP2.6.	Overreliance on technology could be problematic if technical support or funding diminishes, especially since RCP2.6 climate projections imply gradual changes that require sustained attention.	Sea level rise is projected to be moderate under RCP2.6, resulting in low-to-moderate coastal erosion. Coastal adaptation measures (like database development and restoration efforts) are geared toward managing smaller-scale impacts, with mild temperature and sea level increases.
<b>High-Emissions Vulnerable Grenada</b>	Database development is initiated but suffers from integration issues with existing coastal management tools, limiting its utility for regulatory decision making.	Technical capacity remains limited, with only partial completion of beach profiling. Coastal stabilization projects are poorly implemented, leading to increased erosion and vulnerability.	The Coastal Zone Management Unit faces bureaucratic delays, and regulatory frameworks are incomplete, resulting in weak enforcement of coastal protection measures.	Coastal restoration efforts in Carriacou achieve limited success. Sand mining continues, and sustainable building practices are not widely adopted, leaving coastal communities exposed to severe erosion and flooding.	Fragmented policy implementation and insufficient funding prevent comprehensive coastal management, leaving coastal ecosystems vulnerable to rising sea levels and storm surges.	RCP8.5 projects significant sea level rise (~0.5m or more) and intense hurricanes, resulting in widespread coastal erosion and destruction. Without strong management, Grenada's coastal areas face frequent flooding and habitat loss.

Scenario	Objective 6.1: Database Development	Objective 6.2: Technical Capacity	Objective 6.3: Legal and Institutional Arrangements	Objective 6.4: Coastal Restoration	Potential Downfalls/Negative Impacts	Climate Change Projection Considerations
<b>High-Emissions Adaptive Grenada</b>	An advanced, dynamic database is developed, integrating real-time coastal data that directly informs management of severe climate impacts, such as extreme sea level rise (~0.5m+) and more frequent extreme storms. This database is key to planning adaptive strategies for high-risk coastal areas.	Comprehensive training programs and detailed beach profiles equip the technical teams to address the severe erosion and coastal instability projected under RCP8.5. These efforts lead to successful beach stabilization projects that combat frequent flooding and storm surges.	The Coastal Zone Management Unit is quickly established, with strong legal frameworks in place to address rapid coastal changes. Regulations actively enforce protections against the extreme sea level rise, coastal erosion, and frequent storms expected in high-emissions scenarios.	Extensive coastal restoration in Carriacou leads to significant rehabilitation, reducing severe erosion and flooding risks. The focus on reducing sand mining and using sustainable materials is critical to managing the extreme climate risks projected under RCP8.5, such as coastal submerision and flooding.	The complexity of managing severe coastal impacts and high financial costs may result in delays. Grenada may also become dependent on continuous funding and external expertise to maintain and update coastal resilience projects in response to extreme climate impacts.	Extreme climate projections under RCP8.5 include significant sea level rise (~0.5m+ by 2100) and frequent extreme storms. The coastal management plan focuses on high-risk areas where severe erosion, storm surges, and flooding will require large-scale, coordinated efforts.
<b>Moderate-Emissions Transition Grenada</b>	Database development is initiated but suffers from integration challenges with existing tools. This affects the ability to manage moderate climate risks such as sea level rise and coastal erosion, which are projected to increase under middle-pathway scenarios.	Limited technical improvements mean only some beach profiles are completed, which reduces the effectiveness of coastal management decisions. This leads to less impactful responses to moderate coastal erosion and storm surges.	The Coastal Zone Management Unit faces bureaucratic delays, and the coastal zone plan is not fully approved. The lack of updated legislation leaves coastal areas vulnerable to moderate sea level rise and increasing storm intensity.	Coastal restoration projects are only partially successful, meaning Grenada's coasts remain vulnerable to moderate sea level rise and erosion, as sand mining continues and the adoption of sustainable building materials is slow.	Fragmented policy implementation and insufficient funding hinder the effectiveness of climate adaptation measures, making coastal areas more vulnerable to moderate climate risks, such as inconsistent sea level rise and erosion patterns.	The NAP report shows that 33.3% of measures are partially completed, but progress is slow, and increased effort is needed to meet the demands of moderate climate impacts.

POA 7: Resilient Infrastructure and SLM

Scenario	Objective 7.1: Enforcement and Policy Framework	Objective 7.2: Climate Vulnerability Profiles	Objective 7.3: Infrastructure Upgrades and Community Adaptation	Objective 7.4: Spatial Data and Risk Modeling Training	Potential Downfalls/Negative Impacts	Climate Change Projection Considerations
<b>Low-Emissions Resilient Grenada</b>	<p>The Planning and Development Authority (PDA) is fully operational with a Carriacou sub-office established. The enforcement of the Building Code and Development Control Act ensures resilient infrastructure development, aligning with projected mild sea level rise and moderate climate risks under RCP2.6.</p>	<p>Complete vulnerability assessments are carried out for airports, tourism sites, and major infrastructure, considering moderate temperature and sea level rise projections. These assessments are integrated into development plans to ensure new infrastructures meet climate resilience standards.</p>	<p>Sustainable infrastructure upgrades are fully implemented across vulnerable communities, in line with OECs Building Codes and regional standards. These upgrades help manage moderate climate risks like increased heat, mild flooding, and erosion projected under RCP2.6.</p>	<p>Training for spatial data and risk modeling is completed, ensuring personnel are equipped to address mild climate risks. The focus is on maintaining preparedness for mild storm surges and gradual temperature increases under RCP2.6.</p>	<p>Funding challenges may arise in maintaining comprehensive training programs, especially as RCP2.6 climate projections require continuous but less extreme adaptation. Regulatory fatigue could also be an issue with the rapid implementation of policies.</p>	<p>RCP2.6 projections indicate a 0.9°C rise in temperature and moderate sea level rise, which guide the development of mildly resilient infrastructure and moderate community adaptation efforts. Infrastructure upgrades are designed to mitigate gradual erosion and heat stress.</p>
<b>High-Emissions Vulnerable Grenada</b>	<p>The Planning and Development Authority (PDA) makes moderate improvements in capacity, but policy enforcement is inconsistent, leading to vulnerabilities in infrastructure development and land management.</p>	<p>Climate vulnerability assessments are incomplete, leaving gaps in managing the risks posed by frequent storms, flooding, and sea level rise. Coastal regions remain particularly vulnerable.</p>	<p>Infrastructure upgrades are started but delayed, failing to meet the resilience standards set by national guidelines. Many projects remain underfunded, particularly those in rural and coastal communities.</p>	<p>Training programs for spatial data and risk modeling are initiated but have limited reach, leaving many officials without the necessary skills to manage frequent storms and coastal degradation.</p>	<p>Fragmented policy implementation and underfunded projects leave key infrastructure vulnerable to severe climate impacts like frequent flooding and hurricanes.</p>	<p>RCP8.5 projects frequent intense hurricanes, rising sea levels, and increased storm surges, putting additional pressure on underdeveloped infrastructure and land management systems. Without adequate enforcement and adaptation measures, Grenada's infrastructure faces growing risks of failure.</p>

