GRENADA

NATIONAL DISASTER PREPAREDNESS BASELINE ASSESSMENT

A DATA-DRIVEN TOOL FOR ASSESSING RISK AND BUILDING LASTING RESILIENCE

PDC | GLOBAL

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- Caribbean Science Foundation (CSF)
- Digicel Grenada Ltd.
- Eastern Caribbean Telecommunications Authority (ECTEL)
- Grenada Chamber of Industry & Commerce
- Grenada Red Cross
- Grenada Electricity Services Ltd (GRENLEC)
- Government Information Service (GIS) of Grenada
- Meteorological Office of Grenada
- Ministry of Health
- Ministry of Social Development
- National Disaster Management Agency (NaDMA)
- National Telecommunications Regulatory Commission (NTRC)
- Planning & Development Authority
- Grenada Prison Service
- Sol Grenada Ltd.
- St. George's University (SGU)
- Tobago Cays Marine Park
- U.S. Embassy
- Young Women's Christian Association (YWCA) Grenada

LIST OF ABBREVIATIONS

CCA: Climate Change Adaptation

CDM: Comprehensive Disaster Management

CDEMA: Caribbean Disaster Emergency Management Agency

COG: Continuity of Government

COOP: Continuity of Operations

CSF: Caribbean Science Foundation

DMA: Disaster Management Analysis

DM: Disaster Management

DRM: Disaster Risk Management

DRR: Disaster Risk Reduction

ECTEL: Eastern Caribbean Telecommunications Authority

EWS: Early Warning System

GFDRR: Global Facility for Disaster Reduction and Recovery

GIS: Geographic Information Systems

IFRC: International Federation of Red Cross and Red Crescent Societies

MOU: Memorandum of Understanding

MMI: Modified Mercali Intensity

NaDMA: National Disaster Management Agency

NDPBA: National Disaster Preparedness Baseline Assessment

NGO: Non-Governmental Organization

NTRC: National Telecommunications Regulatory Commission

OCHA: Office for the Coordination of Humanitarian Affairs

OECS: Organisation of Eastern Caribbean States

PAHO: Pan American Health Organization

PDC: Pacific Disaster Center

PPP: Public-Private Partnership

RVA: Risk and Vulnerability Assessment

SDGs: Sustainable Development Goals

SGU: St. George's University

T&E: Training and Exercise

UNDP: United Nations Development Programme

UNDRR: United Nations Office for Disaster Risk Reduction

USAID/BHA: United States Agency for International Development/Bureau of Humanitarian Assistance

USAID/ESC: United States Agency for International Development/Eastern and Southern Caribbean

USAID/OFDA: United States Agency for International Development/Office of U.S. Foreign Disaster Assistance

USSOUTHCOM: United States Southern Command

WMO: World Meteorological Organization

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NDPBA

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

The Pacific Disaster Center (PDC) completed the Grenada National Disaster Preparedness Baseline Assessment (NDPBA) in partnership with the National Disaster Management Agency (NaDMA) and the support of in-country stakeholders. The NDPBA examines each country's unique hazard profile, cultural characteristics, geographical and geopolitical context, historical events, and other factors that could impact, both positively and negatively, a country's ability to manage disasters. Recommendations, at strategic and tactical levels, are developed based on the findings of the assessment and are aligned with the United Nations Sustainable Development Goals (SDGs) and the Sendai Framework for Disaster Risk Reduction.

The Assessment consists of two components: the Risk and Vulnerability Assessment (RVA) and the Disaster Management Analysis (DMA). The RVA looks at the multi-hazard exposure, social-economic vulnerabilities, island capacities and internal and external logistics capacities. The DMA takes a qualitative approach to assess six thematic areas -- Enabling Environment; Institutional Arrangements; Disaster Governance Mechanisms; Capabilities and Resources; Capacity Development; and Communication and Information Management. The DMA results are used to contextualize the results of the RVA, providing a comprehensive understanding of the current Disaster Management landscape. In coordination with NaDMA, PDC leverages the assessment findings to build recommendations and a Disaster Risk Reduction 5-Year Action Plan that allows for better targeted use of limited resources and identification of additional funding opportunities.

RVA results for Grenada showed significant multi-hazard exposure including hurricane winds, earthquakes, and volcanoes with nearly the entire population exposed. Additionally, the potential for tsunami events adds another level of risk to local populations, highlighting the need for coastal preparedness strategies. The assessment pointed to vulnerabilities due to Environmental Stress, Information Access, and Gender Inequality and significant deficiencies in coping capacity areas such as Air Support and Transportation Capacity indicating enhancements are necessary to bolster Grenada's disaster response capabilities. Addressing these gaps, alongside targeted efforts to mitigate the identified vulnerabilities, will strengthen the nation's overall resilience to disasters.

DMA findings for Grenada highlight well-established institutional arrangements and the recent adoption of the Comprehensive Disaster Management (CDM) Act which significantly strengthens the legal and operational framework for disaster management. Critical areas for development include enhancing public and private sector collaboration, establishing robust risk financing mechanisms, and intensifying community-based training and public awareness programs. Additionally, strengthening

communication and information management systems is essential to support effective disaster response and comprehensive risk reduction strategies.

Grenada faces an increased risk from climate change, and with that a need to establish a national climate and disaster risk financing strategy. Implementing the recommendations shared in this report will significantly advance Grenada's preparedness and disaster management capabilities.

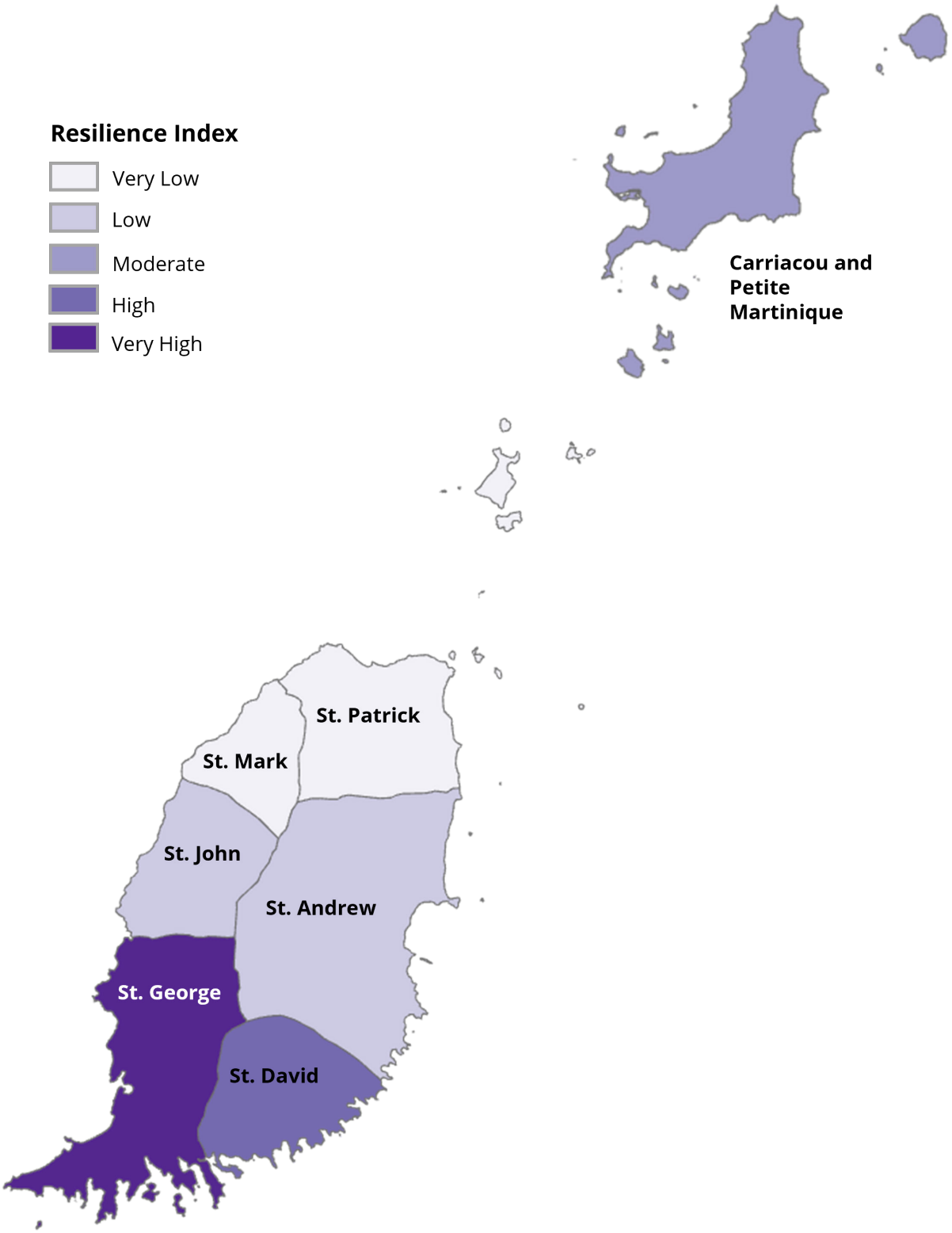
The NDPBA was funded by the United States Government through the US Southern Command and was conducted in coordination with the U.S. Embassy in Grenada. Although NaDMA was PDC's in-country partner during this project, PDC also developed relationships with multiple government and non-governmental agencies in Grenada that supported the data gathering and vetting process. A complete list of PDC's valued partners in the NDPBA effort is included in this report.

To access findings, recommendations, and data developed for this analysis, please visit PDC's all-hazard early warning and decision support application for disaster managers and humanitarian assistance practitioners, DisasterAWARE Pro® (https://disasteraware.pdc.org/).


VISION:
MOTTO:


THE REASON WE
Celebrate

SUMMARY OF FINDINGS

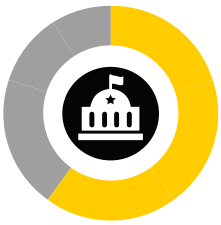


DISASTER MANAGEMENT ANALYSIS

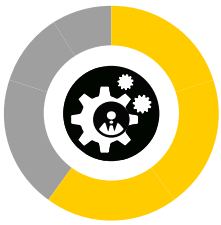
Limited or No Capacity | Early Capacity Development | Achievement with Significant Limitation | Substantial Progress with Some Limitation | Advanced Capacity

CURRENT STATUS

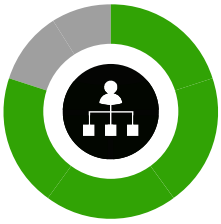
Limited or No Capacity — Advanced Capacity



Enabling Environment

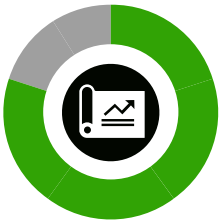


Capabilities and Resources

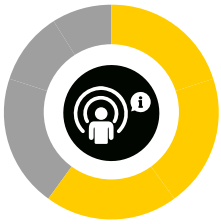


Institutional Arrangements

Capacity Development



Disaster Governance Mechanisms



Communication and Information Management

RECOMMENDATIONS

These recommendations are included in greater detail in the body of the report. Leveraging the results of this comprehensive assessment may allow the Government of Grenada and key development and disaster management partners to enable a more robust and sustainable disaster risk-reduction effort in Grenada that will contribute to saving lives and property.

IN LIGHT OF OUR FINDINGS, PDC MAKES THE FOLLOWING RECOMMENDATIONS:

1. Develop a national climate and disaster risk financing strategy to bolster long-term national economic and financial stability while adapting to climate change impacts.

