



# **NATIONAL CLIMATE CHANGE POLICY FOR GRENADA, CARRIACOU & PETITE MARTINIQUE 2025 -2035**

**BUILDING CLIMATE RESILIENCE FOR A SUSTAINABLE FUTURE**

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GOVERNMENT OF GRENADA NATIONAL CLIMATE CHANGE POLICY  
2025 -2035



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Finally, we acknowledge all those working on the front lines of climate action, recognizing that raising public awareness and understanding of climate change is essential to empowering all Grenadians to participate actively in building climate resilience and advancing sustainable development

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## Abbreviations and Acronyms

AOSIS	Alliance of Small Island States
AR6	Sixth Assessment Report
BESS	Battery Energy Storage System

BTR	Biennial Transparency Report
CBO	Community Based Organizations
CCCCC	Caribbean Community Climate Change Centre
CCORAL	Caribbean Climate Online Risk and Adaptation Tool
CCFPN	Climate Change Focal Point Network
CDB	Caribbean Development Bank
CDEMA	Caribbean Disaster Emergency Management
C-GEB	Center for Global Economy and Business
CIMH	Caribbean Institute for Meteorology and Hydrology
COP29	29th Conference of Parties
CARICOM	Caribbean Community and Common Market
CTO	Chief Technical Officers
DETC	Department of Economic and Technical Cooperation
ECCB	Eastern Caribbean Central Bank
ESA	Electricity Supply Act
EV	Electric Vehicle
GCF	Green Climate Fund
GCM	General Climate Model
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GIZ Zusammenarbeit	Deutsche Gesellschaft für Internationale
GIS	Geographic Information System
GMSL	Global Mean Sea Level
GRADE	Global Rapid Post-Disaster Damage
ICJ	International Court of Justice
ICCA	Indigenous and Community Conserved Area
IFRC Societies	International Federation of Red Cross and Red Crescent
IMF	International Monetary Fund
IPCC	Intergovernmental Panel on Climate Change

MDB	Multilateral Development Banks
MOCR	Ministry of Climate Resilience
MOI	Means of Implementation
MPAs	Marine Protected Areas
MRV	Measurement, Reporting and Verification
MTAP	Medium-Term Action Plans
M&E	Monitoring and Evaluation
N2O	Nitrous Oxide
NAP	National Adaptation Plan
NCCP	National Climate Change Policy
NCQG	New Collective Quantified Goal
NDA	Nationally Designated Authority
NBSAP	National Biodiversity Strategy and Action Plan
NDC	Nationally Determined Contributions
NSDP	National Sustainable Development Plan
OECD Development	Organisation for Economic Co-operation and Development
OECS	Organisation of the Eastern Caribbean States
PTSD	Post-Traumatic Stress Disorder
RCM	Regional Climate Model
SDG	Sustainable Development Goals
SIDS	Small Island Developing States
SST	Sea Surface Temperature
SVG	Saint Vincent and the Grenadines
SWAC	Seawater Air Conditioning
TNA	Technology Needs Assessment
UNDP	United Nations Development Programme
UNFCCC Change	United Nations Framework Convention on Climate Change
WMO	World Meteorological Organization

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

Climate change is a defining challenge for Grenada and must be addressed as a central pillar of our national development. This National Climate Change Policy 2025 - 2030 presents a pathway that can guide our collective response to climate change over the next 5 years with a clear vision, objectives and strategies.

This Policy is not simply one plan among others, but sets the foundation that provides strategic direction, for adaptation, mitigation and loss and damage which are further

elaborated and operationalized through the National Adaptation Plan 2025 -2030, the Nationally Determined Contributions 3.0, the Means of Implementation, and Loss and Damage Plan. Together, these instruments form a coherent framework for a more strengthened and coordinated climate response.

At its core, the Policy makes four key commitments. First, that adaptation and resilience will be integrated into every aspect of national development recognizing that climate change is a development challenge. Second, that Grenada will play its part in the global effort to limit warming to 1.5°C, even as we call upon major emitters to fulfil their obligations. Third, that climate action must be inclusive, equitable and just, ensuring that the burdens do not fall on the most vulnerable and that the opportunities of transformation are shared by all and lastly, that sustained public awareness and education will be prioritized and valued as a key pillar for national empowerment

With continued and virtually certain impacts that are already being experienced such as heatwaves, rising seas, extreme storms, and prolonged droughts, climate change is not only a development challenge but also a national security concern, threatening critical infrastructure, essential services, and the stability of communities. Climate mobility, including forced displacement and migration, is also an emerging challenge. To address these risks, the policy emphasizes proactive planning including calls for strengthening resilience of key sectors such as agriculture, energy, and health as strategic pathways to safeguard the wellbeing of our people.

Looking ahead, the Government acknowledges the narrowing window for effective adaptation as warming continues. Delays in mitigation and adaptation lock in higher risks of stranded assets and escalating costs. Increased heat and the spread of vector borne diseases threaten human health and wellbeing under climate change which is why we must act now.

## Executive Summary

Grenada's National Climate Change Policy (NCCP) 2025–2035 builds on the foundations established by the National Climate Change Strategy and Action Plan 2007–2011 and the NCCP 2017–2021. This updated Policy provides a forward looking, integrated framework to guide Grenada's national response to the accelerating impacts of climate change. It reflects the latest climate science, attempts to integrate an M&E framework that bridges the gap between climate indicators that can be found in the NAP, NDC's and the national planning cycle, and incorporates ongoing strengthened commitments under the Paris

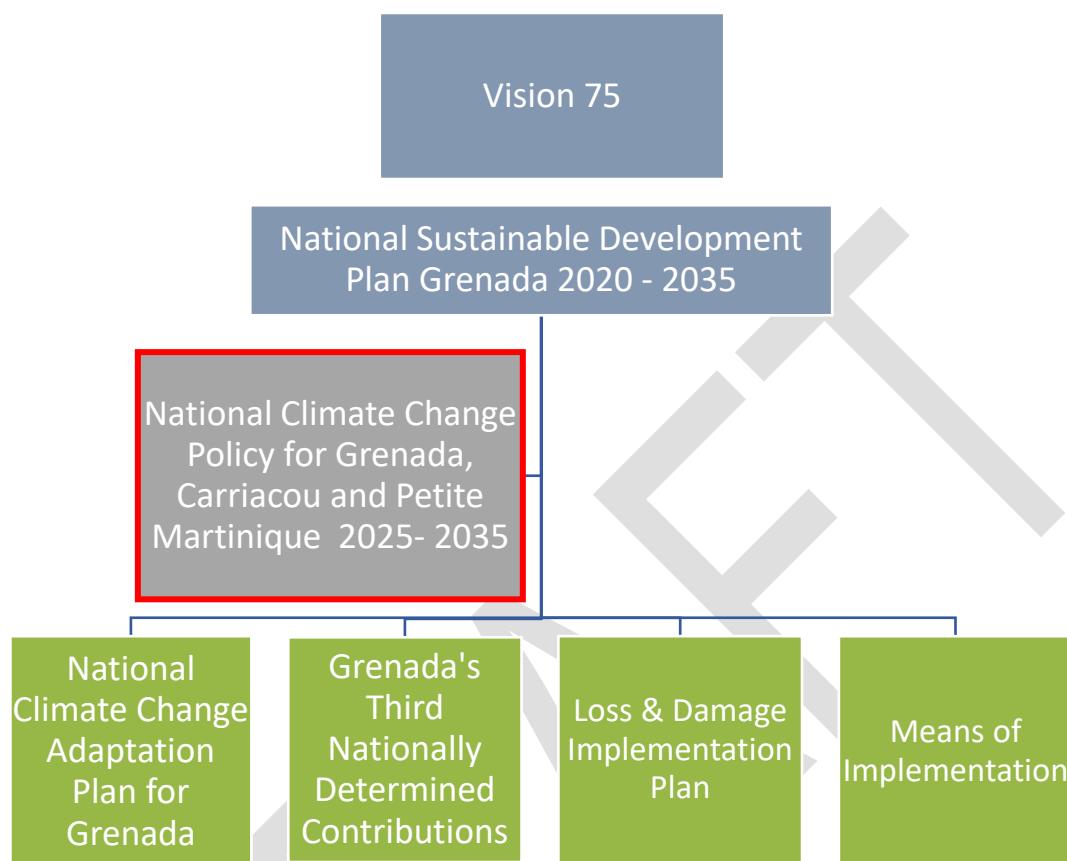
Agreement. Together with the Means of Implementation and Loss and Damage Plan, these instruments form the core of an enhanced climate governance framework, strengthening closer alignment with the National Sustainable Development Plan to respond to evolving climate risks.

While climate change is a global problem, caribbean Small Island Developing States (SIDS) remain high at risk and particularly vulnerable to the impacts of climate change which latest science confirms with high confidence is driven by human activities. The latest Intergovernmental Panel on Climate Change (IPCC) assessment report confirms that with every increment of warming above 1.5°C, climate hazards will intensify. These include for Grenada, a tendency toward temperature increase, decreased precipitation, drought, extreme rainfall and flood risk. Recent vulnerability assessments revealed that socio-economic vulnerabilities, including poverty and reliance on fragile coastal infrastructure, are in fact exacerbated by these climatic hazards, emphasizing highly prioritized sectors such as water, health, energy, tourism, transport and health.