Scenario	Objective 7.1: Enforcement and Policy Framework	Objective 7.2: Climate Vulnerability Profiles	Objective 7.3: Infrastructure Upgrades and Community Adaptation	Objective 7.4: Spatial Data and Risk Modeling Training	Potential Downfalls/Negative Impacts	Climate Change Projection Considerations
<p><b>High-Emissions Adaptive Grenada</b></p>	<p>The PDA reaches full operational capacity and is highly effective in enforcing Building Codes and sustainable land management practices, helping communities prepare for extreme climate impacts like rapid sea level rise (~0.5m+), increased flooding, and severe heatwaves under RCP8.5.</p>	<p>Thorough climate vulnerability and risk assessments are completed for all major infrastructure and integrated into actionable adaptation plans. These plans focus on extreme climate impacts like frequent storms, flooding, and heat stress, guiding infrastructure development.</p>	<p>Targeted infrastructure upgrades are completed on schedule and fully comply with national and regional resilience guidelines. Community adaptation strategies are highly effective at mitigating extreme climate risks, including severe erosion, flooding, and frequent heatwaves.</p>	<p>Extensive training in spatial data and risk modeling surpasses targets, equipping officials to manage severe climate risks such as rapid erosion, frequent storms, and extreme weather variability. This increases the overall capacity for climate adaptation across Grenada.</p>	<p>High financial and resource demands could delay project completion and increase reliance on external funding. Technological dependency may also pose risks if sustained support and updates are not maintained, which is critical for addressing severe climate impacts.</p>	<p>Extreme climate projections under RCP8.5 include ~2.9°C temperature rise, significant sea level rise (~0.5m+ by 2100), and frequent extreme storms. Infrastructure and adaptation efforts focus on mitigating these severe risks, ensuring robust resilience to extreme erosion, flooding, and heatwaves.</p>
<p><b>Moderate-Emissions Transition Grenada)</b></p>	<p>The PDA improves capacity, with inconsistent enforcement of the Building Code and new regulations, leading to uneven resilience in infrastructure projects. Policies are partially integrated, leaving some areas vulnerable to moderate climate risks such as variable rainfall and increasing storm surges.</p>	<p>Climate assessments are conducted for critical infrastructure, but the integration of risk assessments into development plans is incomplete. This leaves tourism sites and airports vulnerable to moderate climate impacts like flooding and temperature rise.</p>	<p>Infrastructure upgrades are initiated but do not fully meet resilience standards. This results in variable success across communities in dealing with moderate climate risks, such as flooding and inconsistent weather patterns.</p>	<p>Training for spatial data use and risk modeling is noted, but the reach and quality are inconsistent, resulting in unequal preparedness for managing moderate climate impacts across regions.</p>	<p>Inconsistent policy enforcement and limited funding for infrastructure projects and training undermine efforts to address moderate climate impacts. Gaps in adaptation measures could lead to vulnerabilities in infrastructure resilience.</p>	<p>Progress shows some initiatives are underway, but only a portion of measures are partially completed. More coordination and resources are needed to ensure comprehensive coverage and effectiveness.</p>

POA 8: Disaster Risk Reduction

Scenario	Objective 8.1: Access to Early Warning Systems	Objective 8.2: Technical Capabilities & Data Management	Objective 8.3: Transition of NaDMA into Statutory Body	Objective 8.4: Upgrade Shelters & Community Centers	Objective 8.5: Improve Stakeholder Coordination & Response Time	Potential Downfalls/Negative Impacts	Climate Change Projection Considerations
<b>Low-Emissions Resilient Grenada</b>	Communities identified using vulnerability assessments and early warning systems (EWS) rolled out to cover moderate disaster risks, such as mild flooding and occasional storms. Increase in EWS coverage across high-risk areas, aligned with moderate climate projections.	Data coverage improves to meet 95% accuracy by 2030. A centralized online platform is launched, allowing real-time data sharing to support disaster response in moderate-risk scenarios (e.g., occasional storm surges and mild floods).	NaDMA's transition into an autonomous body is completed by 2026, ensuring it can effectively manage moderate disaster risks, such as mild storms, under RCP2.6.	Shelters and community centers upgraded to meet new standards for moderate climate impacts. Focus is on ensuring these facilities can handle mild floods and short-term evacuations during occasional storms.	25% faster response rates achieved, improving coordination for small-scale disasters. Unified Communication Platform modeled on Japan's J-Alert is fully operational, ensuring rapid stakeholder mobilization for moderate climate risks.	Overreliance on technology solutions could lead to gaps in maintenance, especially as RCP2.6 climate projections imply gradual changes. If not updated regularly, data systems may become obsolete.	RCP2.6 climate projections anticipate milder temperature increases (~0.9°C), slight sea level rise, and moderate rainfall changes. Early warning systems and infrastructure upgrades can focus on preventing mild disasters, such as occasional floods or storm surges, maintaining a proactive approach with minimal intervention.
<b>High-Emissions Vulnerable Grenada</b>	The identification of communities needing early warning systems is initiated but incomplete. Many vulnerable communities lack proper access to these systems, increasing their exposure to severe storms.	Data management capabilities remain underdeveloped, with gaps in coverage and inaccurate reporting of disaster risks. Early warning systems fail to respond effectively to intense hurricanes and flooding events.	The transition of NaDMA into a fully operational statutory body faces delays, resulting in limited enforcement of the Disaster Management Act 2023 and weaker governance of disaster management.	Shelter upgrades are only partially completed, with many shelters not meeting resilience standards for severe storms and hurricanes. Community centers remain underfunded and cannot handle the growing number of climate-related emergencies.	Coordination among stakeholders sees limited improvements, with inconsistent response times during disaster simulations. Communication breakdowns continue to hamper effective disaster management during severe climate events.	Funding gaps, inconsistent policy implementation, and delays in shelter upgrades leave communities vulnerable to severe hurricanes and flooding, resulting in increased loss of life and property.	RCP8.5 projects frequent intense hurricanes, rising sea levels, and increased flooding, requiring strong early warning systems and robust shelters, which are not fully in place under this scenario.