2. Strengthen communication and collaboration among all government ministries and departments involved in disaster management.

3. Conduct a comprehensive planning audit to identify gaps within/among existing plans and update outdated ones.

4. Ensure that disaster management plans account for the complexities and potential cascading impacts associated with response to emergencies in densely populated communities and urban areas.

5 Utilize GIS-mapping capabilities and systems to address geospatial data and logistics to inform community-based disaster management and planning efforts.

6 Formulate and disseminate Disaster Management (DM) and Disaster Risk Reduction (DRR) development plans and strategies to advance capacity-building initiatives.

7 Promote evidence-based decision-making by establishing a centralized multi-agency data repository for disaster management, risk reduction, and resilience.

8 Establish a centralized digital repository of disaster management (DM) supplies and resources within NaDMA to support strategic designation and maintenance of storage facilities throughout nationwide.

9 Develop volunteer policies to facilitate the successful integration of individuals and organizations into the formalized national response system.

10 Formalize disaster training and exercise (T&E) initiatives into a centralized official program, led and coordinated by NaDMA.

11 Increase the annual budget for the National Disaster Management Agency (NaDMA) to support the growing need for technical staff and expanded programs required to mitigate the predicted rise in climate-related hazards affecting Grenada.

12 Expand awareness and preparedness campaigns among residents, visitors, and businesses for both natural and manmade hazards affecting Grenada.

13 Strengthen all-hazards monitoring and communications systems, translating data into comprehensive early warning systems capabilities.

14 Expand the Tsunami Ready Programme to include all susceptible Parishes located within the Tsunami hazard zones.

15 Pursue opportunities to share successes and lessons learned through Grenada's capacity-building efforts, including the Declaration of School Safety, SMART Hospital and Regional Health Project's, supporting climate resilience and risk reduction actions nationally and internationally.

NDPBA

COUNTRY BACKGROUND

GEOGRAPHY

344 sq km
Land area

52.1%
Forested Land area

121 km
Coastline length

Saint George's
Capital city

Administrative units: 6 parishes and 1 dependency

- Saint George
- Saint John
- Saint Mark
- Saint Patrick
- Saint Andrew
- Saint David
- Carriacou and Petite Martinique (Dependency)

DEMOGRAPHICS

125,438
Total population (2022)

363.7 persons per sq km
Population density (2020)

1/3
of the population lives in the capital city of Saint George's

36.9%
Urban population (2022)

82.4% African descent
13.3% Mixed
2.2% East Indian

0.7%
Average annual population growth (2022 est.)

1.4
Physicians per 1k people

75
Average life expectancy

2.1% of GDP
Public expenditure on health

6.3
Nurses and midwives per 1k people

20.1
Infant mortality rate per 1k live births

54.4%
Out-of-pocket health care expenditures

3.6
Hospital beds per 1k people

65
Maternal mortality ratio per 100,000 live births

22.2
New HIV diagnoses rate per 100,000 persons

ACCESS TO INFORMATION

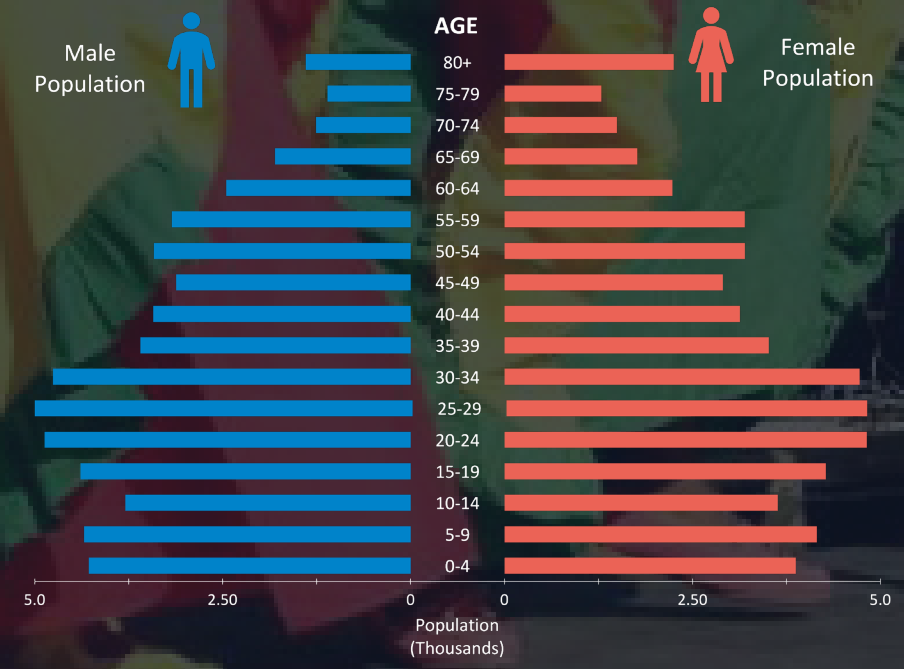
95.9%
Net enrollment in primary school

88%
Net secondary enrollment

99%
Adult literacy rate

78%
Persons using the Internet

81%
Mobile phone subscriptions per 100 persons



ECONOMY

Major exports


Fish


Nutmeg, mace and cardamom


Cocoa beans


Fruits


Toilet paper

Major economic sectors (% of GDP 2019 est.)

78.3%
Services sector

15.9%
Industry

5.8%
Agriculture

$1.26 Billion
Gross domestic product (GDP) current US$ (2020)

$10,016.21
GDP per capita (2022)

5.8%
Annual growth in GDP (2022)

0.37%
GINI coefficient (2008)

66.1%
Population covered by at least one social protection benefit (2020)

51.59%
Age dependency ratio (2022)

71.2%
Labor force participation rate (2015)

22.9%
Unemployment rate (2015)

EC$910
Monthly minimum wage, local currency (2022)

$69,446,129
Remittances received 2022 (current US$)

38%
People living below the national poverty line (2016)
Grenada has the highest poverty rate among countries in the Eastern Caribbean; significantly higher than the average of 23% for the region.

KEY INFRASTRUCTURE

2
Maurice Bishop International Airport, Lauriston Airport (also known as Carriacou Island Airport), Pearls Airport (decommissioned)

2
Saint George's, Grenville (Ferry terminal), Prickly Bay and Saint David's (Ferry terminal)

1,127 km
902 km paved, 225 km unpaved

3
Ferry terminals

62
Bridges

9
Communication towers

5
Power plants: 2 (Grenada), 3 (Carriacou and Petit Martinique)

3
Submarine cables/ landing points: 2 (Grenada); 1 (Carriacou and Petit Martinique)

Emergency Services

13
Police stations
+2 Carriacou and Petit Martinique

4
Fire stations
+2 Carriacou and Petit Martinique

4
Hospitals
+1 Carriacou and Petit Martinique

54
Shelters
+7 Carriacou and Petit Martinique

DISASTER MANAGEMENT

MAJOR CAPACITY IMPROVEMENTS/MILESTONES

National Comprehensive Disaster Management Act No.2 of 2023

In 2019, at the second Caribbean Safe School Ministerial Forum, Grenada adopted the Declaration of School Safety. Serving as a pivotal document, this declaration forms the cornerstone for the systematic implementation of strategies aimed at disaster risk reduction and the enhancement of climate change resilience within the broader context of the Caribbean Safe School Initiative.

GRENADA HAS ENGAGED IN PAHO'S "SMART HOSPITAL" INITIATIVE AND HAS UPGRADED FIVE FACILITIES TO-DATE

On September 20, 2018 (St. Patrick) and September 24, 2019, (communities of Carriacou and Petite Martinique), Grenada, received recognition for completing and adhering to the Tsunami Ready Programme. This compliance has empowered vulnerable coastal communities within the nation to take effective measures in the face of potential tsunami threats. The initiative involved tailoring inundation and evacuation maps to every community, installing evacuation route signage and assembly points, as well as clear demarcation of tsunami hazard zones. Additionally, extensive public outreach and communication awareness campaigns were conducted to disseminate critical information.

MAJOR DISASTER IMPACTS

Tropical Cyclone Lili (2002)
Deaths: *
Affected: 75
Losses: *
Rainfall of 2-4 inches in most areas. Storm surge reported.

Drought and associated wildfire (2009-2010)
Deaths:*
Affected:*
Losses: *
24-year lowest annual rainfall total recorded.
17% decline in banana production.

Tropical Cyclone Ivan (2004)
Deaths: 39
Affected: 60,000
Losses: $1.4 billion

Tropical Cyclone Emily (2005)
Deaths:
Affected:
Losses: $
(Flooded 2 main hospitals and tore roofs off homes previously damaged by Ivan)

* if none/unknown

THE RVA

RISK AND VULNERABILITY ASSESSMENT RESULTS

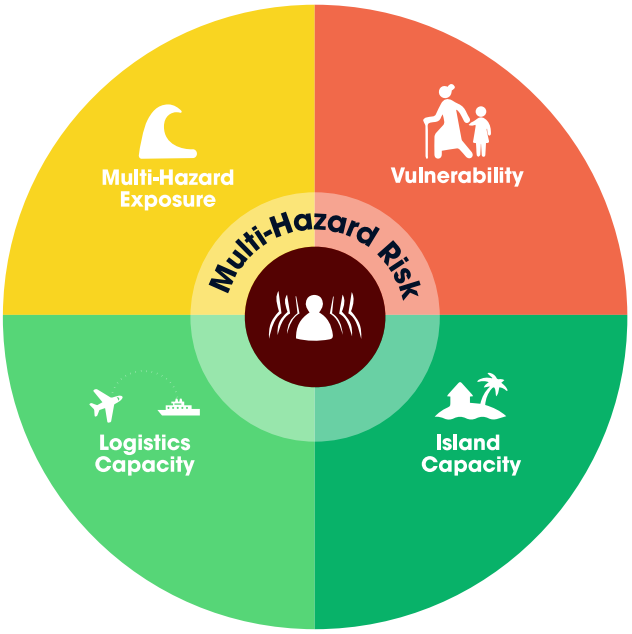
RISK AND VULNERABILITY

ASSESSMENT RESULTS

Provided in this section are the Risk and Vulnerability Assessment (RVA) results conducted by the Pacific Disaster Center as part of the National Disaster Preparedness Baseline Assessment.