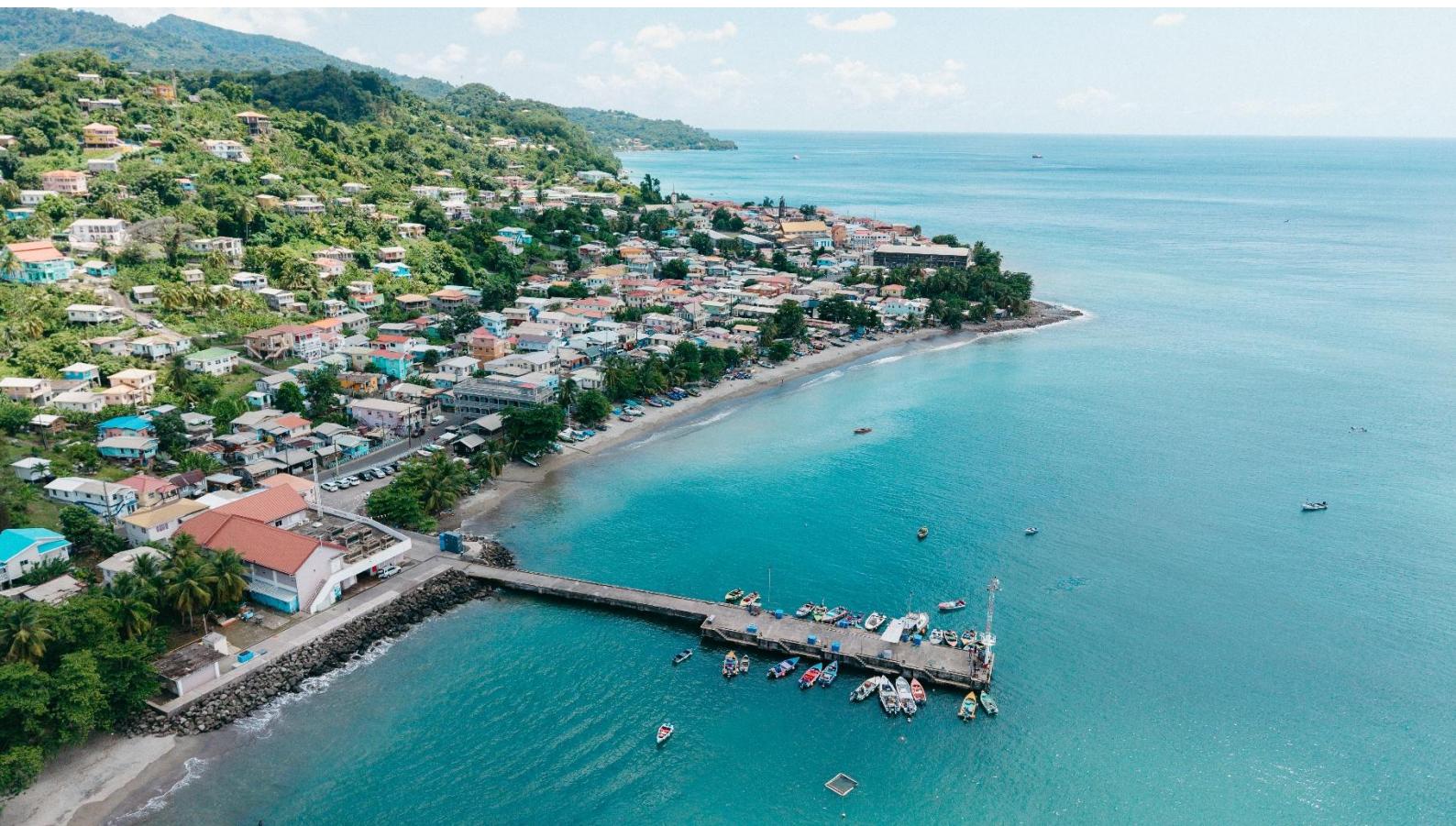
While Grenada's economy faces critical vulnerabilities in traditional sectors such as tourism, emerging sectors, including the blue economy and creative economy, offer avenues for sustainable growth, job creation, and innovation. Initiatives such as the Sargassum Valorization Project demonstrate proactive strategies that integrate risk management into national development planning. The creative economy, including music, arts, fashion, sailing, and media also provides pathways for economic diversification, and climate innovation. Digital tools will also play an essential role across climate related actions from forecasting and data analytics, to disaster preparedness and service delivery.

This updated policy provides a comprehensive framework that is supported by 8 main objectives spanning the areas of disaster risk reduction, human capital and skills development, inclusion of persons with disabilities and minority groups, resilience in priority sectors, climate mobility, nature based solutions and circular economy.

Stakeholder consultations underscored the urgent need for a policy that is targeted, action oriented, and responsive to real world challenges. Achieving this will require addressing implementation gaps, including limited human resources, lengthy procurement procedures, coordination difficulties among agencies, and overlapping project mandates that hinder efficiency. In addition, ensuring that loss and damage, equity, and climate justice remain central to national climate action is critical. Lastly, strengthening existing accountability systems will also be essential to track progress and enforce consequences when commitments are not met.



*Figure 1: Key National Frameworks Guiding Grenada's Climate and Sustainable Development Agenda, including Vision 75, National Sustainable Development Plan (2020–2035), National Climate Change Policy (2025–2035), National Adaptation Plan, Third Nationally Determined Contributions, Loss & Damage Implementation Plan and Means of Implementation*



*Photo showing an aerial view of the Town of Gouyave in St. John. For Small Island Developing States like Grenada, the changes in global temperatures present existential risks particularly for coastal communities like Gouyave. GIZ Grenaa/ Floyd Robinson*

## Background and Rationale

Climate Change is a global problem with local impacts. Greenhouse gas (GHG) emissions in the atmosphere have resulted mostly from activities by developed economies over the last one hundred and fifty years. Within the first part of the IPCC's 6th Assessment Synthesis Report and its Summary for Policymakers (2021) scientists warned that

*“Observed increases in well mixed greenhouse gas (GHG) concentrations since around 1750 are unequivocally caused by human activities. Since 2011 (measurements reported in AR5), concentrations have continued to increase in the atmosphere, reaching annual averages of 410 parts per million (ppm) for carbon dioxide (CO<sub>2</sub>), 1866 parts per billion (ppb) for methane (CH<sub>4</sub>), and 332 ppb for nitrous oxide (N<sub>2</sub>O) in 2019. Land and ocean have taken up a near constant proportion (globally about 56% per year) of CO<sub>2</sub> emissions from human activities over the past six decades, with regional differences (high confidence)”*

According to the IPCC's Sixth Assessment Report (AR6), global mean sea level (GMSL) rose by about 0.20 m between 1901 and 2018. The rate of rise has accelerated, from 1.3 mm per year between 1901–1971, to 1.9 mm per year [0.8–2.9] between 1971–2006, and further

to 3.7 mm per year [3.2–4.2] between 2006–2018 (high confidence). Human influence is assessed as very likely the dominant driver of these increases since at least 1971.

The World Meteorological Organization (WMO) also confirmed that 2023 was the warmest year on record, with global temperatures about 1.45 °C above pre industrial levels, surpassing all previous records. This was followed by 2024, which set a new high at around 1.55 °C above pre industrial levels. WMO’s forecast for 2025–2029 projects an 80% chance that at least one of these years will exceed the 2024 record, and an 86% probability that global temperatures will temporarily surpass 1.5 °C.

These changes present existential risks, as populations, infrastructure, and economies are heavily concentrated along the coastline. Relative to 1995–2014, global mean sea level is projected to rise by 0.28–0.55 m by 2100 under a very low emissions scenario, increasing the risk of coastal flooding and erosion along sandy coasts (high confidence). Tropical cyclones are also projected to intensify with warming, a trend already reflected in Grenada’s experience. Hurricane Ivan in 2004 highlighted the devastating impact of storm surges, while the unprecedented early season intensification of Hurricane Beryl in 2024 reinforced the rising threat. Beryl devastated Carriacou and Petite Martinique, destroying 90- 98% of infrastructure and affecting 40,600 people. It also caused extensive environmental losses, including destruction of mangroves and coastal vegetation.

Beyond storms, Grenada faces multiple compounding hazards such as coastal erosion, saltwater intrusion into aquifers, coral bleaching, and degradation of ecosystems vital for water resources, fisheries, tourism, and food security. These impacts reduce genetic diversity, erode health systems, agricultural productivity, and economic resilience, making climate change a multifaceted and accelerating threat.

These realities have fueled stronger regional climate advocacy. In September 2023, Caribbean SIDS convened in Grenada for a high level dialogue, committing to enhanced climate diplomacy, coordinated legal action against major polluters, and accelerated investment in resilient infrastructure.

Other more recent regional developments include, the launch of the Caribbean Climate Online Risk and Adaptation Tool (CCORAL) by 5Cs in 2023 and new financing and investment vehicles such as the Caribbean Community Resilience Fund (CCRF) to support mitigation, adaptation, and sustainable development across the Caribbean as well as a new facility between CARICOM and Afreximbank to bolster resilience and finance critical infrastructure in the region.

In its Climate Change Adaptation Strategy and Action Plan 2021-2026, the Organisation of the Eastern Caribbean States (OECS) also reiterates the “interconnections between people, ecosystems and economies in a globalised world” and the transboundary view of climate risk. While the strategy is intended to be broadly applicable across the sub region, the actions proposed need to be customized and scaled appropriately, if they are to be effective within each individual state.

At COP29 in Baku, the Caribbean bloc through the Alliance of Small Island States (AOSIS) and CARICOM Ministerial Champions was also instrumental in advancing the call for a New

Collective Quantified Goal (NCQG) of USD 300 billion annually by 2035, and in ensuring loss and damage finance was recognized as a third pillar alongside mitigation and adaptation.

This momentum culminated in a historic milestone on July 23, 2025, when the International Court of Justice (ICJ) issued its first ever advisory opinion on climate change. The Court declared that states have binding legal obligations to mitigate emissions, support adaptation, and protect the rights of present and future generations. Crucially, it affirmed that SIDS retain their statehood and maritime rights, even in the face of rising sea levels, and recognized the right to a clean, healthy, and sustainable environment as a fundamental human right. The opinion also underscored that failure to adequately regulate emissions may constitute an internationally wrongful act requiring reparations, a breakthrough that strengthens the legal foundation for Caribbean calls for climate justice.

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## Climate Change in Grenada



*Photo showing severe drought conditions at a NAWASA dam, highlighting Grenada's vulnerability to water shortages during the dry season. GIZ Grenada*

Climate change poses an existential threat to Grenada and is expected to intensify in the coming decades. Without urgent and coordinated global action, the brief and rapidly closing window to secure a livable future will be lost.

For Grenada and other Small Island Developing States (SIDS), the most pressing climate related threats include the increasing frequency and intensity of coastal storms, flooding, and drought. With continued warming, regions worldwide are projected to experience more frequent and concurrent climate hazards, such as compound heatwaves and droughts, often occurring simultaneously across multiple locations.

Grenada's National Climate Change Policy (2017–2021) cautioned that long term climate change could transform what were once rare but devastating events such as hurricanes, droughts, floods, and severe storms into recurrent realities. More recent reports confirm that each additional increment of global warming further amplifies the severity of extreme weather events. More recently, these risks are compounded by recurring sargassum influxes, driven by climate change as well as other interwoven factors such as ocean dynamics and nutrient pollution, which exacerbate already complex multi hazard scenarios.