6.0 SCENARIO-BASED CLIMATE CHANGE ADAPTATION USING POAS

Scenario	Objective 8.1: Access to Early Warning Systems	Objective 8.2: Technical Capabilities & Data Management	Objective 8.3: Transition of NaDMA into Statutory Body	Objective 8.4: Upgrade Shelters & Community Centers	Objective 8.5: Improve Stakeholder Coordination & Response Time	Potential Downfalls/Negative Impacts	Climate Change Projection Considerations
<b>High-Emissions Adaptive Grenada</b>	All vulnerable communities identified and fully equipped with EWS by 2030. These systems are designed to handle extreme climate risks, including severe flooding, frequent hurricanes, and extreme weather variability under RCP8.5. Coverage is comprehensive, reaching high-risk communities in remote areas.	Data management reaches 95% accuracy with real-time disaster reporting fully integrated. Data transparency improves, supporting the management of extreme climate events, such as Category 4–5 hurricanes, severe flooding, and storm surges.	NaDMA becomes fully autonomous, effectively managing extreme climate risks by enforcing the Disaster Management Act 2023. The transition is completed by 2025, ensuring the agency can handle rapid response to extreme events.	Shelters and community centers fully meet enhanced standards, ensuring they can withstand Category 5 hurricanes, extreme flooding, and frequent evacuations. Dual-purpose facilities ensure long-term disaster management.	Stakeholder coordination achieves a 25% faster response rate. Unified Communication Platform allows for rapid mobilization during extreme events, ensuring stakeholders can respond within 24 hours of an emergency alert.	The complexity of managing extreme climate impacts and the high financial costs may cause delays in fully implementing infrastructure upgrades and maintaining state-of-the-art EWS. Reliance on external funding may pose sustainability risks.	RCP8.5 climate projections anticipate severe temperature rise (~2.9°C), significant sea level rise, and increased frequency of hurricanes and floods. The scenario requires comprehensive early warning systems, real-time data management, and infrastructure capable of handling extreme climate risks, such as Category 5 hurricanes and intense flooding.
<b>Moderate-Emissions Transition Grenada</b>	Moderate success in identifying communities that need access to EWS, but integration with local infrastructure is inconsistent. Some communities remain vulnerable to moderate climate risks, such as increased storm frequency and occasional flooding.	Data management systems improve but still face gaps in real-time accuracy. Efforts to reach 95% accuracy lag due to inconsistent funding. Vulnerability data supports efforts to manage moderate climate risks, but data gaps remain.	NaDMA's transition is underway but delayed due to funding issues. As a result, policy application for disaster management is inconsistent, impacting the ability to address moderate climate risks, such as occasional severe storms.	Shelters are upgraded, but community center functionality remains limited. Facilities can handle moderate storms and floods, but gaps remain in the ability to address increased storm intensity under middle climate scenarios.	Moderate improvement in response rates, but inconsistent communication among stakeholders. Some areas achieve 25% faster responses, but others remain delayed, leaving moderate-risk communities more vulnerable.	Inconsistent funding and gaps in infrastructure upgrades may leave communities vulnerable to moderate climate risks, such as frequent storms and more severe flooding.	Middle climate projections under RCP4.5 anticipate increased storm surges, 1.5°C to 2°C temperature rise, and moderate sea level rise, which require stronger data systems, better infrastructure upgrades, and faster response times to manage frequent flooding and inconsistent weather patterns.

POA 13: Climate Mobility

Scenario	Objective 13.1: Policy Frameworks	Objective 13.2: Data and Awareness	Objective 13.3: Resilient Infrastructure	Objective 13.4: Economic Diversification	Objective 13.5: Disaster Preparedness	Potential Downfalls/Negative Impacts	Climate Change Projection Considerations
<b>Low-Emissions Resilient Grenada</b>	Multi-sectoral taskforces from housing, education, and health sectors manage climate-induced displacement based on international guidelines (e.g., IOM templates). Policies are updated across relevant national platforms to integrate climate mobility considerations smoothly.	Comprehensive data systems track at-risk populations and inform public awareness campaigns using innovative platforms to ensure high community engagement. These campaigns target communities affected by mild climate risks under RCP2.6.	Climate-resilient infrastructures such as sustainable housing and emergency shelters are developed to support safe relocations. These structures are built to withstand moderate storms and floods, ensuring resilience to milder climate impacts.	Local economies diversify through climate-resilient job initiatives in renewable energy and sustainable agriculture, providing livelihoods for displaced populations. These sectors help communities adapt to moderate climate risks like gradual warming and mild sea level rise.	Disaster response plans incorporate climate mobility, with regular evacuation drills and training programs ensuring community preparedness for moderate storm surges and flooding under RCP2.6. Psychosocial support services are integrated into resettlement strategies.	Over-dependence on international guidelines like International Organization for Migration (IOM) templates may lead to misalignment with local contexts. The complexity of coordinating multi-sectoral efforts could result in operational inefficiencies.	RCP2.6 climate projections include a 0.9°C temperature rise, slight sea level rise, and moderate rainfall changes. Policy frameworks, infrastructure, and disaster preparedness efforts focus on managing mild climate mobility risks, ensuring resilience to small-scale displacements caused by mild storms or floods.
<b>High-Emissions Vulnerable Grenada</b>	Policy frameworks for managing climate mobility are underdeveloped and inconsistently applied across sectors. Limited legal and institutional support prevents effective management of climate-induced displacement.	Data collection on at-risk communities is limited. Vulnerability assessments are incomplete, and there are gaps in data on climate-induced migration, leading to poor planning and response to displacement crises.	Infrastructure projects intended to support displaced populations are delayed or underfunded. Many shelters and community centers fail to meet the resilience standards necessary to withstand frequent hurricanes and rising sea levels.	Economic diversification efforts are limited, focusing on brown economy sectors like traditional agriculture and fossil fuels. This leaves climate-displaced populations without adequate opportunities in sustainable, climate-resilient sectors.	Disaster preparedness plans lack integration with climate mobility considerations. Evacuation routes and emergency response systems are ill-prepared for frequent intense hurricanes and floods, resulting in increased risks for displaced communities.	Inconsistent policy implementation, lack of funding, and delayed infrastructure projects prevent adequate management of climate mobility. Vulnerable populations face displacement without sufficient support, leading to humanitarian crises.	RCP8.5 projects severe temperature rise (~2.9°C), frequent intense hurricanes, and significant sea level rise (~0.5m or more) by 2100. Grenada is poorly equipped to handle displacement crises, with insufficient data, infrastructure, and preparedness.

6.0 SCENARIO-BASED CLIMATE CHANGE ADAPTATION USING POAS

Scenario	Objective 13.1: Policy Frameworks	Objective 13.2: Data and Awareness	Objective 13.3: Resilient Infrastructure	Objective 13.4: Economic Diversification	Objective 13.5: Disaster Preparedness	Potential Downfalls/Negative Impacts	Climate Change Projection Considerations
<b>High-Emissions Adaptive Grenada</b>	Comprehensive, fully integrated policy frameworks address climate mobility across all sectors, including disaster management and housing regulations. A multi-sectoral taskforce uses IOM templates to guide policies that are culturally and socially appropriate for managing severe displacement under extreme climate risks.	Advanced data collection and modeling systems provide real-time insights into mobility patterns and at-risk populations. This data informs dynamic public awareness campaigns, ensuring vulnerable populations are well-informed and prepared for rapid displacements caused by severe climate impacts.	Extensive climate-resilient infrastructure projects are completed, including a network of emergency shelters and adaptive housing solutions in high-risk areas. These structures are designed to support safe relocations in the face of Category 5 hurricanes, extreme flooding, and frequent displacement events.	The local economy diversifies through significant investments in climate-resilient jobs (e.g., in sustainable agriculture and renewable energy), specifically targeting displaced populations. These jobs provide long-term stability and support economic resilience.	Disaster preparedness systems are comprehensive, integrating climate mobility considerations with regular evacuation drills, extensive training, and psychosocial support services for displaced populations. Communities are well-prepared to handle frequent and severe displacement due to extreme weather events.	High initial investments in infrastructure and training programs may create economic strain. Maintaining the effectiveness of data systems and policy frameworks in the face of rapidly evolving climate risks could be challenging.	RCP8.5 climate projections include severe temperature rise (~2.9°C), significant sea level rise (~0.5m+), and frequent Category 5 hurricanes. This scenario requires comprehensive policy frameworks, robust infrastructure, and advanced disaster preparedness to manage extreme displacements and ensure long-term resilience.
<b>Moderate-Emissions Transition Grenada</b>	Policy frameworks for climate mobility are developed but face challenges in full integration and enforcement across all sectors. Policy updates are inconsistent, leading to gaps in managing climate displacement.	Data collection on climate mobility is initiated but lacks depth and detail, affecting effectiveness of public awareness campaigns. Efforts to raise awareness are ongoing but do not fully reach at-risk communities, limiting preparedness.	Infrastructure projects to support displaced populations are started but face delays and may not always meet resilience standards. Funding or planning issues may cause setbacks, leading to partial progress in meeting climate resilience needs.	Economic support initiatives for displaced populations are launched but struggle to align with the immediate needs of displaced communities. The sustainability of new livelihoods is impacted by resource limitations and moderate climate risks.	Disaster preparedness plans include climate mobility considerations but lack comprehensive integration. Evacuation drills and psychosocial support services are sporadically implemented, leading to uneven preparedness across communities.	Inconsistent policy enforcement and delayed infrastructure projects may hinder effective management of climate mobility. Public awareness campaigns are limited, leading to lower community preparedness.	Middle climate projections under RCP4.5 suggest moderate sea level rise, 1.5°C to 2°C temperature rise, and increased storm intensity. The scenario requires more robust data collection, resilient infrastructure, and disaster preparedness to address frequent moderate displacements caused by storm surges and flooding.