For more information about PDC's NDPBA Methodology, please visit: https://www.pdc.org/wp-content/uploads/NDPBA-Data-Sharing-Guide-English-Screen.pdf

GRENADA



COMPONENTS OF RISK

Multi-Hazard Exposure

Vulnerability

Island Capacity

Logistics Capacity

THE RVA

MULTI-HAZARD EXPOSURE

MULTI-HAZARD EXPOSURE

The following hazards were assessed by PDC as part of the National Disaster Preparedness Baseline Assessment:

Global Multi-hazard Exposure Rank (PDC Global RVA)

77 OUT OF 216 COUNTRIES / TERRITORIES ASSESSED

Regional Climate Exposure 2050 Rank (PDC Regional Climate Assessment)

18 OUT OF 20 COUNTRIES / TERRITORIES ASSESSED

GRENADA HAZARD ZONES

COASTAL FLOODING

5.5% Relative Population Exposure

6,130 Raw Population Exposure

Exposed: **6.4%** Built Environment **29%** Crit. Infrastructure

FLASH FLOOD

5% Relative Population Exposure

5,547 Raw Population Exposure

Exposed: **5.3%** Built Environment **17%** Crit.Infrastructure

HURRICANE WINDS

100% Relative Population Exposure

111,180 Raw Population Exposure

Exposed: **100%** Built Environment **100%** Crit. Infrastructure

EARTHQUAKE

100% Relative Population Exposure

111,180 Raw Population Exposure

Exposed: **100%** Built Environment **100%** Crit. Infrastructure

SEA LEVEL RISE

4.5% Relative Population Exposure

4,950 Raw Population Exposure

Exposed: **5.3%** Built Environment **27%** Crit. Infrastructure

VOLCANO

45% Relative Population Exposure

50,474 Raw Population Exposure

Exposed: **46%** Built Environment **52%** Crit. Infrastructure

LANDSLIDE

24% Relative Population Exposure

26,190 Raw Population Exposure

Exposed: **30.5%** Built Environment **40%** Crit. Infrastructure

WILDFIRE

4% Relative Population Exposure

4,390 Raw Population Exposure

Exposed: **4%** Built Environment **6%** Crit. Infrastructure

TSUNAMI

9.5% Relative Population Exposure

10,603 Raw Population Exposure

Exposed: **10%** Built Environment **35%** Crit. Infrastructure

EXTREME HEAT

12% Relative Population Exposure

13,465 Raw Population Exposure

Exposed: **12.3%** Built Environment **25%** Crit. Infrastructure

Grenada: Coastal Flooding Hazard Exposure

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VIEW IN DISASTERAWARE

POTENTIAL POPULATION EXPOSURE

6,130 (5.5%)

People exposed to coastal flooding

POTENTIAL BUILT ENVIRONMENT EXPOSURE

3,093 (6.4%)

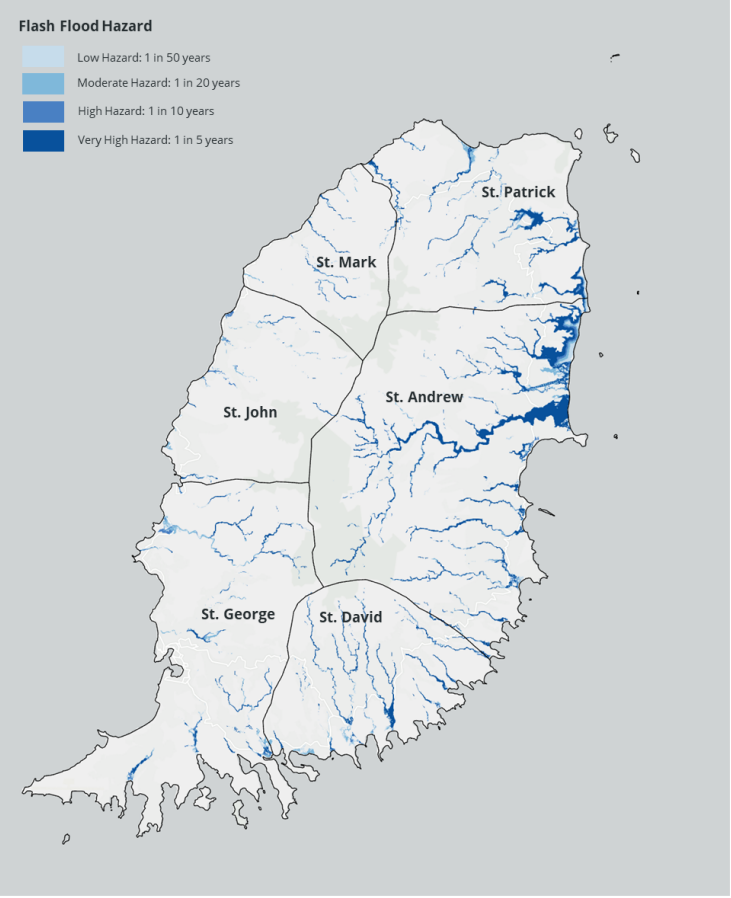
Built environment exposed to coastal flooding

CRITICAL INFRASTRUCTURE AND ASSETS EXPOSED

3 (75%) Airports and Heliports	**30** (100%) Seaports	**6** (9%) Schools & Colleges	**1** (14%) EOCs	**0** (0%) Warehouses	**4** (7%) Shelters	**7** (17%) Hospitals & Clinics
0 (0%) Waste Management	**37** (58%) Hotels & Resorts	**5** (83%) Fire Stations	**7** (47%) Police Stations	**5** (33%) Power Plants	**7** (11%) Bridges	**4** (100%) Fuel Terminals and Storage

Grenada: Flash Flood Hazard Exposure

VIEW IN DISASTERAWARE



POTENTIAL POPULATION EXPOSURE

5,547 (5%)

People exposed to flash flooding (low to very high severity)

POTENTIAL BUILT ENVIRONMENT EXPOSURE

2,589 (5.3%)

Built environment exposed to flash flooding (low to very high severity)

CRITICAL INFRASTRUCTURE AND ASSETS EXPOSED

0 (0%) Airports and Heliports	**3** (10%) Seaports	**6** (9%) Schools & Colleges	**1** (14%) EOCs	**0** (0%) Warehouses	**3** (49%) Shelters	**2** (5%) Hospitals & Clinics
2 (29%) Waste Management	**0** (0%) Hotels & Resorts	**1** (17%) Fire Stations	**2** (13%) Police Stations	**1** (17%) Power Plants	**42** (68%) Bridges	**2** (50%) Dams

Grenada: Hurricane Wind Hazard Exposure

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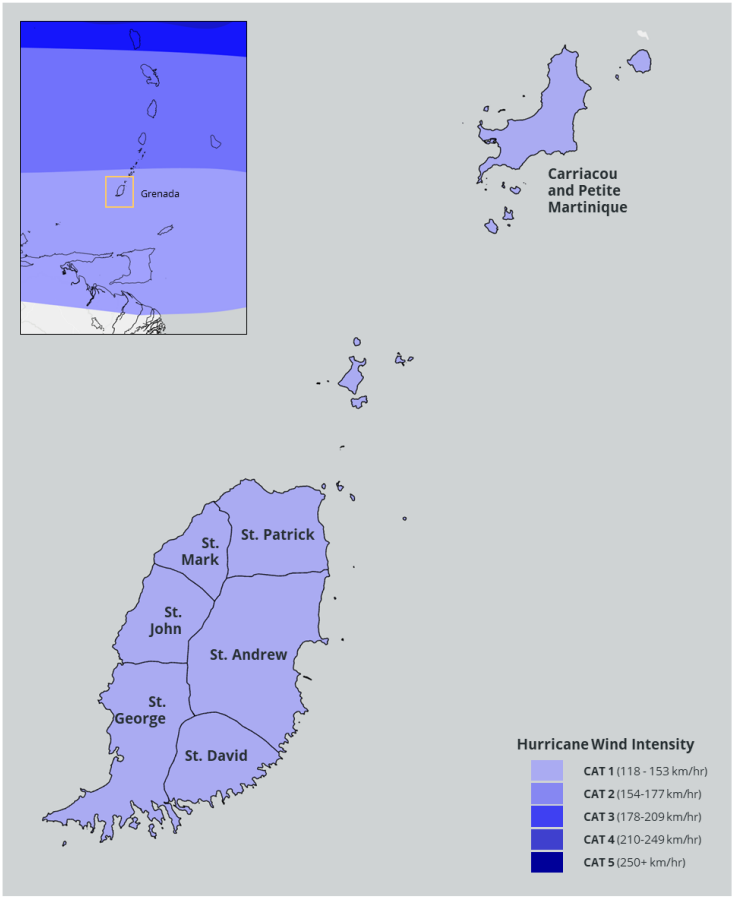
VIEW IN DISASTERAWARE



POTENTIAL POPULATION EXPOSURE

111,180 (100%)

People exposed to hurricane force winds of Category 1 and higher

POTENTIAL BUILT ENVIRONMENT EXPOSURE

48,569 (100%)

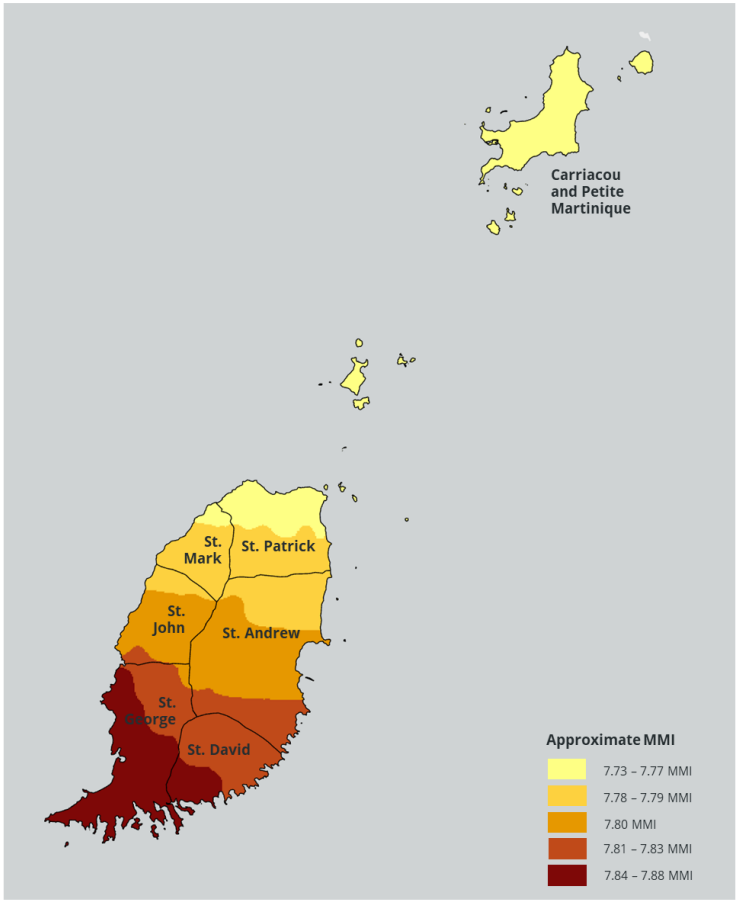
Built environment exposed to hurricane force winds of Category 1 and higher

CRITICAL INFRASTRUCTURE AND ASSETS EXPOSED

2 (100%) Airports and Heliports	**30** (100%) Seaports	**66** (100%) Schools & Colleges	**7** (100%) EOCs	**2** (100%) Warehouses	**61** (100%) Shelters	**42** (100%) Hospitals & Clinics
7 (100%) Waste Management	**64** (100%) Hotels & Resorts	**6** (100%) Fire Stations	**15** (100%) Police Stations	**6** (100%) Power Plants	**62** (100%) Bridges	**5** (100%) Senior and Child Care Homes

Grenada: Earthquake Hazard Exposure

VIEW IN DISASTERAWARE



POTENTIAL POPULATION EXPOSURE

111,180 (100%)

People exposed to earthquakes of an estimated MMI VII and above

POTENTIAL BUILT ENVIRONMENT EXPOSURE

48,569 (100%)

People exposed to earthquakes of an estimated MMI VII and above

CRITICAL INFRASTRUCTURE AND ASSETS EXPOSED

2 (100%) Airports and Heliports	**30** (100%) Seaports	**66** (100%) Schools & Colleges	**7** (100%) EOCs	**2** (100%) Warehouses	**61** (100%) Shelters	**42** (100%) Hospitals & Clinics
7 (100%) Waste Management	**64** (100%) Hotels & Resorts	**6** (100%) Fire Stations	**15** (100%) Police Stations	**6** (100%) Power Plants	**62** (100%) Bridges	**5** (100%) Senior and Child Care Homes