Climate Change projections for Grenada indicate:

- Higher average annual temperatures
- Reduced average annual rainfall
- Increased intensity of tropical storms
- Rising sea surface temperatures (SST), leading to coral bleaching and disease outbreaks

## Temperature

Observations from gridded temperature datasets indicate that mean annual temperatures over Grenada have increased at an average rate of 0.14°C per decade over the period 1960-2006. The observed increases have been more rapid in the seasons JJA and SON at rates of 0.16°C and 0.15°C per decade, respectively. Past trends confirm increases in temperature in Grenada, which is consistent among different studies. The results further imply that Grenada is likely to experience a higher number of hot days as well as hot nights, which would increase overall exposure to heat. Confidence in the projections is high.

Reference	Change in Climate Change (mean annual near surface temperature (ranges of the full ensemble)	Time scale
UN-ECLAC 2011	+0.7 °C to 2.60 °C	2060s
	+1.1 °C to 4.3 °C	2090s
Simpson et al. 2012	+0.7 °C to 2.2 °C	2050s
	+2.4 °C to 3.2 °C	2080s
NASAP 2015	+0.3 °C to 1.6 °C	2030s
	+0.7 °C to 2.6 °C	2060s
CA 2017	+1.16 °C to 2.17 °C	2050

Source: Roehrl, R. (2017). *Assessment of the Vulnerability to Climate Variability and Change of Grenada's Water Sector*. Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

## Rainfall

Most of Grenada's rainfall occurs during the wet season, from June to December, accounting for up to 65% of the annual total (SNC 2017 draft, p. 132). Carriacou and Petite Martinique receive less rainfall than mainland Grenada, with drought conditions occurring regularly (SNC 2017 draft, p. 132).

Reference	Changes in mean annual precipitation (Range of Full ensemble)	Change in mean annual precipitation	Time scale

		(Range of Median)	
Simpson et al. 2012 (p. 15)	-66% to +12% (GCMs)	-15% to -9%	2080s
	-36% to +10% (GCMs)	-16% to -8%	2050s
	-25% to 12% (GCMs)	-9% to -6%	2020s
NASAP 2015 (p. 35)	-25% to +12% (GCMs)	-11% to -4%	2030s
	-41% to 6% (GCMs)	-19% to -10%	2060s
CA 2017	-21.69% to 1.87 %	-9.64% to 6.41%	2050

Source: Roehrl, R. (2017). *Assessment of the Vulnerability to Climate Variability and Change of Grenada's Water Sector*. Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Projections from the full ensemble of climate models, spanning different scenarios, indicate both potential increases and decreases in precipitation; however, the overall signal is strongly skewed toward a decline. Future projections for mean annual rainfall suggest mixed outcomes across models and scenarios, but a relative decrease is consistently indicated across all time scales, pointing to a robust trend toward reduced precipitation under future climate change. While the full ensemble shows uncertainty in total precipitation, the median values and trend analysis suggest with reasonable confidence that mean annual precipitation is likely to decrease over Grenada in the future.

### Tropical Storms

Current research provides limited robust projections for the future of tropical storms in Grenada. Historical records indicate that Grenada has already experienced increases in wind speeds and hurricane landfalls, partly due to hurricanes from the Atlantic hurricane belt shifting further south. Over the past four decades, the probability of globally extreme tropical cyclones (TCs) of major intensity has risen significantly, a trend corroborated by the increasing number of intense TCs affecting the Atlantic and Pacific regions since AR5.

The 2024 Atlantic hurricane season was particularly active and destructive, with 18 named storms, 11 hurricanes, and five major hurricanes. Notably, Category 5 Hurricane Beryl caused severe damage in the southeastern Caribbean, including Grenada and Saint Vincent and the Grenadines, with Union Island suffering over 90% building destruction.

### Sea Surface Temperatures & Sea level Rise

Grenada is experiencing sea level rise consistent with regional averages in the Caribbean, which are near the global mean. Projections for future sea level rise are between 0.27m and 0.57m around 2050.

## Understanding Grenada's Vulnerability



*Photo showing severe devastation from Hurricane Beryl which devastated Carriacou and Petite Martinique and the north of the main land Grenada in July 2024, destroying 98% of infrastructure and displacing nearly 7000 people. GIZ Grenada*

On July 1, 2024, the abstract threat of climate change became a brutal, tangible reality for Grenada and all of Grenadians. Hurricane Beryl, the most powerful hurricane ever recorded to make landfall in the nation, was born of warming oceans, intensifying speed and catastrophic impacts. Winds of up to 150 mph were unleashed, engulfing coastal communities, flattening buildings, destroying livelihoods, and tearing at the very fabric of the nation. The storm's passage left a landscape of devastation, particularly on the sister islands of Carriacou and Petite Martinique, where an almost incomprehensible 98% of infrastructure was destroyed. Across the tri island state, over 44,000 people were directly impacted, with at least four lives that were lost. Thousands were driven from their ruined homes to seek refuge in emergency shelters and medical facilities including the main hospital in Carriacou, were heavily damaged, leaving the injured and vulnerable in a perilous state. The agricultural sector of Grenada, a cornerstone of food security, was ravaged, while fishing communities many still recovering from the scars of Hurricane Ivan nearly two decades prior, saw their boats, gear, and futures destroyed. This stands as a picture of island specific vulnerability. An undeniable reminder of how countries like Grenada sit on the frontlines of the climate crisis, where a single storm can undo decades of progress in a matter of hours.

## Vulnerability Frameworks

Climate change represents one of the most significant challenges facing both developed and developing nations, but for small island developing states in the Caribbean, it poses an existential threat. The region is already grappling with more frequent and intense hurricanes, coastal flooding, prolonged droughts, and extreme heat events. These are accompanied by soil erosion, coral bleaching, and the salinization of freshwater aquifers, changes that are no longer future projections but lived realities that reveal how climate change amplifies existing human pressures on fragile island ecosystems, people and their livelihoods.

While reducing greenhouse gas emissions remains essential, even the most ambitious global mitigation efforts cannot eliminate all future climate risks. Because the precise extent and timing of these changes are uncertain, scientists rely on climate scenarios and projections rather than predictions. These projections carry inherent uncertainties related to:

- The trajectory of future greenhouse gas emissions;
- The use of multiple emission scenarios that yield varying results;
- Differences among climate models, particularly in simulating precipitation and extreme weather events; and
- The influence of non climatic factors such as land use change, economic development, and population growth, which can amplify or reduce local vulnerability

Understanding these uncertainties is crucial for assessing vulnerability and designing effective, reliable and context specific adaptation strategies for the Caribbean.

## The IPCC Framework for Understanding Vulnerability

The concept of vulnerability has evolved across successive Intergovernmental Panel on Climate Change (IPCC) reports, reflecting a deepening understanding of how environmental, social, and economic systems interact.

### IPCC Fourth Assessment Report (AR4, 2007)

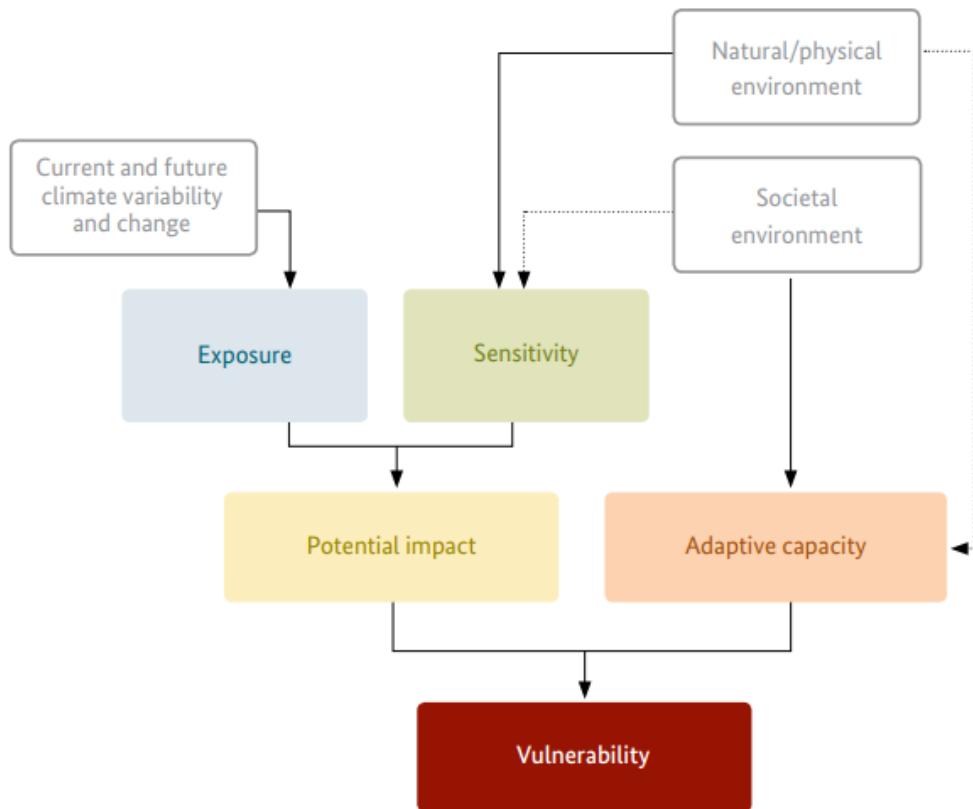
The AR4 defines vulnerability as:

“The degree to which a system is susceptible to, and unable to cope with, adverse effects of climate change, including climate variability and extremes.”

It identifies three key components of vulnerability :

1. Exposure – the extent to which a system or community experiences climatic hazards;
2. Sensitivity – how strongly it is affected by those hazards; and
3. Adaptive Capacity – the ability to cope, adjust, or recover from impacts

This framework, illustrated in Figure 1 below, adapted from The Vulnerability Sourcebook: Concept and Guidelines for Standardised Vulnerability Assessments, emphasizes the dynamic interplay between natural hazards and societal capacities to respond.



*Figure 2. Conceptual framework illustrating the components of vulnerability as outlined in “The Vulnerability Sourcebook: Concept and Guidelines for Standardised Vulnerability Assessments.”*

### IPCC Sixth Assessment Report (AR6, 2022)

The AR6 modified this understanding, defining vulnerability as:

“The propensity or predisposition to be adversely affected. It encompasses a variety of concepts including sensitivity or susceptibility to harm and lack of capacity to cope and adapt.”