## 7.0 Priorities Identified by the People of Grenada Carriacou and Petite Martinique

Based on the detailed notes provided from community sensitization events held in September 2024, across various parishes throughout Grenada and Carriacou, six (6) common and major concerns and ideas were identified across the tri-island state, and can be summarized as follows:

### 1. Environmental Degradation and Protection:

- **Common Concerns:** Across multiple communities, there is a strong emphasis on the degradation of ecosystems due to human activities like deforestation, sand mining, and mangrove destruction. Communities are facing the negative impacts of these actions, such as increased coastal erosion, loss of biodiversity, and compromised natural defenses against climate change (e.g., mangroves and trees).
- **Common Ideas:** Reforestation, especially using native species, and restoration of critical habitats like mangroves, are key suggestions. The idea of launching or enhancing reforestation initiatives and balancing development with conservation is also widely proposed.

### 2. Water Resource Management:

- **Common Concerns:** Many communities are experiencing water scarcity or issues with water access and infrastructure. There is a growing concern about the sustainability of current water management systems, especially in light of climate change and increasing demand.
- **Common Ideas:** Water conservation strategies, such as rainwater harvesting, hydroponics, and more robust water storage solutions (e.g., bigger barrels and improved wells), are frequently recommended. Some areas also stress the need for better infrastructure to maintain and increase water access.

### 3. Sustainable Agricultural Practices:

- **Common Concerns:** Traditional farming practices, including deforestation and unsustainable land management (e.g., cutting trees and discarding them into rivers), are exacerbating environmental degradation. This also ties into concerns about food security, as climate variability affects farming outputs.
- **Common Ideas:** The promotion of climate-smart agriculture, including mulching, buffering, and sustainable land-use practices, is a common solution. Emphasizing agriculture for food security, communities are looking at more resilient methods such as integrating modern data like rainfall information into agricultural decisions.

### 4. Pollution and Waste Management:

- **Common Concerns:** Pollution, including plastic waste, is frequently mentioned as a growing problem affecting ecosystems, marine life, and local communities. Sand mining is another form of environmental harm linked to pollution and erosion.
- **Common Ideas:** Communities suggest stricter regulations and better management of waste and pollution. The shift towards biodegradable materials and promoting the “polluter pays” principle are ideas to reduce pollution. Additionally, addressing sand mining through stronger oversight is another widely recommended action.

### 5. Community Engagement and Education:

- **Common Concerns:** There is a recurring concern that not all community members are equally engaged or informed about environmental challenges and adaptation strategies. Barriers, complex messaging, and limited access to information continue to hinder full participation, particularly among vulnerable groups such as women, youth, and the elderly. There is also a strong sentiment among communities that climate change education should begin much earlier in life. Many have expressed that climate change is already affecting their daily lives, and they believe that integrating climate change education into school curricula from as early as pre-school is essential. Teaching young children about environmental care and preservation is seen as a necessary step toward long-term resilience.
- **Common Ideas:** Simplifying communication and fostering inclusive community engagement are seen as essential. Expanding environmental education, starting from early childhood, and empowering youth and disadvantaged groups through training programs and workshops are key strategies to build resilience and increase participation in sustainable practices.

### 6. Involvement of Groups that Feel Left Behind (e.g., Religious Institutions and People with Disabilities):

- **Common Concerns:** Religious organizations and marginalized groups, such as people with disabilities, often feel left out of key environmental and adaptation planning processes despite having unique perspectives to offer. This exclusion can lead to missed opportunities for more holistic and inclusive solutions.
- **Common Ideas:** Religious institutions, particularly through bodies like the Conference of Churches, play a crucial role in advocating for sustainable practices and raising awareness among their congregations. Their community influence helps mobilize local support for environmental actions. Meanwhile, people with disabilities offer valuable insights on adaptation planning, as their unique needs can help shape more resilient and inclusive community solutions, especially in disaster preparedness and infrastructure design.

## 8.0 Conclusion

The Government of Grenada, including Carriacou and Petite Martinique, reaffirms its commitment to building a safe, sustainable, and climate-resilient future for all its citizens. The updated National Adaptation Plan (NAP) 2025–2030 builds on the foundation of the previous NAP while responding to the growing urgency and complexity of climate change impacts.

Although Grenada contributes minimally to global greenhouse gas emissions, the country faces disproportionate and escalating climate risks. As a Small Island Developing State (SIDS), Grenada is increasingly exposed to the devastating consequences of a changing climate—evident in more frequent and intense storms, prolonged dry spells, rising sea levels, and coastal degradation. The catastrophic impact of Hurricane Beryl in 2024 underscored the pressing need for more robust and coordinated adaptation efforts to protect lives, livelihoods, and ecosystems.

While global mitigation efforts remain essential, for SIDS like Grenada, adaptation is an imperative. The updated NAP reflects a national commitment to enhancing adaptive capacity, reducing vulnerability, and embedding resilience across all sectors of development.

The revision of the NAP is both a response to the progress achieved since 2017 and a recognition of the evolving climate landscape. Building on findings from the midterm review, the First NAP Progress Report, and extensive national consultations, the updated plan introduces strengthened measures, improved institutional arrangements, enhanced data systems, and more inclusive engagement—particularly of youth, women, and vulnerable groups. It also aligns closely with inter alia NCCP, the NSDP and Grenada’s NDCs.