Grenada: Sea Level Rise Hazard Exposure

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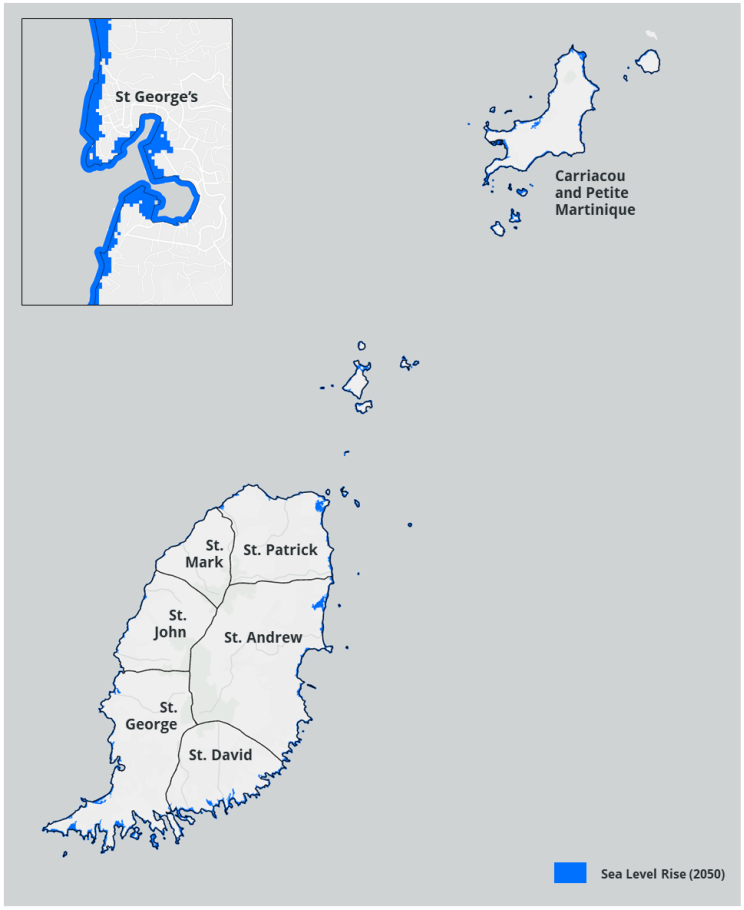

POTENTIAL POPULATION EXPOSURE

4,950 (4.5%)

People exposed to sea level rise (2050)

POTENTIAL BUILT ENVIRONMENT EXPOSURE

2,563 (5.3%)

Built environment exposed to sea level rise (2050)

CRITICAL INFRASTRUCTURE AND ASSETS EXPOSED

2 (50%)	**30** (100%)	**6** (9%)	**1** (14%)	**0** (0%)	**2** (3%)	**7** (17%)
Airports and Heliports	Seaports	Schools & Colleges	EOCs	Warehouses	Shelters	Hospitals & Clinics

0 (0%)	**34** (53%)	**5** (83%)	**6** (40%)	**2** (33%)	**6** (10%)	**4** (100%)
Waste Management	Hotels & Resorts	Fire Stations	Police Stations	Power Plants	Bridges	Fuel Terminals and Storage

Grenada: Volcano Hazard Exposure

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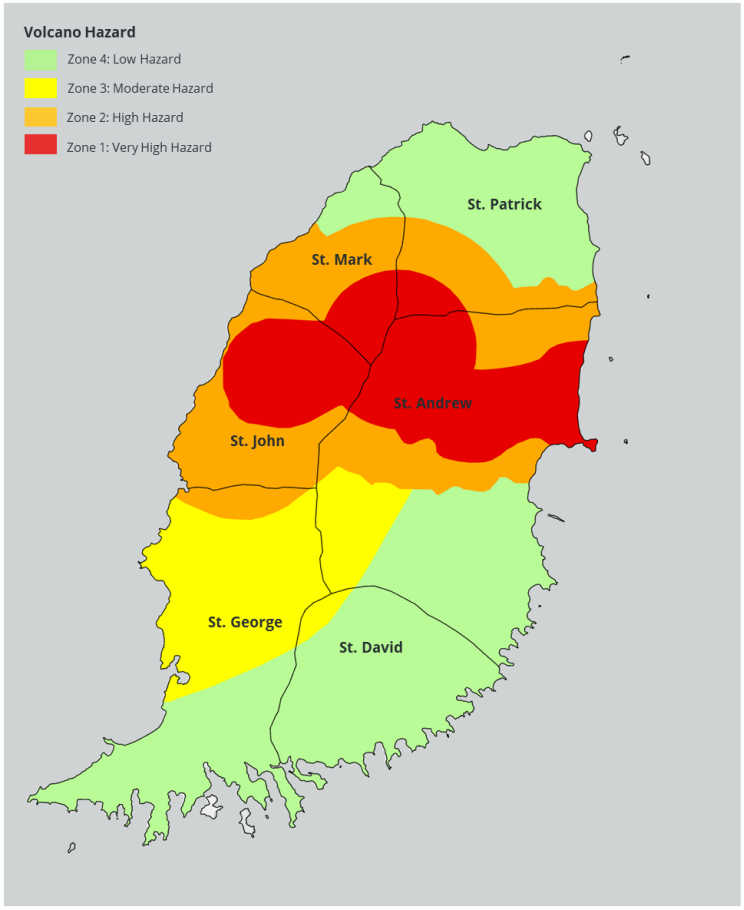
VIEW IN DISASTERAWARE



POTENTIAL POPULATION EXPOSURE

50,474 (45%)

People exposed to volcano hazard (moderate to very high severity)

POTENTIAL BUILT ENVIRONMENT EXPOSURE

22,223 (46%)

Built environment exposed to volcano hazard (moderate to very high severity)

CRITICAL INFRASTRUCTURE AND ASSETS EXPOSED

0 (0%)	**11** (37%)	**35** (53%)	**4** (57%)	**1** (50%)	**39** (64%)	**0** (0%)
Airports and Heliports	Seaports	Schools & Colleges	EOCs	Warehouses	Shelters	Hospitals & Clinics
4 (57%)	**6** (9%)	**3** (50%)	**8** (53%)	**1** (17%)	**54** (87%)	**2** (40%)
Waste Management	Hotels & Resorts	Fire Stations	Police Stations	Power Plants	Bridges	Senior and Child Care Homes

Grenada: Landslide Hazard Exposure

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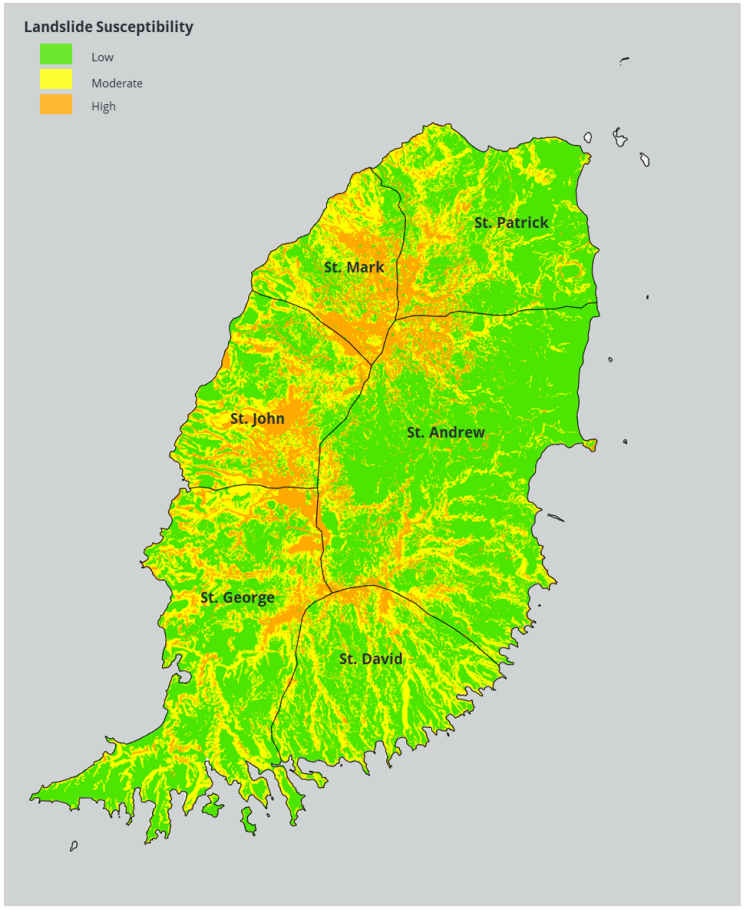
VIEW IN DISASTERAWARE



POTENTIAL POPULATION EXPOSURE

26,190 (24%)

People exposed to moderate to high landslide susceptibility

POTENTIAL BUILT ENVIRONMENT EXPOSURE

14,807 (30.5%)

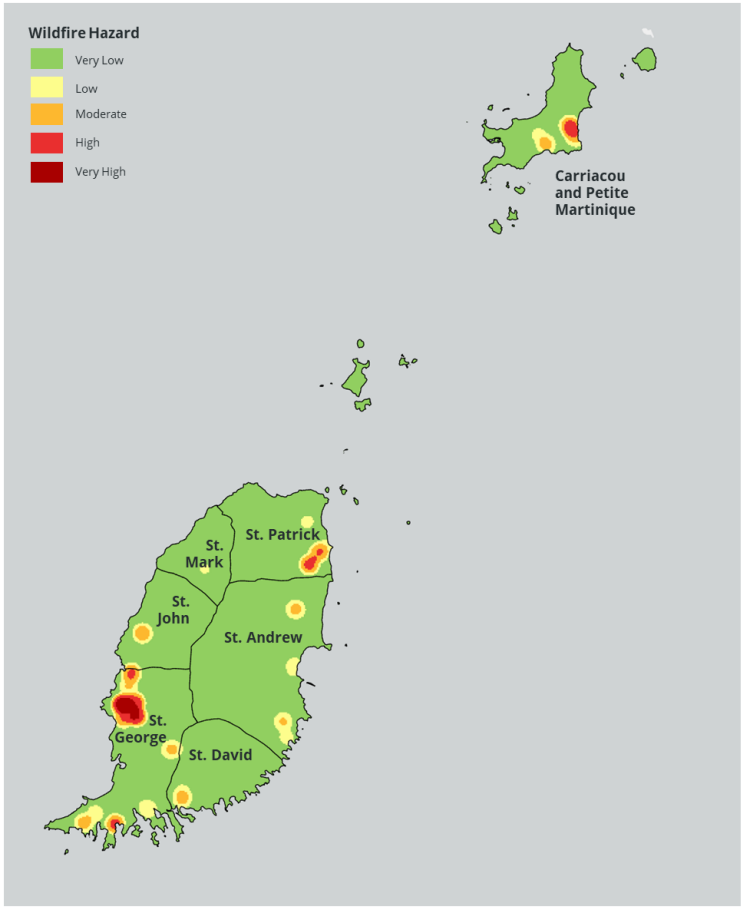
People exposed to moderate to high landslide susceptibility