In this framing, vulnerability is dynamic and socially constructed shaped by governance systems, cultural practices, income levels, gender, and access to resources. This is particularly relevant in the Caribbean, where small island economies, colonial legacies, and dependence on external markets influence who is most affected and who has the capacity to recover.

The AR6 approach, like the Vulnerability Sourcebook, highlights the importance of inclusivity in vulnerability assessments. In the Caribbean, groups such as women, elderly persons, youth, persons with disability, migrants, and informal workers are often disproportionately affected by climate impacts due to limited access to land, finance, and decision making. Recognizing these inequities ensures that adaptation strategies do not reinforce existing vulnerabilities but instead foster social resilience and empowerment.

By pinpointing where and why vulnerabilities exist, the government and communities can design adaptation measures that strengthen resilience from the ground up.

The concept of resilience complements vulnerability in a unique way by focusing on the capacity of systems social, economic, and ecological to absorb shocks and reorganize without losing their essential functions. According to the IPCC, resilience is:

“The capacity of social, economic, and ecosystems to cope with a hazardous event or disturbance, maintaining their essential function, identity, and structure, while also maintaining the capacity for adaptation, learning, and transformation.”

Resilience is not an abstract goal but a necessity rooted in the country’s history of recovery from repeated disasters. Building climate resilience involves more than physical infrastructure but also includes strengthening social cohesion, governance, and local institutions. This is why the country’s pursuit of climate resilient development seeks to reduce vulnerability by expanding opportunities, diversifying livelihoods, and enhancing adaptive capacities across all levels of society.

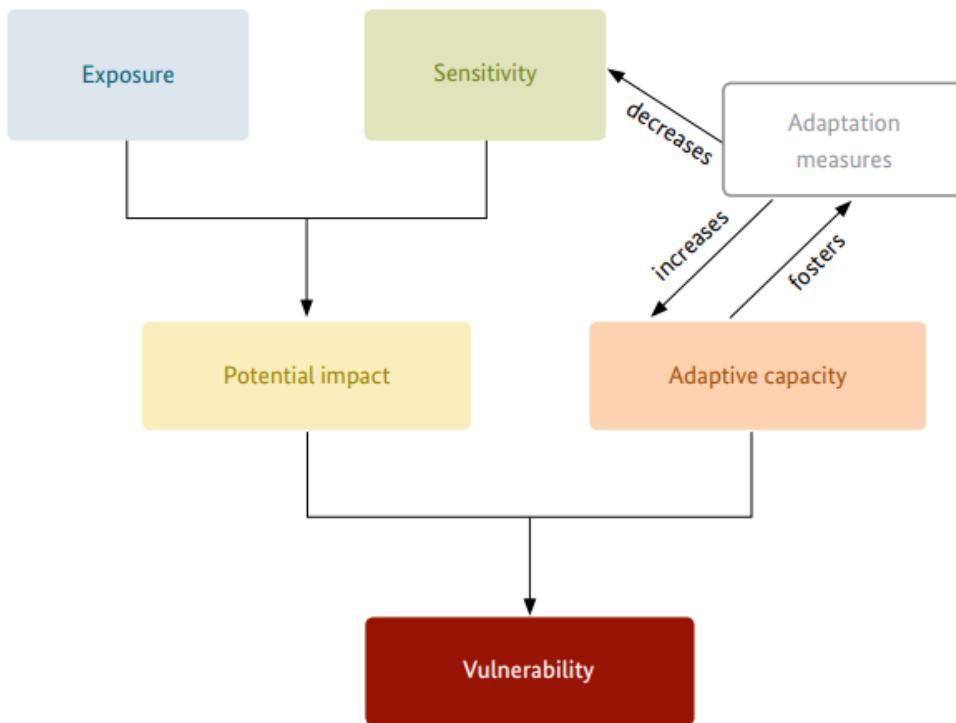


Figure 3. Conceptual framework illustrating how adaptation measures can reduce vulnerability

## Drivers of Vulnerability

Grenada's vulnerability arises from a combination of geography, development choices, socio-economic conditions, infrastructure, institutions, and governance. Each of these drivers interacts to determine the severity of impacts from climate hazards.

## Geographical and Climate Hazards

Grenada's physical characteristics are a primary source of its risk profile. The tri island state is volcanic in origin, with varied topography that includes low elevation coastal zones and mountainous interiors. The sister islands of Carriacou and Petite Martinique share similar vulnerabilities with smaller size and limited natural resources. Unlike Grenada, neither island has rivers or significant surface freshwater sources, making them heavily dependent on rainwater harvesting and reverse osmosis systems.

The majority of the population in Grenada and most of the settlement, remain concentrated in coastal areas. This makes most of the critical infrastructure highly exposed to storm surges, coastal flooding, and sea level rise.

Situated in the Caribbean's hurricane belt, Grenada is also highly susceptible to tropical cyclones. Climate change projections as revealed in previous chapters, indicate that these hazards will intensify

## Socio-Economic Factors

Socio economic conditions profoundly influence how communities experience and recover from hazards. As was explained in the section on understanding vulnerability, vulnerability is not only a function of exposure to physical hazards but social and economic conditions as well. For instance, poorer households often live in less secure housing settlements and lack the financial resources to cover emergency expenses. In 2020, 54.8% of the population was living in or at risk of poverty, with the highest rates found in the parishes of St. Mark and St. Andrew.

Key socio economic factors exacerbating vulnerability include:

- High Poverty and Inequality, 54.8% of the population either live in poverty or are at risk of falling into poverty
- Dependence on sectors such as tourism and agriculture that are highly vulnerable to climate related disruptions
- Female headed households that equate to half of all households in Grenada, many of whom are among the poorest and most vulnerable

(Grenada Initial Assessment Report, IFRC 2024)

## Institutions and Governance

Grenada has developed cross sectoral policy frameworks, such as the National Sustainable Development Plan (NSDP) and Medium Term Adaptation Plan (MTAP), yet persistent institutional silos limit effective adaptation. Fragmentation of donor driven projects, limited inter ministerial coordination, and weak integration of climate priorities into budgetary systems have historically created bottlenecks.

To reduce these vulnerabilities, enforceable mechanisms such as the Climate Change Focal Point Network, climate budget tagging, and performance indicators embedded in planning and budgeting processes will be essential moving forward. Strengthened governance will ensure that adaptation measures are systematic, transformational, anticipatory, and equitable, rather than reactive and fragmented.

## Financial and Structural Vulnerability

Heavy reliance on external, project based funding exposes adaptation to short donor cycles and shifting priorities. Despite allocations of up to EC\$62.1M (~1.8% of GDP) for climate-resilient infrastructure, execution rates remain below 30% (IMF, 2019).

Addressing financial vulnerability requires embedding climate resilience into domestic public financial management, improving execution capacity, and deploying risk financing instruments to ensure consistent, predictable, and long term investment for adaptation.

## Vulnerable Sectors

Climate change impacts cascade across all major sectors of Grenada's economy and society, creating compounding risks that threaten development progress. While each sector faces its own unique vulnerabilities, the interconnections between them mean that shocks rarely remain isolated. Hurricane Beryl made this interdependence starkly visible, as damages to one sector rippled quickly into others.

The sectors examined in this section health, energy, tourism, and transport, were identified primarily because of the Grenada Climate Change Vulnerability Assessment: Health, Energy, Tourism and Transport report produced in 2021. This assessment was based on a desk review of national documents relevant to climate change vulnerability, risks, hazards, and exposure across these key sectors. A separate vulnerability assessment was also conducted for the water sector to support the project "Climate Resilient Water Sector in Grenada" and for these reasons, these sectors are highlighted.

### Health

Grenada's health sector faces mounting risks. Many facilities are situated in low lying coastal areas, leaving them exposed to storm surges and flooding. Climate change is expected to shift the prevalence of vector borne diseases such as dengue, while also increasing the likelihood of food and water borne illnesses.

### Tourism

Tourism, a pillar of Grenada's economy, is equally vulnerable. Much of the sector's infrastructure lies along the coast, at direct risk from sea level rise, beach erosion, and storm surges. Climate driven stressors such as rising sea surface temperatures and ocean acidification also threaten coral reefs, a cornerstone of the tourism product. At the same time, the industry's high water demand heightens competition with other uses, especially during drought periods. These converging pressures place the sustainability of Grenada's tourism economy at risk.

### Energy and Transport

The energy and transport sectors are deeply intertwined and face similar vulnerabilities. Both are heavily reliant on imported fossil fuels, leaving them susceptible to supply chain disruptions during extreme weather events. Their physical infrastructure fuel depots, power lines, ports, and roads is highly exposed to storm and flood damage. Disruptions in these sectors quickly cascade outward, affecting water supply, healthcare delivery, and tourism services, underscoring the importance of strengthening their resilience.

## Water

In the water sector, based on vulnerability assessment conducted, rising temperatures increase evapotranspiration while erratic and declining rainfall threatens overall availability. These pressures are most severe during the dry season, coinciding with peak tourist demand, while extreme rainfall events can overwhelm the system, forcing emergency shutdowns of treatment plants to prevent siltation damage. Similar climate pressures affect the health, energy, tourism, and transport sectors, influencing service reliability, infrastructure performance, and the effectiveness of sectoral adaptation measures. Collectively, these dynamics highlight the critical need for targeted interventions to strengthen resilience across Grenada's most vulnerable sectors.

## Priority Vulnerable Groups

Climate impacts are not felt equally. Certain segments of Grenadian society face disproportionately higher risks due to their social, economic, and physical circumstances.

### *Female Headed Households*

Nearly half of all households in Grenada are headed by women, who are often restricted to the lowest paying sectors of the economy. These households are among the poorest and most vulnerable, facing heightened food and nutrition insecurity. In the aftermath of disasters like Hurricane Beryl, women and children face an increased risk of gender based violence, particularly in emergency shelters.

### *Fishing Communities*

Livelihoods in these communities are directly tied to the health of marine ecosystems and the integrity of coastal infrastructure, making them exceptionally vulnerable. Hurricane Beryl's destruction of boats, fishing gear, and facilities led to a profound loss of income and threatened the nation's food supply.

### *The Elderly*

Individuals aged 60 and over are particularly vulnerable due to mobility issues, pre existing health conditions, and their need for continuous medical care, which is severely disrupted when healthcare facilities are damaged or inaccessible.

### *Children*

Disasters have a profound impact on children. Education is interrupted when schools are damaged or repurposed as shelters, affecting thousands of students. The psychological trauma of displacement and loss requires long term mental health and psychosocial support to aid in their recovery.