Importantly, the NAP 2025–2030 identifies a set of national priority action areas to be pursued first—those recognized as investment-friendly and high-impact. These include strengthening health systems for climate resilience, advancing modern and sustainable infrastructure, enhancing disaster risk reduction and early warning capabilities, securing and managing water resources, promoting ecosystem-based restoration solutions, and ensuring climate-resilient agriculture and food systems. Across these priorities, energy is reaffirmed as a critical enabler of resilience, powering essential services, supporting low-carbon infrastructure, and underpinning climate-smart systems that reduce vulnerability and enhance adaptive capacity. The selection and confirmation of these priorities emerged through the broad-based consultations, the national validation, and dedicated high-level meetings with Permanent Secretaries, Ministers, the Sustainable Development Council, and the National Climate Change Committee, as well as through extensive community sensitization.

The NAP 2025–2030 serves not only as a strategic document but also as a national call to action. It seeks to guide and mobilize efforts across government, communities, and sectors, supported by domestic resources and international climate finance. Implementation of this plan will ensure that adaptation is integrated into the core of national planning and development—reinforcing systems that protect the environment, strengthen the economy, and promote social equity.

Adaptation in this context is not only about surviving the impacts of climate change, but about securing the long-term well-being, dignity, and security of all citizens. The updated NAP represents a crucial step toward that goal—providing a pathway for Grenada, Carriacou, and Petite Martinique to thrive in an increasingly uncertain climate future.

## References

- Appadoo, K. (2021). A short history of the loss and damage principle. *Revue juridique de l'Océan Indien*, (31), 315-323.
- BirdsCaribbean (2020) *BirdsCaribbean Expresses Deep Concern Over Three Damaging Developments in Grenada*. Available at: <https://www.birdscaribbean.org/2020/08/birdscaribbean-expresses-deep-concern-over-threedamaging-developments-in-grenada/>
- BirdsCaribbean. (2020, August 13). *BirdsCaribbean expresses deep concern over three damaging developments in Grenada*. <https://www.birdscaribbean.org/2020/08/birdscaribbean-expresses-deep-concern-overthree-damaging-developments-in-grenada/>
- Buckmire, Z., Constant, N., Hanna, J.A., Nurse, J., JosephWitzig, A. and Daniel, J. (2022)
- 'Mangroves for Money: Ecological and Social Impacts of Recent Development Projects in the Mangrove Forests of Grenada, West Indies', *Human Ecology Journal Commonwealth Human Ecology Council (CHEC)*, 32, pp. 36–52.
- Campo, K. R. K., Robinson, A., Isaac, W. A. P., & Ganpat, W. (2017). Connecting small farmers in the Caribbean to knowledge, networks, and institutions through ICTs. *Journal of Agricultural and Food Information*, 18(2), 81–95.
- Caribbean Development Bank. (2021). *Country Economic Review 2020 – Grenada*. <https://www.caribank.org/sites/default/files/publication-resources/Grenada%20CER%202020.pdf>
- Caribbean Natural Resources Institute. (2023). *Grenada National Ecosystem Assessment 2023*. [https://iki-cac.org/sites/default/files/content/documents/canari-nea-report-2023\\_final.pdf](https://iki-cac.org/sites/default/files/content/documents/canari-nea-report-2023_final.pdf)
- Charles, R. (2021). G-CREWS KAP: Baseline Grenada 2021. Ministry of Climate Resilience, The Environment & Renewable Energy. <https://climateresilience.gov.gd/docs/g-crews-kap-baseline-grenada-2021/>
- Côté, I. M., & Darling, E. S. (2010). Rethinking ecosystem resilience in the face of climate change. *PLoS Biology*, 8(7), e1000438. <https://doi.org/10.1371/journal.pbio.1000438>
- Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ). (2016). *Grenada climate change and health vulnerability and adaptation assessment*. Retrieved from [http://www.iccas.gd/sites/default/files/resources/VA%20Grenada\\_Formatted\\_GIZ\\_FinalApril.pdf](http://www.iccas.gd/sites/default/files/resources/VA%20Grenada_Formatted_GIZ_FinalApril.pdf)
- Global Commission on Adaptation. (2019). *Adapt now: A global call for leadership on climate resilience*. Global Center on Adaptation. <https://gca.org/reports/adapt-now-a-global-callfor-leadership-on-climate-resilience/>
- Global Facility for Disaster Reduction and Recovery (GFDRR). (2024). *Global Rapid PostDisaster Damage Estimation (GRADE) Report: Hurricane Beryl 2024 – Grenada*. <https://www.gfdr.org/en/publication/global-rapid-post-disaster-damage-estimationgrade-report-hurricane-beryl-2024-grenada>
- Government of Grenada. (2000). *Grenada's initial communication to the UNFCCC*. Retrieved from <https://unfccc.int/resource/docs/natc/grnnc1.pdf>
- Government of Grenada. (2007). *Road map toward integrated water resources management planning for Grenada*. Pacific Water. [https://www.pacificwater.org/userfiles/file/IWRM/Toolboxes/planning%20process/IWRM%20Road%20Map\\_Grenada\\_April%2007.pdf](https://www.pacificwater.org/userfiles/file/IWRM/Toolboxes/planning%20process/IWRM%20Road%20Map_Grenada_April%2007.pdf)

## REFERENCES

- Government of Grenada. (2014). *Gender Equality Policy and Action Plan (GEPAP) 2014–2024*. Ministry of Social Development and Housing. [https://oig.cepal.org/sites/default/files/2014\\_gender-equality-policy-action-plan\\_grd.pdf](https://oig.cepal.org/sites/default/files/2014_gender-equality-policy-action-plan_grd.pdf)
- Government of Grenada. (2016a). *Grenada Strategic Plan for Health, 2016- 2025*.
- Government of Grenada. (2016b). *National Biodiversity Strategy and Action Plan 2016–2020*. <https://www.cbd.int/doc/world/gd/gd-nbsap-v2-en.pdf>
- Government of Grenada. (2017). *National Export Strategy 2017–2021*. <https://www.finance.gd/index.php/news/17-news-release/541-296-launch-of-grenada-snational-export-strategy-2017-2021>
- Government of Grenada. (2019). *National Sustainable Development Plan 2020–2035*. <https://observatorioplanificacion.cepal.org/sites/default/files/plan/files/GRANADANSDP20202035.pdf>
- Government of Grenada. (2020a). *Developing a Climate Adaptation Monitoring and Evaluation System for Grenada’s National Adaptation Plan. A technical report based on expert interviews and the results of a government consultation on July 24–26, 2019*. Ministry of Climate Resilience, the Environment, Forestry, Fisheries, Disaster Management and Information of Grenada.
- Government of Grenada. (2020b). *Grenada National Water Policy*. Climate Resilience Portal. FAOLEX Database, <https://www.fao.org/faolex/results/details/en/c/LEX-FAOC203952/>
- Government of Grenada. (2021). *Medium-Term Action Plan (MTAP) 2022–2024*. <https://www.finance.gd/FinalMTAP2022-2024.pdf>
- Government of Grenada (GoG). (2022). *First progress report of the National Adaptation Plan for Grenada, Carriacou and Petite Martinique*
- Government of Grenada. (2024). *Southern St. George’s Water Supply Expansion and Wastewater Improvement Project*. Ministry of Climate Resilience, Environment & Renewable Energy. <https://climateresilience.gov.gd/project/southern-st-george-watersupply-expansion-project/>
- Hoegh-Guldberg, O., D. Jacob, M. Taylor, M. Bindi, S. Brown, I. Camilloni, A. Diedhiou, R. Djalante, K.L. Ebi, F. Engelbrecht, J. Guiot, Y. Hijjoka, S. Mehrotra, A. Payne, S.I. Seneviratne, A. Thomas, R. Warren, and G. Zhou, 2018: Impacts of 1.5°C Global Warming on Natural and Human Systems. In: *Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty* [Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA, pp. 175-312. <https://doi.org/10.1017/9781009157940.005>
- Intergovernmental Panel on Climate Change (IPCC). (2022). *Climate change 2022: Impacts, adaptation, and vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge University Press. Access at <https://www.ipcc.ch/report/ar6/wg2/>
- International Monetary Fund. (2020). *Grenada: Request for disbursement under the Rapid Credit Facility; Press release; Staff report; Staff statement; and statement by the Executive Director for Grenada*. IMF Country Reports, May 13, 2020.