CRITICAL INFRASTRUCTURE AND ASSETS EXPOSED

0 (0%)	**22** (73%)	**22** (33%)	**2** (29%)	**0** (0%)	**13** (21%)	**13** (31%)
Airports and Heliports	Seaports	Schools & Colleges	EOCs	Warehouses	Shelters	Hospitals & Clinics
2 (29%)	**39** (61%)	**2** (33%)	**4** (27%)	**2** (33%)	**25** (40%)	**1** (20%)
Waste Management	Hotels & Resorts	Fire Stations	Police Stations	Power Plants	Bridges	Senior and Child Care Homes

Grenada: Wildfire Hazard Exposure

VIEW IN DISASTERAWARE



POTENTIAL POPULATION EXPOSURE

4,390 (4%)

People exposed to wildfire (moderate to very high severity)

POTENTIAL BUILT ENVIRONMENT EXPOSURE

1,828 (4%)

Built environment exposed to wildfire (moderate to very high severity)

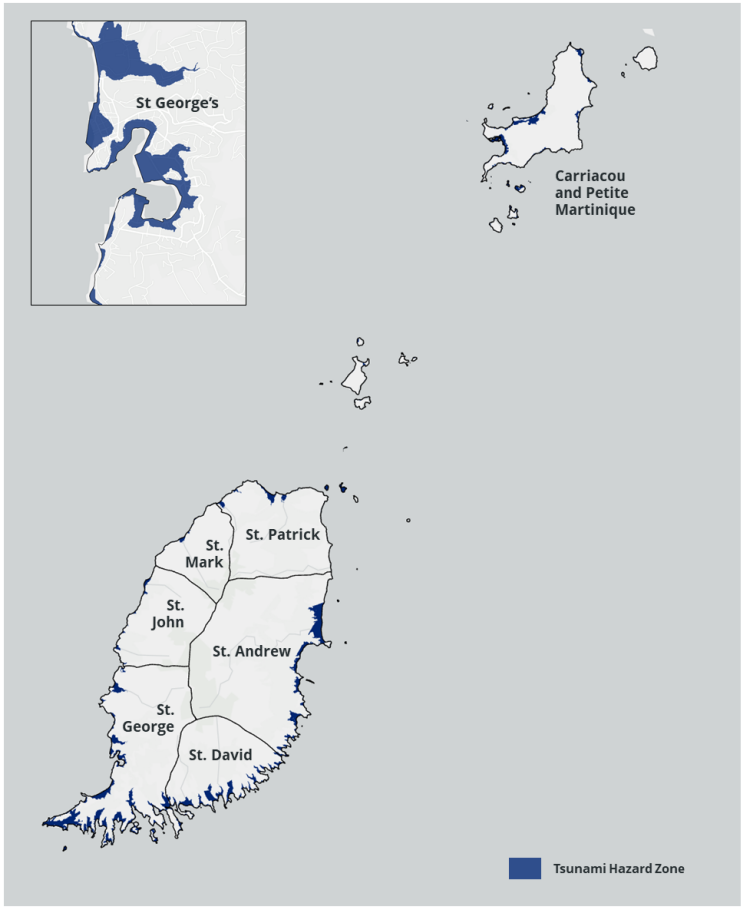
CRITICAL INFRASTRUCTURE AND ASSETS EXPOSED

1 (50%) Airports and Heliports	**1** (3%) Seaports	**2** (3%) Schools & Colleges	**0** (0%) EOCs	**0** (0%) Warehouses	**3** (5%) Shelters	**2** (5%) Hospitals & Clinics
2 (29%) Waste Management	**4** (6%) Hotels & Resorts	**0** (0%) Fire Stations	**0** (0%) Police Stations	**0** (0%) Power Plants	**4** (6%) Bridges	**1** (20%) Senior and Child Care Homes

Grenada: Tsunami Hazard Exposure

PDC | GLOBAL

VIEW IN DISASTERAWARE



POTENTIAL POPULATION EXPOSURE

10,603 (9.5%)

People exposed to tsunami

POTENTIAL BUILT ENVIRONMENT EXPOSURE

4,955 (10%)

Built environment exposed to tsunami

CRITICAL INFRASTRUCTURE AND ASSETS EXPOSED

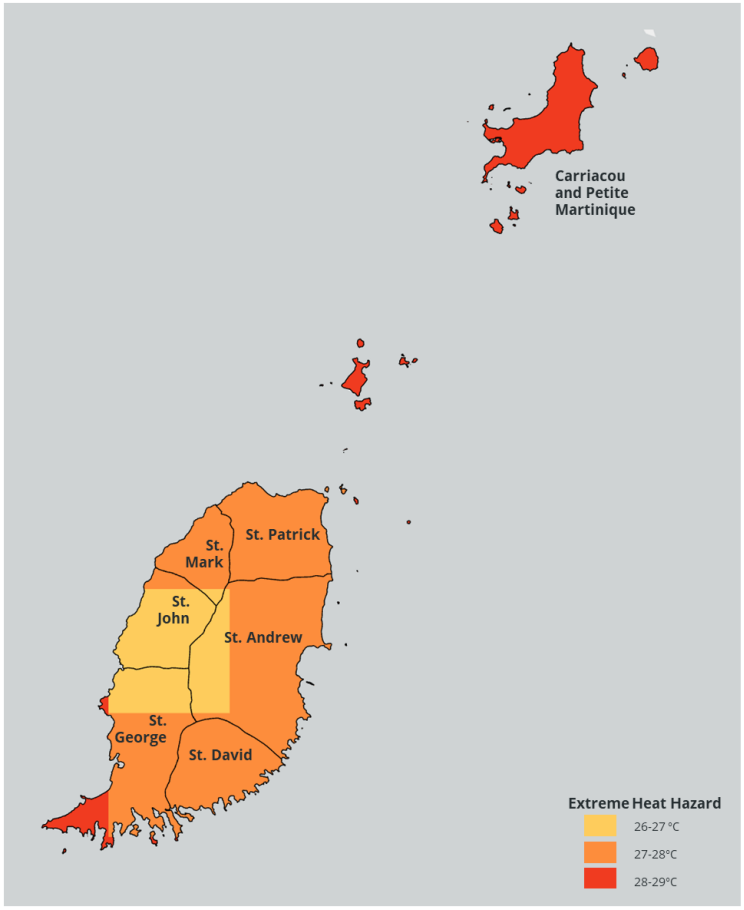
3 (75%)	**30** (100%)	**9** (14%)	**1** (14%)	**0** (0%)	**2** (3%)	**9** (21%)
Airports and Heliports	Seaports	Schools & Colleges	EOCs	Warehouses	Shelters	Hospitals & Clinics

4 (57%)	**40** (63%)	**4** (67%)	**7** (47%)	**2** (33%)	**15** (24%)	**4** (100%)
Waste Management	Hotels & Resorts	Fire Stations	Police Stations	Power Plants	Bridges	Fuel Terminals and Storage

Grenada: Extreme Heat Exposure

PDC | GLOBAL

VIEW IN DISASTERAWARE



POTENTIAL POPULATION EXPOSURE

13,465 (12%)

People exposed to extreme heat (28°C and above)

POTENTIAL BUILT ENVIRONMENT EXPOSURE

5,961 (12.3%)

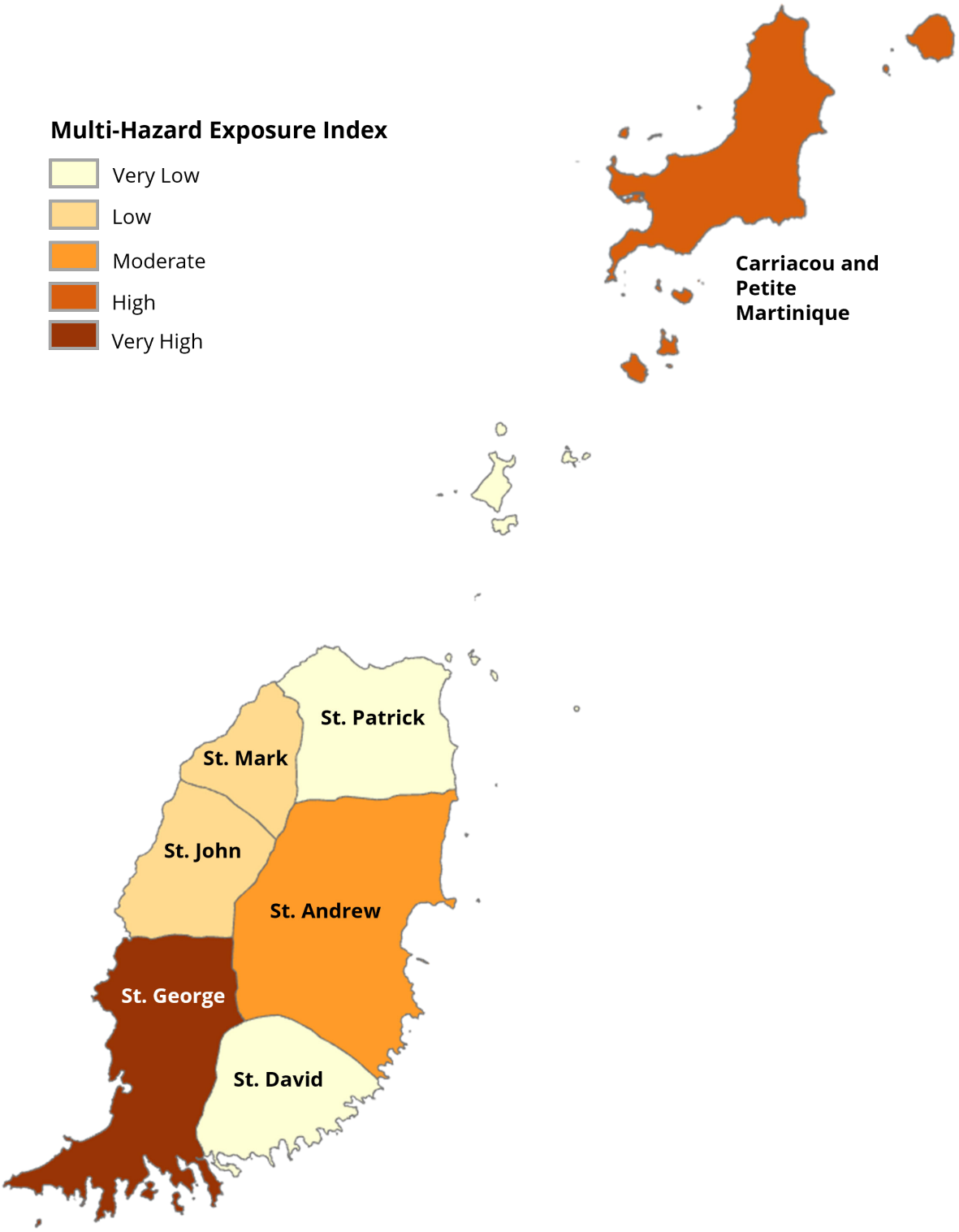
Built environment exposed to extreme heat (28°C and above)

CRITICAL INFRASTRUCTURE AND ASSETS EXPOSED

4 (100%)	**7** (23%)	**16** (24%)	**2** (29%)	**1** (50%)	**10** (16%)	**8** (19%)
Airports and Heliports	Seaports	Schools & Colleges	EOCs	Warehouses	Shelters	Hospitals & Clinics
3 (43%)	**35** (55%)	**2** (33%)	**3** (20%)	**4** (67%)	**1** (2%)	**2** (40%)
Waste Management	Hotels & Resorts	Fire Stations	Police Stations	Power Plants	Bridges	Senior and Child Care Homes

MULTI-HAZARD EXPOSURE BY PARISH

	RANK	PARISH	INDEX SCORE
VERY HIGH	1	Saint George	0.827
HIGH	2	Carriacou and Petite Martinique	0.488
MODERATE	3	Saint Andrew	0.467
LOW	4	Saint John	0.458
	5	Saint Mark	0.386
VERY LOW	6	Saint David	0.099
	7	Saint Patrick	0.085


Multi-Hazard Exposure Index
Very Low
Low
Moderate
High
Very High
Carriacou and Petite Martinique
St. Patrick
St. Mark
St. John
St. Andrew
St. George
St. David

THE RVA

VULNERABILITY

VULNERABILITY

Vulnerability measures the physical, environmental, social, and economic conditions and processes that increase susceptibility of communities and systems to the damaging effects of hazards. Vulnerability data is designed to capture the multi-dimensional nature of poverty, the inequality in access to resources due to gender, and the ability of a given area to adequately support the population. In coordination with stakeholders, the following indicators were selected to measure vulnerability subcomponents in the country. Breaking down each vulnerability subcomponent to the indicator level allows users to identify the key drivers of vulnerability to support risk reduction efforts and policy decisions.