Grenada's vulnerability therefore, is not merely about constructing stronger sea walls but about tackling the root causes of vulnerability by reducing poverty, empowering at risk communities, diversifying the economy, and integrating climate risk into the very fabric of national planning. The path forward must be one that builds not just physical resilience, but social and economic resilience as well



*Photo showing solar panel installations at GRENLEC, Queens Park Power Plant. Photo by GIZ Grenada/ Floyd Robinson*

## Greenhouse Gas Emissions

In 2010, Grenada's economy wide net greenhouse gas (GHG) emissions were estimated at approximately 370 Gg CO<sub>2</sub>eq. This baseline remains a critical reference point for measuring progress toward the country's 2030 and 2035 NDC targets.

Grenada's energy sector is the largest contributor to national emissions, with key sources including electricity generation, transportation, and end use consumption by households, commercial entities and agricultural or industrial enterprises. The sector's heavy reliance on imported fossil fuels, primarily diesel and gasoline, underscores both its vulnerability to global oil price fluctuations and its central role in the country's emissions profile.

Under both NDC 2.0 and NDC 3.0, reducing emissions from the energy sector is a primary focus. Strategies emphasize transitioning to renewable energy, enhancing energy efficiency, and improving management of end use consumption across households, commercial enterprises, and industry. These interventions are expected not only to reduce GHG emissions but also to deliver multiple co benefits, including strengthened energy security, greater resilience to global fuel price volatility, and lower electricity and energy costs which are factors that currently limit economic competitiveness and disproportionately affect low income households.

Grenada's NDC 3.0 reaffirms the country's commitment under NDC 2.0 to reduce economy wide emissions by 40% below 2010 levels by 2030, conditional on international support. Looking toward 2035, the updated NDC target seeks to maintain or deepen this reduction level, also contingent on external support. While the absolute reduction target remains unchanged, the updated NDC represents Grenada's highest possible ambition given national circumstances, technical capacity, and available resources.

Achieving these reductions requires integrated interventions across multiple sectors. In addition to energy, targeted actions will address emissions in waste, agriculture and forestry, and industrial processes and product use (IPPU), while also leveraging the mitigation co-benefits of adaptation and resilience measures. By combining sectoral mitigation with resilience focused strategies, Grenada aims to maximize outcomes, ensuring both sustainable development and long term climate security.

## *Sectoral Emissions Overview*

### Waste Sector

Emissions from waste sector, including solid waste and wastewater, were estimated at 57.8 GgCO<sub>2</sub>eq. in 2010, and without mitigation measures, are projected to grow to 97 GgCO<sub>2</sub>eq. and 105 GgCO<sub>2</sub>eq. by 2030 and 2035, respectively. Nearly all of the increase is projected to come from the solid waste sector, increasing from 30 GgCO<sub>2</sub>eq. to 75 GgCO<sub>2</sub>eq. in a business as usual scenario.

### Industry Including Short Lived Climate Pollutants

Manufacturing and industrial activities contribute a relatively marginal amount of Grenada's total national emissions, estimated at 58.3 GgCO<sub>2</sub>eq. in 2014 and projected to reach to 60 GgCO<sub>2</sub>eq. by 2030. Almost all of non energy emissions from the sector are derived from hydrofluorocarbons (HFCs) used in refrigeration and air conditioning (RAC) systems (58.18 GgCO<sub>2</sub>eq.), alongside a small contribution of SF6 emissions (0.14 GgCO<sub>2</sub>eq.). In the absence of significant growth in industrial outputs or major changes in sectoral production methods, emissions from the Industrial Processes and Product Use (IPPU) sector are expected to remain relatively similar to current levels until 2035.

## Agriculture Sector

Agriculture has historically contributed only a small share to Grenada's overall national emissions and has remained relatively stable over the years. In 2021, the sector accounted for approximately 2.6 GgCO<sub>2</sub>eq., around 43 times less than the transport sector emissions, which were estimated at 112.594 GgCO<sub>2</sub>eq. in the same year. Livestock has been the largest source of agricultural emissions, however the total number of livestock in Grenada declined by 45.5% between 2012 and 2023, leading to a concurrent reduction in sectoral emissions

## Water Sector

A recent GHG inventory for the water sector done in 2022 and looking at the year 2021, revealed an estimated 12,886 tons CO<sub>2</sub> eq (or 12.9 Gg CO<sub>2</sub>eq) total GHG emissions

- Sanitation systems contribute the majority (97%) of these emissions at 12,040 tons CO<sub>2</sub>eq, with methane as the most prevalent greenhouse gas (89.5%) followed by nitrous oxide
- Water supply contributes 845 tons CO<sub>2</sub>eq in GHG emissions, with carbon dioxide as the most prevalent gas (99.8%) generated indirectly from fossil fuel based electricity consumption in the abstraction and treatment of drinking water

The three largest emitters of GHG emissions in the water sector are:

- 83.6% from Fecal sludge containment in septic tanks and pit latrines – 10,776 tons CO<sub>2</sub>eq in methane gas;
- 8.4% from Untreated wastewater – 1080 tons CO<sub>2</sub>eq, primarily in nitrous oxide (93%) and methane (7%) gases; and
- 6.5% from Electricity usage (indirect) – 1020 tons CO<sub>2</sub>eq in carbon dioxide gas.



*Photo showing modern landfill development at Perseverance St. George managed by Grenada Solid Waste Management Authority. Photo by GIZ Grenada/ Floyd Robinson*

### **Status of Climate Change Programs and Review of Previous Policy**

Grenada has made continuous progress in combating climate change, since the policy in 2017. Overcoming the remaining obstacles, however, necessitates increased investment into institutional reforms as well as working towards mobilizing and increasing domestic finance

The revision of the current National Climate Change Policy revealed that while some activities have been implemented, progress was not yet sufficient to achieve the outcomes of the NCCP 2017-2021.

In regard to the integration of climate across relevant sectors, the Government and statutory bodies have successfully reinstated and formalized the Climate Change Focal Point Network, which is scheduled for launch in 2025. The network brings together designated focal points from a wide range of sectors, including agriculture, Carriacou and Petite Martinique affairs, disaster management, education, infrastructure, energy, finance, environment, fisheries, forestry, foreign advocacy, health, land use, meteorology, physical planning, tourism, water, waste management, and youth which will be key for the implementation of climate action moving forward

In addition, the National Climate Change Committee (NCCC) has been actively engaged and met several times within the last 5 years to review and approve climate relevant interventions, including guidance on the update of key climate change plans and policies.

The National Sustainable Development Plan 2035 has been finalised and besides the inclusion of a dedicated chapter on climate change, climate has been integrated into various goals and chapters, including the goal to create a “Vibrant, Dynamic, Competitive Economy with Supporting Climate and Disaster Resilient Infrastructure” (NSDP 2035).

Through the start of the 135 XCD GCF funded Climate Resilient Water Sector in Grenada (G-CREWS) project, Grenada is addressing the vulnerability of the water sector including the implantation of the country’s first water resources management unit, the construction of additional, climate resilient water supply infrastructures and by addressing water efficiency and demand management.

Much focus has also been on climate smart agriculture over the past years, however, the sector reform remains a challenge, partly due to the economic hit taken in the COVID crisis and Hurricane Beryl which negatively affected the supply chains, including export revenues, making initial investment into capital intensive climate smart systems challenging for individual farmers. Gaps remain in installing a long term collaborative and holistic approach on climate smart agriculture for food security and revenue generation beyond individual project timelines.

Grenada currently has three marine protected areas (MPAs) along its coasts. However, the target to achieve 20% coverage by 2021 has not been met. The Coastal Zone Act, passed in 2019, has yet to be implemented. Additionally, a Coastal Zone Management Unit still needs to be established and staffed in order to carry out the Integrated Coastal Zone Management Plan.

The development of the draft Grenada National Land Policy began through an extensive consultative process. The first policy goal is to “Conserve natural resources and address the challenges of a changing climate,” thus establishing a foundation for climate resilient land management. Over the past year, spatial data to guide sustainable land management decisions has become widely accessible and is now being utilized by ministries and government agencies.

Several Knowledge, Attitudes and Practices survey on climate change or climate change related matters have been undertaken in the past 5 years in Grenada. Overall they show that the population of Grenada is generally aware about climate change, however room for improvement remains critical, especially those who still do not believe in Climate Change. One area for collaboration is to increase of citizens’ awareness of the relationship between climate change, coastal and marine ecosystem, and community development and sustainability.

Grenada faces huge financing challenges to meet its ambitious climate change policy. The Nationally Designated Authority (NDA) is responsible for ensuring activities proposed for support by the Fund align with strategic national objectives and priorities and to maintain and implement the newly drafted country programme and its project pipeline.

The set up of a fully functioning Monitoring and Reporting system for the implementation of the NDC and NAP still remains open and requires political commitment and sufficient staff resources. To support the transition to a low carbon economy primarily powered by

renewables, the Government of Grenada has also launched several initiatives between 2017 and 2021, as detailed in the NDC Partnership Country Engagement Update Reports. Key milestones include:

- The new Electricity Supply Act (ESA), Act 33 of 2017, and the Electricity Supply (Amendment)
- Self generation licenses for solar applications
- Financial incentives for low carbon energy and energy efficiency, along with tariff regulations
- The National Green Cooling Plan
- Fuel Efficiency Standards
- Concessions on the import of electric vehicles and renewable energy equipment

### **List of Some Current and Ongoing Climate Change Programs as of 2025**

#### **1. Renewable Energy and Energy Efficiency**

- Geothermal Energy Development
  - Two sites under development: Plaisance (St. John) and Tricolor (St. Patrick)
  - 15 MW potential with exploratory drilling planned by 2026
- Utility-Scale Solar and Battery Storage at Maurice Bishop International Airport (MBIA)
  - 15.1 MW solar PV system with 10.6 MW/21.2 MWh battery energy storage system (BESS)
- Energy Efficiency and Solar Retrofits (C-GEB Project)
  - Focused on public buildings
  - Includes solar PV installations, battery storage, and energy efficiency upgrades
- Limlair Solar PV Farm (Carriacou)
  - Revitalization to restore community-scale renewable generation capacity
- Seawater Air Conditioning (SWAC)
  - Feasibility study for Grand Anse and Point Salines; targets up to 40% cooling energy reduction in coastal buildings
- Grenada Geothermal Development Project
- Caribbean Efficient and Green – Energy Building Project (CEGEB Project)
- Solar for All (in development)