## REFERENCES

- International Monetary Fund. (2022). *Grenada: 2022 Article IV Consultation—Press Release; Staff Report; and Statement by the Executive Director for Grenada* (IMF Country Report No. 22/134). <https://www.imf.org/en/Publications/CR/Issues/2022/06/23/Grenada-2022-Article-IV-Consultation-Press-Release-Staff-Report-and-Statement-by-the-520698>
- Miller, B. W., Eaton, M. J., Symstad, A. J., Schuurman, G. W., Rangwala, I., & Travis, W. R. (2023). Scenario-based decision analysis: integrated scenario planning and structured decision making for resource management under climate change. *Biological Conservation*, 110275.
- Munevar, D. (2018). *Climate change and debt sustainability in the Caribbean: Trouble in paradise?* United Nations Conference on Trade and Development (UNCTAD). Background paper prepared for the Intergovernmental Group of Experts on Financing for Development, 7-9 November, Geneva.
- National Plan Secretariat. (2021). *National Sustainable Development Plan 2020–2035*. Government of Grenada. <https://observatorioplanificacion.cepal.org/sites/default/files/plan/files/GRANADANSDP20202035.pdf>
- Oriol, L. E., Jorns, J., Channell, K., & Rood, R. B. (2024). Scenario planning for climate adaptation and management: a high-level synthesis and standardization of methodology. *Frontiers in Climate*, 6, 1415070.
- Pan American Health Organization. (2012). *Health in the Americas, 2012 Edition: Country Volume*. Pan American Health Organization.
- Peterson, G. D., Cumming, G. S., & Carpenter, S. R. (2003). Scenario planning: A tool for conservation in an uncertain world. *Conservation Biology*, 17(2), 358–366. <https://doi.org/10.1046/j.1523-1739.2003.01491.x>
- Roehrl, R., Saeed, F., De Marez, L., Schleussner, C.-F., & Schaeffer, M. (2017). *Assessment of the Vulnerability to Climate Variability and Change of Grenada's Water Sector*. Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH. Bonn and Eschborn, Germany.
- Star, J., Rowland, E. L., Black, M. E., Enquist, C. A., Garfin, G., Hoffman, C. H., ... & Gregg, R. M. (2016). Supporting adaptation decisions through scenario planning: Enabling the effective use of multiple methods. *Climate Risk Management*, 13, 88–94. <https://doi.org/10.1016/j.crm.2016.08.001>
- The World Bank (2022). *Grenada Economic Development Review*. Retrieved from <https://documents1.worldbank.org/curated/en/099435208302218812/pdf/P17702603011f10ba08c800555815c64a9a.pdf>
- The World Bank (2022). *Living Conditions in Grenada: Poverty and Equity Update*. Retrieved from <https://documents1.worldbank.org/curated/en/367321631770928387/pdf/LivingConditions-in-Grenada-Poverty-and-Equity-Update.pdf>
- The World Bank. (2021). *Living conditions in Grenada: Poverty and equity update*. International Bank for Reconstruction and Development, Central Statistical Office of Grenada.
- U.S. Geological Survey. (2023). *Deep dive: Climate change scenario planning*. U.S. Department of the Interior. Retrieved from <https://www.usgs.gov>
- UNDP. (2016). *Gender equality in national climate action: Planning for gender-responsive Nationally Determined Contributions (NDCs)*. United Nations Development Programme. <https://www.undp.org/publications/gender-equality-national-climate-action-planninggender-responsive-nationally-determined-contributions>

## REFERENCES

- UNFCCC. (2019). *Toolkit for a gender-responsive process to formulate and implement National Adaptation Plans (NAPs)*. United Nations Framework Convention on Climate Change. [https://unfccc.int/sites/default/files/resource/NAP\\_Gender\\_Toolkit.pdf](https://unfccc.int/sites/default/files/resource/NAP_Gender_Toolkit.pdf)  
UNFCCC+2UNFCCC+2UNFCCC+2
- UNFCCC. (2023). *Child-responsive climate action: National adaptation plans and NDCs*. United Nations Framework Convention on Climate Change. <https://unfccc.int/event/childresponsive-naps-and-ndc-30>
- UNICEF. (2023a). *The climate-changed child: A children's climate risk index supplement*. United Nations Children's Fund. <https://www.unicef.org/media/147931/file/Theclimatechangedchild-ReportinEnglish.pdf>
- UNICEF. (2023b). *Falling short: Addressing the climate finance gap for children*. United Nations Children's Fund. <https://www.unicef.org/media/142186/file/Excecutive-summary-Fallingshort-Addressing-the-climate-finance-gap-for-children-June-2023.pdf>
- United Nations Department of Economic and Social Affairs. (2012). *Climate Change Adaptation in Grenada: Water Resources, Coastal Ecosystems and Renewable Energy: Grenada*. [https://sustainabledevelopment.un.org/content/documents/UNDESA%20Grenada\\_web%20version.pdf](https://sustainabledevelopment.un.org/content/documents/UNDESA%20Grenada_web%20version.pdf)
- United Nations Economic Commission for Latin America and the Caribbean, Subregional Headquarters for the Caribbean (UN-ECLAC) (2011): *An Assessment of the Economic Impact of Climate Change on the Water Sector in Grenada*
- United Nations Framework Convention on Climate Change (UNFCCC). (2012). *National Adaptation Plans: Technical guidelines for the national adaptation plan process*. UNFCCC Secretariat, Bonn, Germany.
- United Nations Framework Convention on Climate Change (UNFCCC). (2022). *Grenada's Second Nationally Determined Contribution (NDC)*. Available at: <https://unfccc.int/sites/default/files/NDC/2022-06/GrenadaSecondNDC2020%20-%200112-20.pdf>
- United Nations International Children's Emergency Fund (UNICEF). (2024). *Policy Briefing SB60 & the Expert Dialogue on Children and Climate Change*. United Nations Framework Convention on Climate Change (UNFCCC). <https://www.unicef.org/media/156661/file/UNICEF%20Policy%20BriefingSB60%20and%20Expert%20Dialogue%20on%20Children.pdf>
- United Nations Office for the Coordination of Humanitarian Affairs, (2024,). *Eastern Caribbean: Hurricane Beryl - Situation Report No. 02 (As of 9 July 2024)*. ReliefWeb. <https://reliefweb.int/report/grenada/eastern-caribbean-hurricane-beryl-situation-report-no-02-9-july-2024>
- World Bank.(2023). *Macro poverty outlook for Grenada*. <https://thedocs.worldbank.org/en/doc/e408a7e21ba62d843bdd90dc37e61b570500032021/related/mpo-grd.pdf>
- World Food Programme. (2020). *Caribbean COVID-19 food security and livelihoods impact survey – Round 2*. <https://www.wfp.org/publications/caribbean-covid-19-food-securityand-livelihoods-impact-survey-round-2-july-2020>
- World Health Organization & United Nations Framework Convention on Climate Change. (2020). *Health and climate change: Country profile 2020 – Grenada*. World Health Organization. <https://www.who.int/publications-detail-redirect/health-and-climate-change-country-profile-2020-grenada>
- World Health Organization. (2010). *Monitoring the Building Blocks of the Health System: A Handbook of Indicators and their Measurement Strategies*.