Global Vulnerability Rank (PDC Global RVA)

79 OUT OF 204 COUNTRIES / TERRITORIES ASSESSED

VULNERABILITY SUBCOMPONENTS AND INDICATORS

Information Access Vulnerability
Population with No Internet Access
Household Computer Access
School Attendance (children ages 5 to 16)
Adults without Secondary Education

Environmental Stress
Coastline Exposure to Local/Global Threats
Tree Cover Loss

Household Infrastructure Vulnerability
Households with Treated Water
Households with Indoor Toilets
Households with Improved Sanitation
Housing Built Prior to 2000

Economic Constraints
Economic Dependency Ratio
Unemployment Rate
Youth Bulge

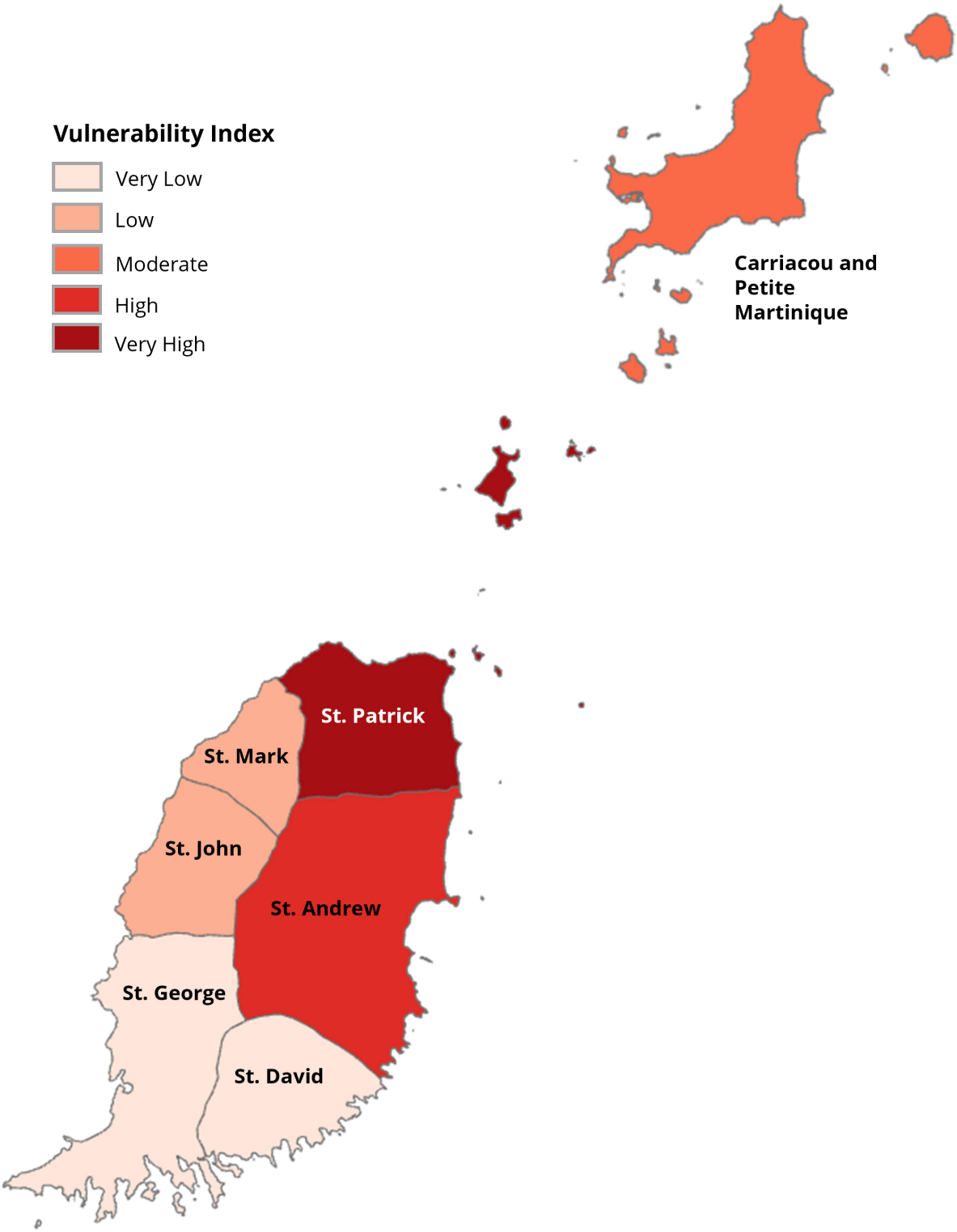
Gender Inequality
Female to Male Labor Ratio
Parity in Secondary Education Attainment

Household Composition and Vulnerable Health
Population Aged 65 and Older
Population Under Age 15
Prevalence of Chronic Illness
Prevalence of Disability

Population Pressures
Average Annual Population Change
Population Density

VULNERABILITY BY PARISH

	RANK	PARISH	INDEX SCORE
VERY HIGH	1	Saint Patrick	0.673
HIGH	2	Saint Andrew	0.634
MODERATE	3	Carriacou and Petite Martinique	0.532
LOW	4	Saint Mark	0.530
	5	Saint John	0.475
VERY LOW	6	Saint David	0.428
	7	Saint George	0.290


Vulnerability Index
Very Low
Low
Moderate
High
Very High
Carriacou and Petite Martinique
St. Patrick
St. Mark
St. John
St. Andrew
St. George
St. David

THE RVA

ISLAND CAPACITY

ISLAND CAPACITY

Island Capacity represents the societal and institutional resources that the country can leverage and mobilize to prepare for and bear disaster impacts.

ISLAND CAPACITY SUBCOMPONENTS AND INDICATORS

Environmental Capacity
Protected Area
Protected Coastlines
Net Carbon Flux
Croplands

Governance
Voter Participation Rate
Household Waste Disposal
Prevalence of Crime

Health Care Capacity
Hospitals and Clinics per 1,000 Persons
Health Insurance Coverage

Emergency Services Capacity
Average Distance to Police Station
Average Distance to Fire Station
Average Distance to Hospital or Clinic
Average Distance to Shelter

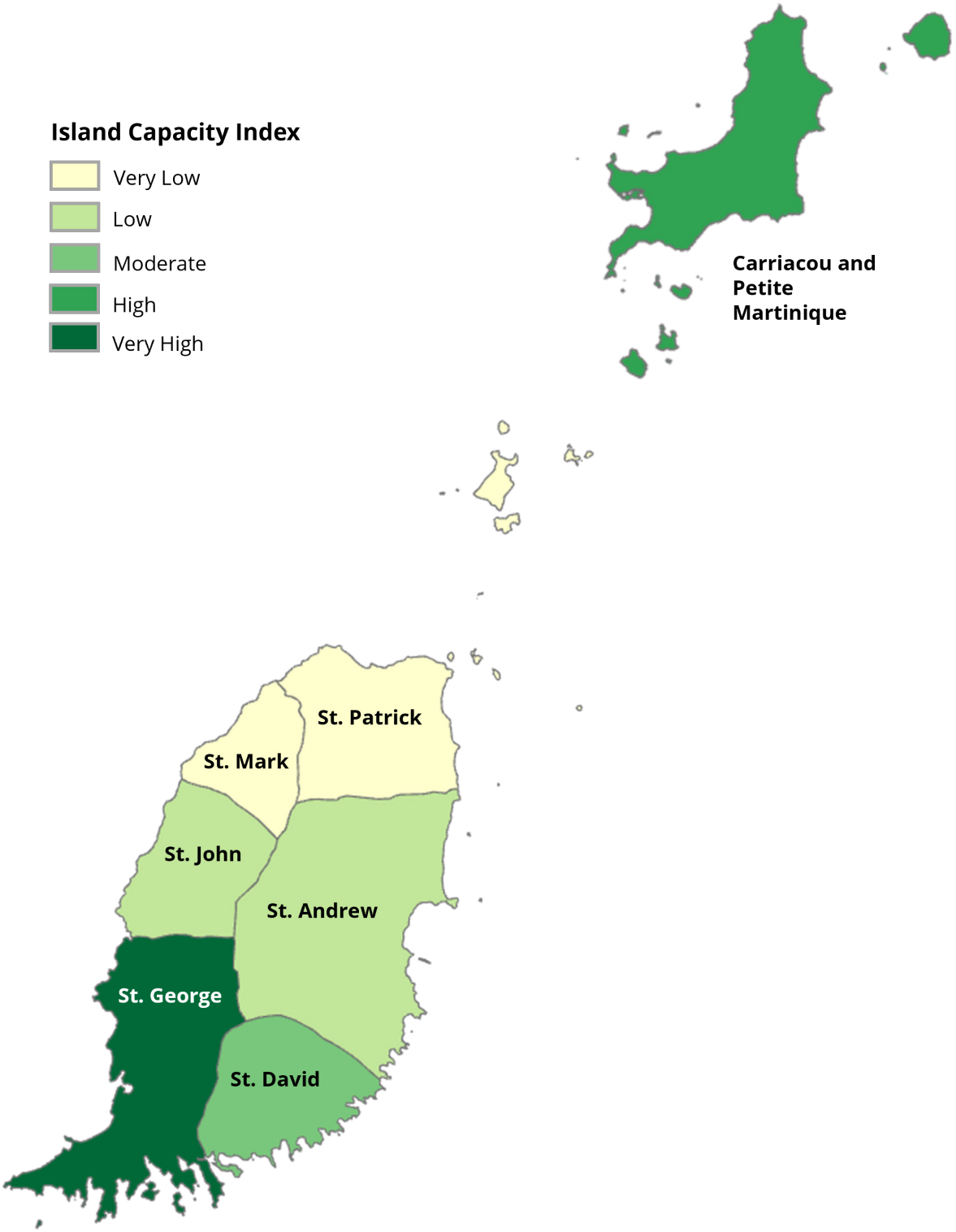
Economic Capacity
Labor Force Participation Rate
Households with Home Insurance
Household Content Insured

Communications Capacity
Households with Mobile Phones
Households with Fixed Phones

Energy Capacity
Household Access to Electricity
Households Using Gas for Cooking

ISLAND CAPACITY BY PARISH

	RANK	PARISH	INDEX SCORE
VERY HIGH	1	Saint George	0.693
HIGH	2	Carriacou and Petite Martinique	0.518
MODERATE	3	Saint David	0.430
LOW	4	Saint Andrew	0.404
	5	Saint John	0.350
VERY LOW	6	Saint Patrick	0.239
	7	Saint Mark	0.237


Island Capacity Index
Very Low
Low
Moderate
High
Very High
Carriacou and Petite Martinique
St. Patrick
St. Mark
St. John
St. Andrew
St. George
St. David

THE RVA

LOGISTICS CAPACITY

LOGISTICS CAPACITY

Logistics Capacity assesses the ability of the country to ensure efficient storage, movement, and delivery of resources key to effective humanitarian assistance and disaster relief operations.