- National program to facilitate rooftop PV access for residential homes and small businesses

## 2. Transport Sector Decarbonization

- Transport Sector Decarbonization / E-Mobility Framework
  - Electrification of government fleet (currently 4 EVs)
- Sustainable Public Transport Systems
- Caribbean Regional Air Transport Connectivity Project (CATCOP)

## 3. Water, Flood, and Coastal Resilience

- Climate Resilient Water Sector in Grenada (G-CREWS)
  - Water-efficient solutions in the tourism and agricultural sectors (GCF)
- Southern St. George Water Supply Expansion Project
- St. John's River Flood Control Project
- Extreme Rainfall / Gouyave Flood Mitigation
- Town of St. George's & Grenville Flood Mitigation Design
- Breakwater Project
- Grenada Resilience Improvement Project

## 4. Agriculture, Fisheries, and Food Systems

- Young Entrepreneurs, Farmers and Fishers in Agriculture and Agribusiness (CDF)
- Sargassum Valorization

## 5. Climate Finance, Capacity Building, and Policy Support

- Enhanced Direct Access (EDA) – Climate Resilient Building Upgrades for Vulnerable Households and MSMEs (GCF)
- GCF Readiness – Getting Grenada Private Sector Ready for Climate Finance
- Small Island Developing States Capacity and Resilience (SIDAR) Programme, Caribbean
- NDC Tec Project
- UNEP DTIE

## 6. Community, Livelihoods, and Sustainability Initiatives

- Beautification, Empowerment, Sustainability and Transformation Programme

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### Vision

**A climate resilient nation empowered to mitigate and adapt to climate risks, respond to loss and damage, foster inclusive and equitable participation of all stakeholders so that no one is left behind.**

This vision statement implies that Grenada's journey to becoming a climate resilient nation by 2030 is a continuing process. It embraces flexibility, innovation, and participation of all stakeholders in mitigating and adapting to climate change, while recognizing the limits of adaptation and the need to advance action on loss and damage. Key points to consider in the realization of this vision include:

- Monitoring and Evaluation

The Ministry of Climate Resilience must clearly define climate resilience and track it in stages, rather than as a simple "achieved" or "not achieved" outcome. Progress should be measured aligning indicators from the NAP and NDC processes as well as Sustainable Development goals.

- Action Oriented

The vision can only be achieved through targeted actions rather than broad based approaches, addressing urgent implementation gaps such as limited human resources, technical expertise, and prolonged procurement processes as well as detailed actions outlined in the NAP and NDCs will be imperative

- Climate Justice

At the core of the vision is loss and damage, heavily underpinned by equity and justice. This focus is what the term "empowered" implies. Ensuring that all stakeholders and communities have the capacity, support, and agency to respond effectively to climate risks

- Policy Coherence

The National Climate Change Policy (NCCP) must align with and integrate the NAP, NDCs, SDGs, the National Biodiversity Strategy and Action Plan (NBSAP), and scientific findings such as the IPCC report. Staying synchronized with evolving science so that policy timelines correspond with major scientific updates to remain relevant.

- Inclusivity

The vision promotes an all of society approach relying on the participation of all stakeholders and communities in climate action and implementation of the policy. Public awareness campaigns must use clear, relatable language and consistent engagement strategies to foster long term behavioural change. Communities, sectors, and stakeholders must be actively involved in co designing and implementing solutions, as demonstrated by the successful existing efforts across the country. Further to this, gender considerations must evolve beyond equality to embrace equity, recognizing diverse needs and contributions across male and female and not only women. Finally, for persons with disabilities, inclusivity requires accessible information and education programs, tailored preparedness measures, peer led outreach, supportive infrastructure and a national database to ensure that no one is left behind

- Equity

The vision highlights the importance of equity as being embedded throughout climate action. This ensures that resources, opportunities, and support are distributed based on need and vulnerability rather than uniformity. Equity also acknowledges historical and structural disparities that shape communities' exposure and capacity to respond to climate impacts that will require institutionalized mechanisms such as vulnerability based targeting, and local capacity strengthening to ensure that marginalized groups, including women, youth, and rural populations, benefit proportionately from climate investments.

## Principles

The principles which guide the development and delivery of climate resilience, adaptation and low carbon development in Grenada are as follows:

1. Data driven, the policy should be data driven, guided by the latest IPCC reports, regional and local vulnerability assessments, and relevant datasets.
2. National ownership and engagement , ensuring that citizens, community-based organisations (CBOs), civil society groups, NGOs, private sector, research institutes, gender focal points and Government will understand and become more involved in defining priorities and delivering climate resilience. This includes collaboration across sectors, organisations and spatial scales
3. Efficiency, ensuring the delivery of strategic direction and policy guidance continuing from the NCCP 2017-21 and building on existing policy directives. The NCCP must provide the policy framework for the updated the National Adaptation Plan (NAP) 2025-2030 and the Nationally Determined Contribution (NDC) that was submitted 2020.
4. SIDS specific approach, allowing a policy development process that recognizes the human and financial capacity constraints of SIDS and working within such constraints, whilst building capacity
5. Integration, ensuring that measures to build climate resilience and low carbon development are integrated into existing sectoral policies, strategies, plans and processes.
6. Precaution, maintaining that where there are threats of serious or irreversible damage, any concerns regarding uncertainty must not be used as a reason for inaction.

## Objectives

The policy objectives for 2025 – 2035 are to:

1. Strengthen and support transformative institutional responses to mainstream climate action
2. Develop human capital and skills for a green and digital economy, ensuring a just transition for workers, communities, and local economies

3. Build climate resilience across priority sectors, including waste, blue economy, health, and agriculture
4. Enhance access to and use of digital and emerging technologies to drive innovation, efficiency, and climate resilience
5. Mainstream gender responsive disaster risk reduction to minimize climate impacts and losses
6. Integrate climate mobility into national development planning to manage displacement and resettlement from climate hazards
7. Accelerate GHG reductions by advancing electric mobility, renewable energy, sustainable land use, and sectoral transformations across energy, transport, and other key sectors
8. Strengthen systems for collection, analysis, sharing, and use of climate, GHG, and pollutant data to support evidence-based decision-making  
Improve citizens' awareness of climate change causes, impacts, and responses to enable informed action and support for policies and advocate for international action on climate change

## Strategies

### **Objective 1: Strengthen and support transformative institutional responses to mainstream climate action**

#### Strategies

- (a) Enhance evidence base for designing gender sensitive adaptation solutions by improving collaboration for the collection, management and exchange of climate related data and information, ensuring that this data is better used in decision making for all sectors at the national level and for more effective preparedness, increased resilience and reduction of disaster risks by sectors and communities
- (b) Train national technical officers in key sectors on: a) Climate risk and vulnerability assessments. b) Cost and Benefit Analysis of adaptation strategies. c) Climate change impact assessment.
- (c) Embed continuous capacity building in critical areas across ministries and agencies
- (d) Strengthen the CCFPN with clear roles and mandate backed by cabinet approval, improved coordination mechanisms (including with the GEF Focal Point and Adaptation Fund Designated Entity) and ongoing training
- (e) Strengthen the technical and institutional capacity of the CCFPN, NAP team and NCCC to oversee, coordinate and monitor the NAP processes at national levels. Includes conducting capacity needs assessment and developing capacity development Action Plans

- (f) Build the technical capacities of policy makers in integrating climate change adaptation and gender in investment planning, medium term action plans and budgeting processes, including the development and application of technical guidelines
- (g) Develop monitoring Frameworks for the NAP including development of the most appropriate and practicable quantitative and/or qualitative adaptation indicators for the monitoring and evaluation that will allow the operationalization of these indicators, the sources of data, and the means of verification.
- (h) Establish a monitoring and evaluation framework for adaptation planning and its effectiveness. This monitoring and evaluation framework will include indicators and targets for monitoring and evaluation based on sex-disaggregated data
- (i) Develop a Gender Action Plan to ensure gender is explicitly featured in the design and implementation of the NAP. Following the Gender Action Plan will be the development of a Communications Plan to ensure that stakeholders are aware of the NAP process, plan and associated actions.
- (j) Establish overall robust, gender sensitive institutional arrangements for NAP, NDC, and SDG implementation that closely aligns indicators into overall development framework
- (k) Recruit and retain specialized staff within the Ministry of Climate Resilience, Renewable Energy, and the Environment, supported by a financial and human resource mobilization plan
- (l) Institutionalize climate responsive procurement by training Ministry of Finance staff to align investments with NAP and NDC priorities
- (m) Establish centralized climate and water data repositories and enhance open climate data platforms accessible to government, communities, and businesses
- (n) Modernize and enhance the Climate Resilience Portal into a real time data platform integrating geospatial tools, analytics, and sectoral data. Build technical and institutional capacity for knowledge management as well as the generation and dissemination of climate information and early warnings supporting better preparation to reduce impacts
- (o) Mainstream digitalization as a cross cutting enabler of governance efficiency, economic transformation, and inclusive resilience
- (p) Institutionalize mechanisms for youth, women and local communities to co design and monitor policies, including the revitalization of the Social Partnership Interface as part of the climate governance framework
- (q) Ensure climate policies are gender responsive and disability inclusive, particularly in disaster preparedness and shelter management
- (r) Advocate for stronger accountability in the climate governance framework through legal and oversight mechanisms where necessary

- (s) Recognize loss and damage as a national governance priority, creating institutional mechanisms for redress and compensation
- (t) Lead on regional collaboration for climate mobility, ensuring safe, planned relocation where adaptation limits are reached and ensure that this is embedded into national adaptation planning
- (u) Strengthen regional collaborations through CARICOM and other SIDS initiatives
- (v) Advocate internationally for reforms in global climate finance and debt systems to secure fair and accessible support for SIDS

**Objective 2: Develop human capital and skills for green and blue jobs, ensuring a just transition for workers, communities, and local economies**

**Strategies**

- (a) Launch national training programs ensuring that pathways into green and blue jobs are accessible and align with the vulnerabilities and opportunities that are unique to SIDS economies
- (b) Collaborate with Grenada National Training Agency, GRENCASE, TAMCC, SGU and other educational institutions to design and deliver accredited programs that promote gender equality, youth and persons with disabilities
- (c) Develop and implement sustainable business models while establishing community based enterprises that expand livelihood opportunities and support job creation particularly in coastal areas.
- (d) Track employment outcomes and skills use in the labor market, and use the evidence to adjust training programs to ensure inclusive economic opportunities
- (e) Build digital literacy and technical skills among youth, women, and persons with disabilities to ensure equitable participation in a digital climate economy, while addressing access to technology such as internet, phones, and tablets