# Annex A: National Adaptation Plans: Technical guidelines for the national adaptation plan process

**TABLE 1. STEPS UNDER EACH OF THE ELEMENTS OF THE FORMULATION OF NATIONAL ADAPTATION PLANS, WHICH MAY BE UNDERTAKEN AS APPROPRIATE<sup>a</sup>**

## **ELEMENT A. LAY THE GROUNDWORK AND ADDRESS GAPS**

1. Initiating and launching of the NAP process
2. Stocktaking: identifying available information on climate change impacts, vulnerability and adaptation and assessing gaps and needs of the enabling environment for the NAP process
3. Addressing capacity gaps and weaknesses in undertaking the NAP process
4. Comprehensively and iteratively assessing development needs and climate vulnerabilities

## **ELEMENT B. PREPARATORY ELEMENTS**

1. Analysing current climate and future climate change scenarios
2. Assessing climate vulnerabilities and identifying adaptation options at the sector, subnational, national and other appropriate levels
3. Reviewing and appraising adaptation options
4. Compiling and communicating national adaptation plans
5. Integrating climate change adaptation into national and subnational development and sectoral planning

## **ELEMENT C. IMPLEMENTATION STRATEGIES**

1. Prioritizing climate change adaptation in national planning
2. Developing a (long-term) national adaptation implementation strategy
3. Enhancing capacity for planning and implementation of adaptation
4. Promoting coordination and synergy at the regional level and with other multilateral environmental agreements

## **ELEMENT D. REPORTING, MONITORING AND REVIEW**

1. Monitoring the NAP process
2. Reviewing the NAP process to assess progress, effectiveness and gaps
3. Iteratively updating the national adaptation plans
4. Outreach on the NAP process and reporting on progress and effectiveness

<sup>a</sup> Elements A to D for the formulation of national adaptation plans are given in the annex to decision 5/CP.17. The steps are numbered here for ease of reference, however, it is understood that countries will choose which steps are applicable for their country-specific situation, and in what order they would be undertaken.

## Annex B: List of Stakeholders Consulted in NAP Revision Process for 2025-2030

Full Name	Institution
Aaron Francois	Ministry of Education
Abigail Mc Intyre	Ministry of Climate Resilience, the Environment and Renewable Energy-NAP Unit
Abishai Gittens	Ministry of Finance
Aden Forteau	Sustainable Land Management Specialist
Adrienne Greene	Public Utilities Regulatory Commission
Afia Joseph	Marketing & National Importing Board
Ahmed Gittens	Undisclosed
Akada Ventour	St. Andrew Development Organisation
Akezia Charles	Food & Agriculture Organisation/ NAP readiness
Aleanna Williams	Ministry of Agriculture & Lands, Forestry, Marine Resources & Cooperatives
Alex Simon	TAMCC Environment club
Alie Lewis	Royal Grenada Police Force- Immigration Unit
Alison Neptune	Grenada Solid Waste Management Authority
Allecia Mason	Public Utilities Regulatory Commission
Allen Gilbert	GIZ
Allison Haynes	Agronomist
Alphonsus Daniel	Daniel and Daniel Engineering
Amana Hosten-Forteau	UNDP
Amanda Baldeo	Grenada Community Development Agency
Ameisha Persaud	Caribbean Youth Environment Network
Andre Joseph Witzig	The Nature Conservancy
Angus Martin	Historian
Anissa La Guerre	Rotaract Club - St Andrew Branch
Anna Abraham	4H Organizer
Annett Fleisher	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)
Anthony Jeremiah	Ministry of Agriculture & Lands, Forestry, Marine Resources & Cooperatives
Antonio Bernard	Civil Society Representative
Aria St. Louis	Ministry of Climate Resilience, the Environment & Renewable Energy
Arvin Pierre	T. A. Marryshow Community College
Belinda Boyd Regis	Little Blue Tree
Benson Patrice	Ministry of Carriacou, PM & Local Affairs
Bernard Joseph	Ministry of Health
Beverley Hector	Ministry of Climate Resilience, the Environment & Renewable Energy
Bobby Medford	Coast Royal Grenada Police Force
Brenda Bain	Ministry of Legal Affairs, Labour & Consumer Affairs

Full Name	Institution
Brian Bonaparte	Ministry of Economic Development
Carlyle Glean Jr	Undisclosed
Cavonna Baptiste	G-CREWS Grenada Water Ambassadors Program
Celia Edwards	Ministry of Agriculture & Lands, Forestry, Marine Resources & Cooperatives
Chanda Stafford	T. A. Marryshow Community College
Christine Finney	Eco Dive
Chrystal Williams	GIZ
Claudette Pitt	St. Patrick's Environmental & Community Tourism Organisation
Danielle Guy	T. A. Marryshow Community College
Darrin St, Louis	Undisclosed
David Bartholomew	Grenada Transport Commission
Davon Baker	Ministry of Carriacou, PM & Local Affairs
Davron Phillip	NaDMA
Deandra Daniel	Undisclosed
Delysia De Coteau	Ministry of Tourism
Dennison Slocombe	Private Sector
Dereck Charles	International Institute for Climate Action
Dexter Miller	Petite Martinique
Dhanraj Deryck Ramkhalawan	Ministry of Health
Dianne Roberts	Consultant
Dillon Palmer	Ministry of Agriculture & Lands, Forestry, Marine Resources & Cooperatives
Dolton Charles	Kalinago Heritage Site
Dr. Dessima Williams	Gender Expert
Dr. Gerhard Rappold	GIZ
Dr. John Telesford	T. A. Marryshow Community College
Dr. Judlyn Checkley	Consultant
Dr. Kenly Edwards	Climate Smart Agriculture & Rural Enterprise Programme
Dr. Kenrith Carter	Ocean Spirits
Dr. Randall Waechter	Winward Island Research & Education Foundation
Dr. Terrence Walters	National Disaster Management Authority
Dunstan Campbell	Grenada Organic Agriculture Movement
Dwayne Cenac	Grenada Electricity Services Ltd.
Earrolyn St. John	Ministry of Climate Resilience, the Environment & Renewable Energy
Elaine Henry Mc Queen	Gender Expert
Elon James	Ministry of Youth
Elvis Young	Marketing & National Importing Board
Emmalyn Samuel	Ministry of Mobilisation, Implementation & Transformation