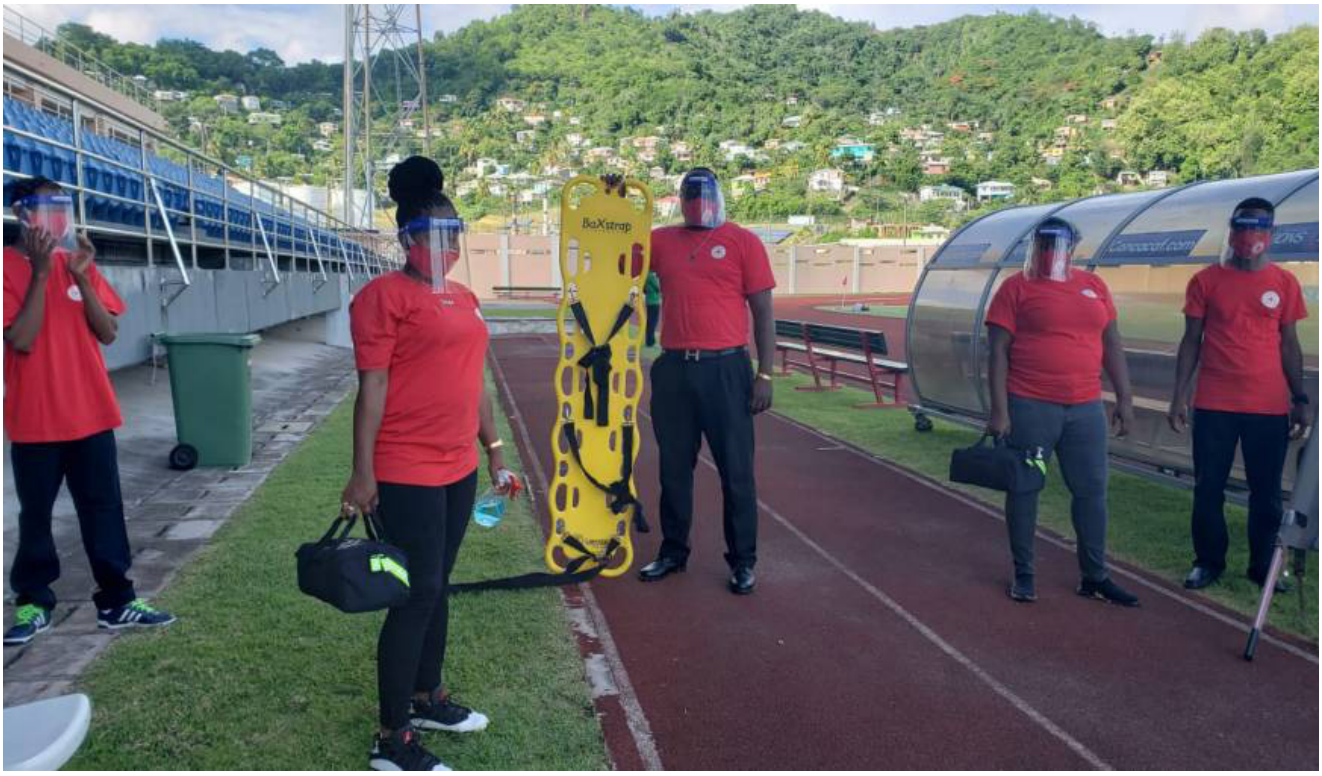
LOGISTICS CAPACITY SUBCOMPONENTS AND INDICATORS

Maritime Logistics
Average Distance to Seaport
Ports per 10 km of Coastline
Distance to External Medium or Large Seaport

Air Support
Average Distance to Airport or Heliport
Distance to External C130 Airport

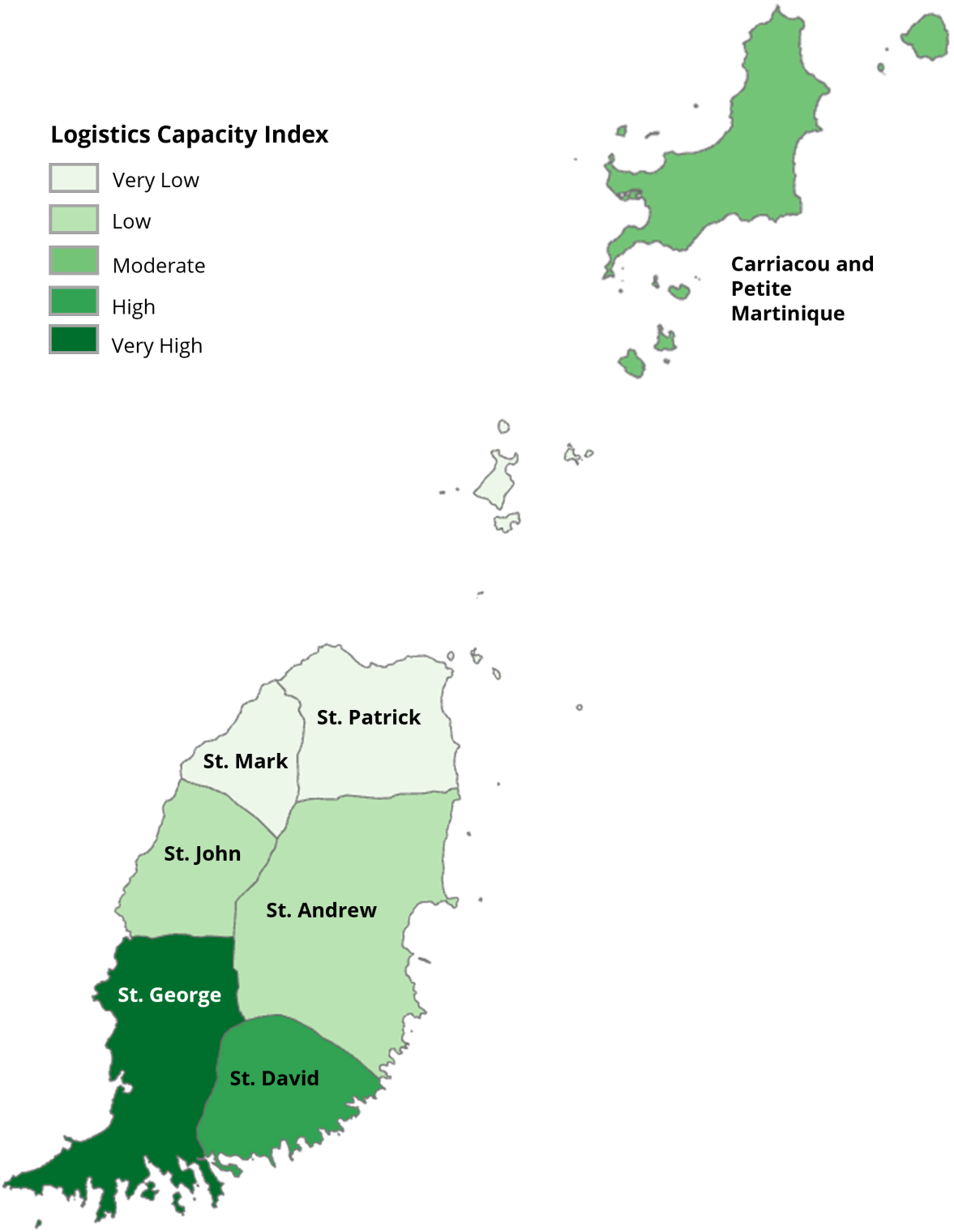
Transportation Capacity
Road Density
Gas Stations per 1,000 Persons

Warehouse Access
Average Distance to Warehouse
Distance to CDEMA Sub-Regional Focal Point



LOGISTICS CAPACITY BY PARISH

	RANK	PARISH	INDEX SCORE
VERY HIGH	1	Saint George	0.802
HIGH	2	Saint David	0.521
MODERATE	3	Carriacou and Petite Martinique	0.505
LOW	4	Saint John	0.498
	5	Saint Andrew	0.455
VERY LOW	6	Saint Patrick	0.421
	7	Saint Mark	0.345


Logistics Capacity Index
Very Low
Low
Moderate
High
Very High
Carriacou and Petite Martinique
St. Patrick
St. Mark
St. John
St. Andrew
St. George
St. David

THE RVA

COPING CAPACITY

COPING CAPACITY

Coping Capacity measures the systems, means, and abilities of people and societies to absorb and respond to disruptions in normal function. Coping Capacity was calculated by using a combination of Island Capacity and Logistics Capacity.

Global Coping Capacity Rank (PDC Global RVA)