**Objective 3: Build climate resilience across key priority sectors including: waste, energy, blue economy, health, infrastructure and agriculture**

**Strategies**

- Undertake a comprehensive review and consolidation of available climate risks assessments within or related to the four priority sectors that includes an examination of the impacts on both public and private sectors assets and systems in the assessments.
- Then conduct gender-sensitive climate risk assessments of the 4 priority sectors (i.e. water resources, public health, agricultural and tourism) focusing on filling the gaps in information that were identified from the review and consolidation exercise that also includes a prioritization of the climate-driven vulnerabilities as they relate to gender-disaggregated impacts

- Gender-specific climate changedriven risks and vulnerabilities in priority sectors identified, broad goals and potential adaptation measures developed
- Conduct a risk and vulnerability assessments into each priority sector by conducting vulnerability assessments and aligning budgets, and investment pipelines to help enhance resilience strategies
- Conduct a comprehensive socio economic assessment of climate change impacts within priority sectors
- Strengthen the technical capacity of climate vulnerable communities to develop and implement community based climate risk informed local area plans
- Review and analyse sectoral development plans and policies to identify entry points for integrating gender sensitive climate adaptation measures

### *Agriculture Sector*

1. Establish collaboration mechanisms across agriculture projects to ensure synergies across initiatives, prevent duplication of efforts, and enhance cooperation placing special emphasis on utilizing digital tools and virtual resources
2. Ensure alignment and streamlining of procurement processes within the agricultural sector to minimize delays in project implementation.
3. address gaps and shortages in locally available equipment and materials required for effective project execution.
4. Build technical expertise across the agriculture sector particularly in proposal writing and development to capitalize on funding availalbe,
5. expand on training in CCORAL tool to include other organizations and project implementors
6. Enhance the economic and nutritional value of agricultural by-products by increasing awareness, research, and market development for underutilized plant materials.
7. Support the Ministry of Agriculture in the final stages of launching its new website and leverage the platform to improve communication, transparency, and service delivery.
8. Advance the creation of a comprehensive Climate Risk Atlas for the agricultural sector, currently under development, to provide farmers, policymakers, and planners with clear, accessible information on climate hazards, vulnerabilities, and priority risk zones
9. Ensure that all fertilizers and agricultural chemicals available and sold to farmers are properly labeled with clear, accurate, and standardized information.
10. Promote sustainable and affordable food systems by improving markets, reducing waste, and increasing year round availability of local foods
11. Invest in research, innovation, and knowledge exchanges to expand testing facilities, preserve traditional practices, and accelerate climate smart farming contributing to climate goals

12. Promote the safe and sustainable production of local crops, ensuring that all nutritious parts of plants are utilized to their full potential. Strengthen research and development capacities, including establishing facilities and expertise to test and assess the nutritional value of locally produced foods, as this capacity is currently limited on island.
13. Expand farmer education and extension services through tailored training, continuous monitoring, and engagement of younger farmers
14. Advance climate resilience by scaling up water efficient irrigation, rainwater harvesting, shade houses and hydroponics for sustainable water management and climate resilience
15. Improve pest disease, and invasive species management with stronger monitoring, integrated strategies, and rapid disaster response systems to reduce impacts to ecosystem resilience and biodiversity
16. Mobilize financing and targeted investments to support waste management in the agricultural sector to enhance resource efficiency and support climate resilience

*Blue Economy Sector*

1. Increase climate resilience of vulnerable communities, ecosystems and productive systems by supporting locally led ecosystem based adaptation interventions that enhance biodiversity and reduce climate vulnerability
2. Undertake targeted research and data collection on the impacts of droughts and flooding on marine food chain disruptions
3. Monitor and study sargassum influx projected as a major threat over the next 5-10 years
4. Develop pilot projects for sargassum valorization to turn challenges into economic opportunities
5. Promote alternative livelihoods to reduce dependence on vulnerable fisheries and tourism sectors
6. Promote coral gardening and replanting initiatives to combat coral reef degradation
7. Support community led restoration projects addressing coastal erosion and mangrove loss
8. Mobilize financing to scale up community level activities, knowledge sharing and enhanced coordination among local stakeholders and NGOs
9. Mobilising financing to scale up community-level activities, and knowledge sharing and enhanced coordination among local stakeholders, national agencies, and NGOs
10. Foster active community involvement and shared ownership in environmental protection and resource management to equip them with the skills and knowlelge to adopt adaptive management processes including co management approaches
11. Promote participatory planning processes with farmers, fishers, and local communities for more inclusive and sustainable outcomes
12. Encourage strategic, multi-channel communications including social media, town halls, and traditional media to reach diverse audiences consistently
13. Implement clear, culturally relevant public awareness campaigns to promote engagement in climate and environmental issues not underestimating public support for climate action

14. Harness overall blue economy opportunities by developing marine energy, conserving biodiversity, and building resilient coastal and marine infrastructure

#### *Waste Sector*

1. Plan for modern landfill development aligned with zero waste goals, including semi-aerobic filling systems to reduce methane emissions and control leachate runoff
2. Implement community education and incentives for waste segregation and expand organics composting programs
3. Incorporate waste to energy goals into national climate and energy strategies
4. Plan for waste growth and adapt infrastructure and operational capacity to handle rising waste arrivals
5. Promote circular economy approaches to reduce climate sensitive waste streams

#### *Health Sector*

- Integrate Climate and Health Linkages by training health officers on climate-related health issues
- Prioritize and strengthen preventative healthcare to attract increased funding and support proactive health interventions.
- Ensure adequate health officer to population ratios aligned with international standards, and train healthcare professionals in climate related health actions for knowledge sharing with patients.
- Integrate Non Communicable Disease (NCD) management into strategies by improving access to healthcare services and treatment, informed by post-disaster data such as Hurricane Beryl in Carriacou.
- Address post-disaster impacts on sleep, diet, and nutrition, mitigating increases in diet related NCDs and supporting mental health
- Leverage social media and awareness campaigns to engage communities, especially youth, in climate related health preparedness.
- Retrofit clinics to enhance ventilation, reduce mosquito breeding risks, ensure proper kitchen drainage, and establish building design guidelines through physical planning.
- Strengthen the role of the Statistics Unit and National Communications/Surveillance Committee in collecting, sharing, and making heatwave and disease outbreak data publicly accessible, interactive, and user-friendly
- Engage financial institutions in climate awareness and promote integration of climate components into services to support informed decision-making.

#### *Infrastructure*

- Define, clarify and embed the concept of climate resilience within national physical development planning to ensure consistent application in enforcement of planning legislation

- Use risk and vulnerability assessments to identify climate sensitive areas and vulnerable populations to guide planning and prioritize resources
- Advocate for and implement sustainable urban drainage systems and rainwater harvesting legislation within the planning framework
- Revise land development regulations, codes, and fee structures where necessary to mainstream climate resilience
- Promote long term use of sustainable and recyclable building materials, renewable energy, and water efficient technologies
- Develop training, certification, and licensing programs for contractors, designers, and planners to uphold climate resilient standards
- Integrate climate resilience into tertiary curricula (e.g TAMCC) and create scholarships in planning, engineering, and landscape architecture
- Increase public awareness and education on the value of climate resilient planning for homeowners, communities, and professionals
- Partner with financial institutions to tie lending and approvals to compliance with resilience standards
- Secure sustainable financing and staffing for planning authorities to ensure effective policy implementation
- Strengthen coastal zone management through the implementation of existing legislation and staffing the relevant coastal zone unit

#### **Objective 4: Mainstream gender responsive disaster risk reduction to minimize climate impacts and losses**

##### **Strategies**

1. Strengthen a comprehensive disaster resilience strategy that fits into the national framework with clear mandates and oversight, integrating long term risk reduction, loss and damage response, post disaster recovery, and accurate and reliable data systems
2. Institutionalize lessons from past climate related events by strengthening risk assessments, updating and enforcing building codes, and improving inter agency coordination
3. Scale up decentralized, community based early warning systems to ensure timely, accessible, and inclusive alerts across all parishes
4. Establish multi purpose emergency centers powered by renewable energy, with reliable back up systems, to ensure uninterrupted emergency services, resilient energy access, and psychosocial support for mental health

5. Explore innovative financing options to enable timely and effective recovery, especially for vulnerable groups and critical infrastructure
6. Build national and local capacity through training, simulation exercises, and coordination platforms that link disaster response with climate adaptation and long-term resilience planning.
7. Develop inclusive communication and early warning systems, ensuring that persons with disabilities can access timely alerts and improve community-wide disaster response
8. Train shelter managers in disability sensitivity and equip shelters with assistive devices such as wheelchairs, crutches, and ramps, supported by research showing that inclusive disaster preparedness reduces mortality and displacement among persons with disabilities
9. Integrate the NaDMA Loss & Damage Response Mechanism into national climate policy and planning

**Objective 5: Integrate climate mobility into national development planning to manage displacement and resettlement from climate hazards**

1. Conduct climate mobility risk assessments to identify communities most vulnerable to displacement to inform policies
2. Integrate climate mobility considerations into resilient infrastructure, housing, land use, and settlement planning policies to support safe relocations of displaced populations
3. Establish relocation protocols and social protection measures to safeguard the rights and livelihoods of displaced groups particularly the disabled community
4. Ensure that disaster response plans integrate climate mobility considerations and resettlement strategies

**Objective 6 : Accelerate GHG reductions by advancing electric mobility, renewable energy, sustainable land use, and sectoral transformations across energy, transport, and other key sectors**

- Assess and compare the economic, environmental, and social impacts of electric and fossil fuel vehicles to guide sustainable transportation planning in Grenada
- Address knowledge transfer gaps by improving public dissemination of EV related policies and programs, ensuring information is accessible, clear, and actionable for all
- Develop a Cabinet-approved national policy for transitioning to electric and sustainable transport (land, maritime, aviation), outlining the government's vision, specific goals, and a clear implementation pathway
- Organize training and exchange programs on EV and low-carbon transport transitions for sector personnel to build capacity and share best practices
- Adopt trade-in programs, like Antigua's, allowing fossil fuel vehicles to be exchanged for electric vehicles to accelerate EV adoption
- Establish end-of-life EV policies, implement trainer-of-trainers programs, and address technological and battery lifespan challenges to enable effective EV adoption