ANNEX B: LIST OF STAKEHOLDERS CONSULTED IN NAP REVISION PROCESS FOR 2025-2030

Full Name	Institution
Eslyn Langford	Caribbean Community Climate Change Centre
Esther Thomas	Undisclosed
Fabian Purcell	Physical Planning Unit/Planning & Development Authority
Fabian Roberts	Farmer
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Franklyn Redhead	Grenada Ports Authority
Garth Walters	Ministry of Foreign Affairs
Gennil Reuben	GIZ
Gerard Tamar	Grenada Airport Authority
Gerlinde Seupel	Aquanauts
Gertrude Duncan	Coastal Zone Taskforce/ Tourism
Graeme Fletcher	QUINN Company Grenada Ltd.
Gregory Delsol	International Institute for Climate Action
Hadasha Buckmire	Consultant
Hayden Redhead	Homegrown Goodness
Heron Belfon	Ministry of Climate Resilience, the Environment and Renewable Energy- NAP Unit
Hon. Min. Kerryne James	Ministry of Climate Resilience, the Environment & Renewable Energy
Ian Noel	Grenada Ports Authority
Imhotep Mawuto	Ministry of Agriculture & Lands, Forestry, Marine Resources & Cooperatives
Jacinta Joseph	Ministry of Social & Community Development
James Nicholas	Southern Fisherman Association
Janel McFarlene	Ministry of Carriacou, PM & Local Affairs
Jason Williams	Coastal Zone Taskforce
Jennar Jacob	Public Utilities Regulatory Commission
Jerry Enoe	GIS specialist/Ambassador - Special Envoy for Oceans
Jody Daniel, PhD	GAEA Conservation
Johanne Hoschtialek	195 in 365
Jose Samuel	National Water and Sewage Authority
Joseph Antoine	Coastal Zone Taskforce
Joseph Noel	Ministry of Agriculture & Lands, Forestry, Marine Resources & Cooperatives
Joslyn Peters, PhD	Ministry of Economic Development
Joyce Thomas	Consultant
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Kay-dee Adams	CSO
Keisha Alexander	Prime Minister's Office

Full Name	Institution
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Keith Clouden	Grenada Farmers and Fisheries Organization
Kelisha Gibbs	Public Utilities Regulatory Commission
Kelvon Burke	Ministry of Infrastructure and Physical Development, Public Utilities, Civil Aviation and Transport
Kendell Daniel	Web Developer
Kendon James	Caribbean Youth Environment Network
Kendra Clyne	Grenada National Organisation of Women
Kendra Hopkin-Stewart	Grenada Hotel and Tourism Association
Kenia Charles	Grenada Green Group/Caribbean Youth Network
Kenly Edwards	Climate Smart Agriculture & Rural Enterprise Programme
Kenton Fletcher	Ministry of Agriculture
Kerry Pierre	Ministry of Finance
Kester Charles	Ocean Spirits
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Kimica Donald	Ministry of Finance
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Lendon Bullen	National Water and Sewage Authority
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Lorraine De Allie	Ministry of Education
Lydia Browne	Grenada Food and Nutrition Council
Lyndon Robinson	Grenada Solid Waste Management Authority
Lynette Ogilvie-Alexis	Grenada Solid Waste Management Authority
Marion Geiss	GIZ
Marlon Clyne	Grenada Ports Authority
Martin Barriteau	Commonwealth/MoCRERE
Martina Duncan	International Institute for Sustainable Development/NAP Global Network
Maxine Welsh	The Nature Conservancy
Melissa Jules	Grenada Transport Commission
Mervyn Haynes	Ministry of Economic Development

ANNEX B: LIST OF STAKEHOLDERS CONSULTED IN NAP REVISION PROCESS FOR 2025-2030

Full Name	Institution
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Natasha Joseph	Grenada Development Bank
Nathale Clarke	Climate Finance Access Network/MOCRERE
Nealla Frederick	The Nature Conservancy/ Urban Planner
Nick Whyte	Social Media Influencer
Nickeonel Williams	Farmer
Nickor Jeremiah	Housing Authority Grenada
Nola Bartholomew	Retired - Ministry of Tourism
Norma Purcell	Grenada Food and Nutrition Council
Norris Mitchell	Norris Mitchell Associate and Chartered Architects
Nyasha Moore-Regis	Planning and Development Authority
Olando Harvey	Coastal Zone Taskforce/ Fisheries/TNC
Pablo Escribana	Regional Thematic Specialist Migration, Environment and Climate Change, IOM
Patrick Brathwaite	Marine & Yachting Association of Grenada
Petipha Lewis	Grenada Chamber of Commerce
Phil Saye	Dive Grenada
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Renee Benjamin Gibbs	Civil Society Representative
Renee Smith	Ministry of Climate Resilience, the Environment & Renewable Energy
Ricardo Phillip	Caribbean Youth Environment Network
Richard Hall	Royal Grenada Police Force- Immigration Unit
Rita Joseph	Legal Expert
Roland Baldeo	Coral Foundation
Ronda Stafford	G-CREWS Grenada Water Ambassadors Program
Ronnie Theodore	Regional Disaster Vulnerability Reduction Project
Roseann Redhead	Youth Emergency Action Committee
Roxanne Graham, PhD.	Ministry of Climate Resilience, the Environment and Renewable Energy-NAP Unit
Ruth Jacobs-Roberts	NaDMA
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Samuel St. Bernard	Ministry w.r.f. Social Development
Sandra Ferguson	Inter-Agency Group of Development Organisations
Selby Henry	GRENCASE
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Shakira Lee	Ministry of Climate Resilience, the Environment & Renewable Energy

Full Name	Institution
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Shannia Edwards	Civil Society Representative
Sharlene Joseph	Undisclosed
Shelvin Thomas	Alliance Marine Surveyors
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Simeon Grainger	Coastal Zone Taskforce/ NADMA
Simone Lewis	Global Water Partnership - Caribbean
Sparkle Grenade-Courtney	Ministry of Legal Affairs, Labour & Consumer Affairs
Spencer Thomas	Ambassador and Special Envoy for Multilateral Environmental Agreements
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Stephanie Joseph	Gravel and Concrete
Steve Nimrod	St. George's University
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Tara Francis	SIDAR Project
Teddy Frederick	Visual Artist
Telleca Moses	St. George's University
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Theresa Marryshow	Grenada Network for Rural Women
Titus Antoine	Ministry of Climate Resilience, the Environment & Renewable Energy
Todd La Barrie	National Water and Sewage Authority
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Trevor Thompson	Coastal Zone Taskforce/ Land Use
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Vonnie James	Ministry of Youth
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Yacouba Toussaint	Farmer
Zoya Buckmire	Grenada Fund for Conservation



"A World Adrift": Navigating uncertain waters with resilience, hope, and vision. Carriacou's Underwater Sculpture Park symbolizes the journey of Small Island Developing States toward a climate-resilient future—anchored in culture, reflecting youth voices, and shaped by bold adaptation.







September 2025

## National Climate Change Adaptation Plan (NAP) for Grenada, Carriacou and Petite Martinique

# 2025 2030



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