- Conduct targeted public awareness and education campaigns for private bus operators, taxi drivers, and other stakeholders to support understanding and adaptation to sustainable transport transitions
- Ensure all sustainable transport solutions are fit-for-purpose and thoroughly tested before implementation, addressing Grenada-specific needs and operational requirements, particularly in the maritime sector for essential services like the Coast Guard
- Based on recommendations from GHG emissions reductions in the water sector, promote energy efficiency improvements at pumping stations and water treatment plants
- Improve onsite treatment of sewage to decrease GHG emissions from the wastewater treatment stage
- Promote biogas production using wastewater from septic and onsite treatment systems
- Install solar panel at drinking water treatment plant and waste water treatment plant sites to power facilities
- Leverage local financial institutions' loans and lending options to support climate change and energy-related project
- Create a renewable energy outreach unit to design and implement strategies that drive public adoption of available initiatives
- Ensure accessible and inclusive transportation options for persons with disabilities

**Objective 7: Strengthen systems for collection, analysis, sharing, and use of climate, GHG, and pollutant data to support evidence-based decision-making**

Establish a robust implementation framework for the NC, BTR, NAP, and NDC, prioritizing data collection and management to ensure timely and effective reporting

Develop sector specific data collection tools and instruments to streamline and facilitate the data gathering process facilitated by CCFPN, NAP team and MOCR staff

**Objective 8: Enhance public understanding of the causes, impacts, and solutions to climate change to foster informed action and stronger support for related policies**

- Embed climate risk into education policies and planning
- Integrate climate change education into primary, secondary, and university curricula
- Raise awareness on climate issues within communities, NGOs, and the private sector.
- Foster broad participation across all levels of Grenadian society in climate action.
- Provide regular updates to senior decision makers on climate science, impacts, and response approaches.

## Monitoring, Evaluation and Reporting

Monitoring, evaluation, and reporting are essential for the effective implementation of Grenada's Climate Change Policy as it will enable Grenada to track the delivery of agreed

measures; establish its effectiveness in reducing vulnerability and GHG emissions; create an opportunity for learning and adaptive management; and fulfill reporting requirements with UNFCCC and reporting requests from the Caribbean Community Climate Change Centre (CCCCC). This component aligns with Article 7 of the UNFCCC Paris Agreement, which states that each Party should monitor, evaluate and learn from adaptation policies, plans, programmes and actions, and with UNFCCC reporting requirements on GHG inventories.

Moving toward a more robust Monitoring and Evaluation (M&E) framework, measures must ensure to track not only climate progress, but situate climate risks within the broader context of sustainable development, closing the gap between development planning and climate commitments, while recognizing climate change as both a threat and a potential driver of innovation. This requires the pursuit of climate resilient pathways that not only safeguard existing development gains but also create opportunities for long term transformation.

Although there might be multiple pathways that can lead to resilience, each potential alternative pathway must be strengthened and evaluated based on the capacity to foresee risk & vulnerability, decrease climate change impacts, respond rapidly to unpredictable, uneven and extreme events and include considerable amounts of proactive adaptation. These must also evolve in support of societal advancement and balanced environmental management

The uncertainty of climate impacts requires a system that is flexible enough to respond to unexpected and extreme events, while maintaining practicality and feasibility in both the short and long term.

## **Selected Elements of Climate-Resilient Pathways**

### **Awareness and capacity**

- A high level of social awareness of climate change risks
- A demonstrated commitment to contribute appropriately to reducing net greenhouse gas emissions, integrated with national development strategies
- Institutional change for more effective resource management through collective action
- Human capital development to improve risk management and adaptive capacities
- Leadership for sustainability that effectively responds to complex challenges

### **Resources**

- Access to scientific and technological expertise and options for problem solving, including effective mechanisms for providing climate information, services, and standards
- Access to financing for appropriate climate change response strategies and actions
- Information linkages in order to learn from experiences of others with mitigation and adaptation

### **Practices**

- Continuing development and evaluation of institutionalized vulnerability assessments and risk management strategy development, and refinement based on emerging information and experience
- Monitoring of emerging climate change impacts and contingency planning for responding to them, including possible needs for transformational responses
- Policy, regulatory, and legal frameworks that encourage and support distributed voluntary actions for climate change risk management
- Effective programs to assist the most vulnerable populations and systems in coping with impacts of climate change

Source: IPCC (2014). *Climate-resilient pathways: Adaptation, mitigation, and sustainable development*. In: *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*.

## *Toward an Integrated Framework*

To achieve this pathway of resilience, monitoring and evaluation must bring together both national development planning and climate specific commitments creating and identifying synergies, anticipating trade offs and prioritizing interventions that maximize benefits for both people and ecosystems.

Such an approach helps ensure that indicators, targets and reporting mechanisms capture both climate and development outcomes. While challenges remain such as discrepancies between access to global adaptation financing and national development priorities, coupled with limited technical capacity and fragmented governance that often hinders effective mainstreaming, an integrated M&E framework can help bridge this gap by embedding climate indicators directly within the national planning cycle, ensuring strengthened coherence, minimize duplication and ensure the rigor needed for international climate reporting

An integrated M&E framework would address this gap by embedding climate indicators directly within the national planning cycle, while still ensuring the rigor needed to fulfill international climate reporting obligations. To ensure that this is undertaken strategically, the following considerations should be made:

- Development instruments such as the NSDP, MTAPs, Corporate Plans, and Annual Work Plans should align and incorporate indicators that reflect economic, social, and climate outcomes simultaneously.
- While adaptation and mitigation outcomes will continue to be reported through NDC and NAP mechanisms to meet international obligations, the same indicators should be integrated into national level planning tools to ensure that climate progress informs not only international requirements but also sectoral decision making and resource allocation in real time.
- Centralized digital platforms such as the climate resilience portal or a dedicated platform will be used to collate data from multiple sources including sectoral workplans, climate projects, and GHG inventories, reducing fragmentation and

enabling cross-sectoral analysis. This integration supports evidence based decision making, highlights areas where climate and development goals intersect, and identifies gaps in coverage or resource allocation. It will also help with ease of international reporting

- Indicators should be measurable, time-bound, and gender-responsive, capturing the differential impacts of climate and development interventions across communities. The M&E framework must remain adaptive to evolving climate risks, new policy directives, and emerging data, allowing Grenada to respond proactively to both expected and unforeseen challenges.
- Because climate change impacts are pervasive, affecting ecosystems, livelihoods, infrastructure and human well being, transformational approaches must be considered to modify the nature, composition or location of vulnerable systems while social and institutional transformations will be required to reduce risks, strengthen governance and expand adaptive capacity.
- It should be understood that while mitigation efforts complement adaptation by moderating the severity of climate impacts, development pathways shape the choices available to society and influence the feasibility of both mitigation and adaptation.

### *Reporting and Accountability*

Reporting should occur at both national and international levels to ensure accountability and guide action. Nationally, progress on the NAP, NDCs, and Climate Change Policy should be submitted to Cabinet every two years and reviewed by the Sustainable Development Council, providing the necessary information to refine programs and interventions.

Internationally, Grenada is required to fulfill its Paris Agreement obligations through Biennial Transparency Reports, National Communications, and NDC updates, detailing emissions inventories, adaptation progress, mitigation measures, and the financial and technical support mobilized.

Digital platforms can significantly enhance MER by automating data collection, analysis, and visualization; integrating sectoral datasets; simulating policy scenarios; and predicting climate risks.

These tools can support cross sectoral knowledge sharing and enable real time, evidence based decision-making, reducing fragmentation and enhancing policy responsiveness.

### *Institutional Arrangements and Capacity Development*

The Climate Change Focal Point Network (CCFPN) will be strengthened through the embedding of dedicated Climate Change Specialists or trained staff in key Ministries.

These specialists will be responsible for:

- Mainstreaming climate considerations into sectoral policies and workplans ensuring that each Ministry's corporate plan and annual workplan include climate related targets and indicators aligned with the NDCs and NAP

- Collecting and analyzing data
- Coordinating sectoral data collection for BTR (Biennial Transparency Report) and other reporting obligations
- Supporting monitoring, evaluation, and learning across their respective sectors
- Facilitating inter ministerial collaboration and knowledge sharing

The Ministry of Climate Resilience, the Environment and Renewable Energy will maintain a central coordinating role, supported by the NAP team, the National Climate Change Committee and its sub-committees.

The Climate Change Focal Point Network will be formally strengthened and resourced and given their appropriate appointments, be empowered through capacity building programs, work to ensure alignment between the NAP, NDC, and sectoral workplans through planning guidelines.

## Implementation – from policy to action



*Photo showing the installation of a new water storage tank under the Climate Resilient Water Sector in Grenada Project (G-CREWS). Photo credit: GIZ Grenada / Floyd Robinson*

Effective implementation requires coordinated action across government ministries, statutory agencies, development partners, and civil society, supported by adequate financial, technical, and human resources. It ensures that the “why” and “what” of climate policies are translated

into the “how” and “when,” making climate priorities actionable across sectors and communities.

The Ministry of Climate Resilience serves as the central coordinating body, collaborating closely with line ministries, agencies, and partners through the sector spanning Climate Change Focal Point Network. Officers embedded within ministries mainstream climate priorities, coordinate sectoral data collection, and facilitate inter-ministerial collaboration and knowledge sharing. Meanwhile, the National Climate Change Committee, supported by sub-committees on adaptation, mitigation, finance, and international negotiations, will continue to provide ongoing technical guidance and policy advice backed by cabinet oversight ensuring sustained high-level engagement.

Regarding resource mobilization and financing, effective implementation relies on adequate resources, making resource mobilization and financing critical. National budgets must reflect climate priorities, complemented by international and regional funding to support mitigation, adaptation, and capacity building efforts. Engagement with the private sector will become more crucial to encourage climate informed investments and foster corporate responsibility initiatives. At the same time, developing technical and human capacity to strengthen ministries and agencies, will enable them to deliver climate actions efficiently and ensuring Grenada meets both its national objectives and international commitments. Thus, operationalizing climate priorities will require clearly defined, costed, and time bound activities

Inclusive implementation will also depend on active participation by communities, civil society, the private sector, and academia. This can be done through multi stakeholder platforms, workshops, and the Climate Change Focal Point Network that will enable knowledge sharing, coordination, and the integration of local perspectives into national action.

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