69 OUT OF 198 COUNTRIES / TERRITORIES ASSESSED

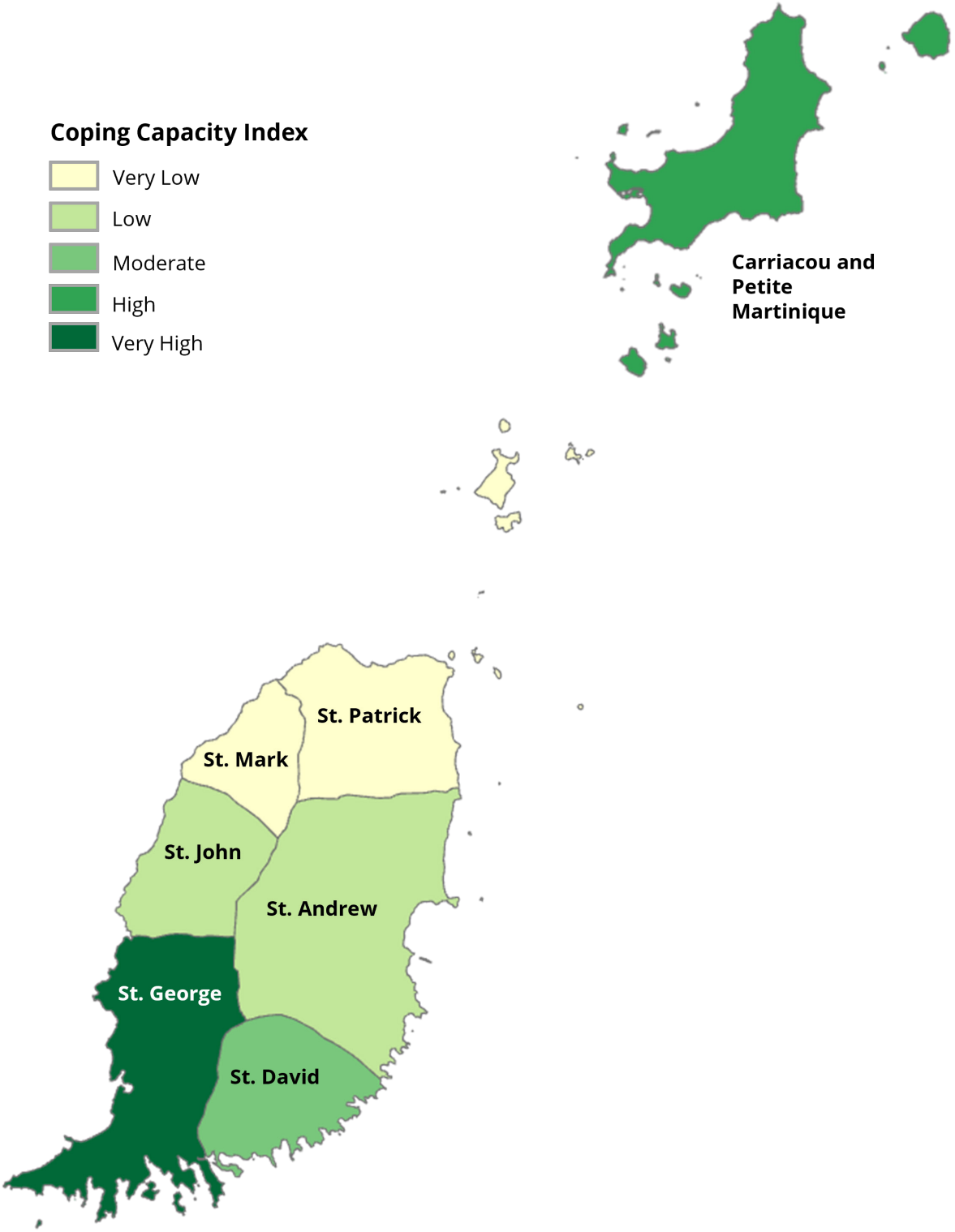
COPING CAPACITY SUBCOMPONENTS

Island Capacity

Logistics Capacity

COPING CAPACITY BY PARISH

	RANK	PARISH	INDEX SCORE
VERY HIGH	1	Saint George	0.747
HIGH	2	Carriacou and Petite Martinique	0.511
MODERATE	3	Saint David	0.475
LOW	4	Saint Andrew	0.430
	5	Saint John	0.424
VERY LOW	6	Saint Patrick	0.330
	7	Saint Mark	0.291


Coping Capacity Index
Very Low
Low
Moderate
High
Very High
Carriacou and Petite Martinique
St. Patrick
St. Mark
St. John
St. Andrew
St. George
St. David

THE RVA

RESILIENCE

RESILIENCE

Resilience was calculated by averaging Vulnerability and Coping Capacity. Results are displayed for Grenada below, while the main drivers of resilience and recommendations are provided in the detailed subnational profiles.

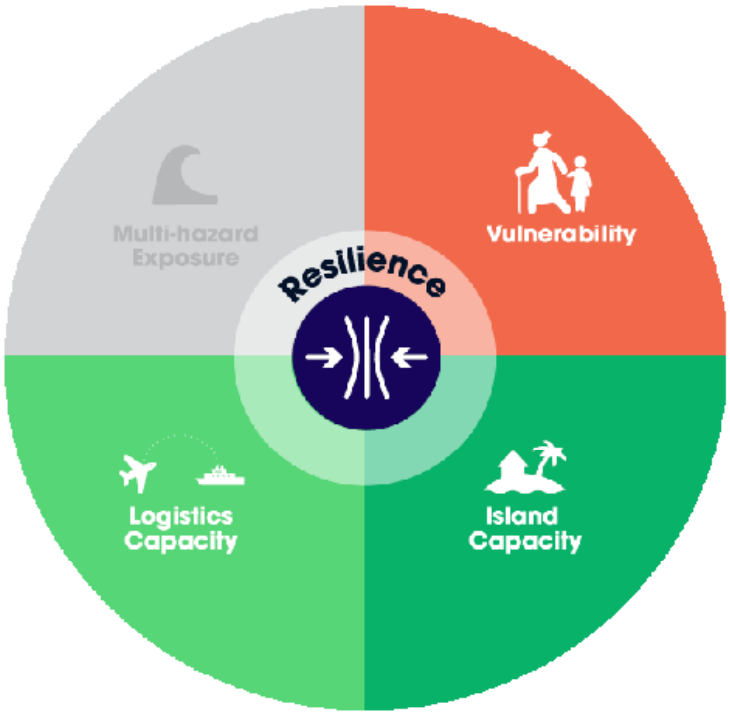
Global Resilience Rank (PDC Global RVA)

84 OUT OF 194 COUNTRIES / TERRITORIES ASSESSED

Regional Climate Resilience Rank (PDC Regional Climate Assessment)

9 OUT OF 15 COUNTRIES

RESILIENCE COMPONENTS



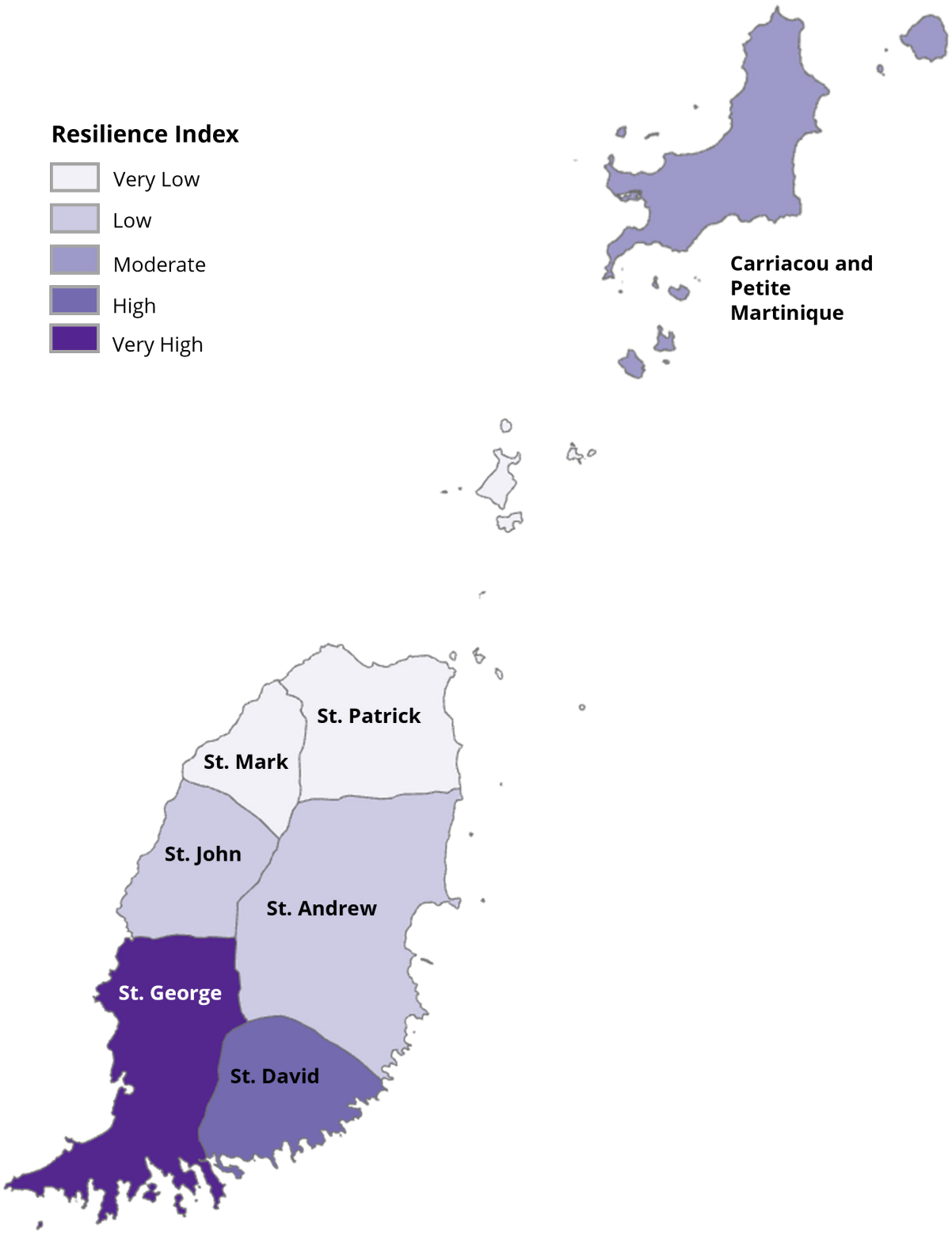
Vulnerability

Island Capacity

Logistics Capacity

RESILIENCE BY PARISH

	RANK	PARISH	INDEX SCORE
VERY HIGH	1	Saint George	0.729
HIGH	2	Saint David	0.524
MODERATE	3	Carriacou and Petite Martinique	0.489
LOW	4	Saint John	0.474
	5	Saint Andrew	0.398
VERY LOW	6	Saint Mark	0.381
	7	Saint Patrick	0.329


Resilience Index
Very Low
Low
Moderate
High
Very High
Carriacou and Petite Martinique
St. Patrick
St. Mark
St. John
St. Andrew
St. George
St. David

THE RVA

MULTI-HAZARD RISK

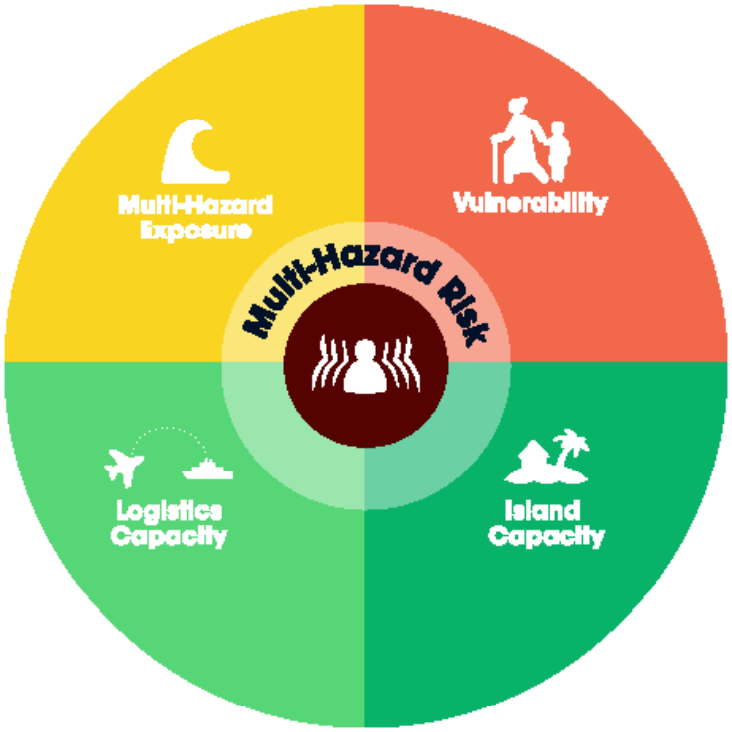
MULTI-HAZARD RISK

Multi-hazard risk combines hazard exposure, susceptibility to impact, and the relative inability to absorb negative disaster impacts to provide a collective measure of how each parish may be affected by hazards and disasters as a whole over time. Analyzing risk information throughout all phases of disaster management – mitigation, preparedness, response, recovery – improves operations and promotes efficient resource allocation.

Multi-hazard risk was calculated by averaging multi-hazard exposure, vulnerability, and coping capacity. Results are displayed below, while additional detailed analysis of risk is provided in the subnational profiles report.

Global Multi-Hazard Risk Rank (PDC Global RVA) **100** **OUT OF 193 COUNTRIES / TERRITORIES ASSESSED**

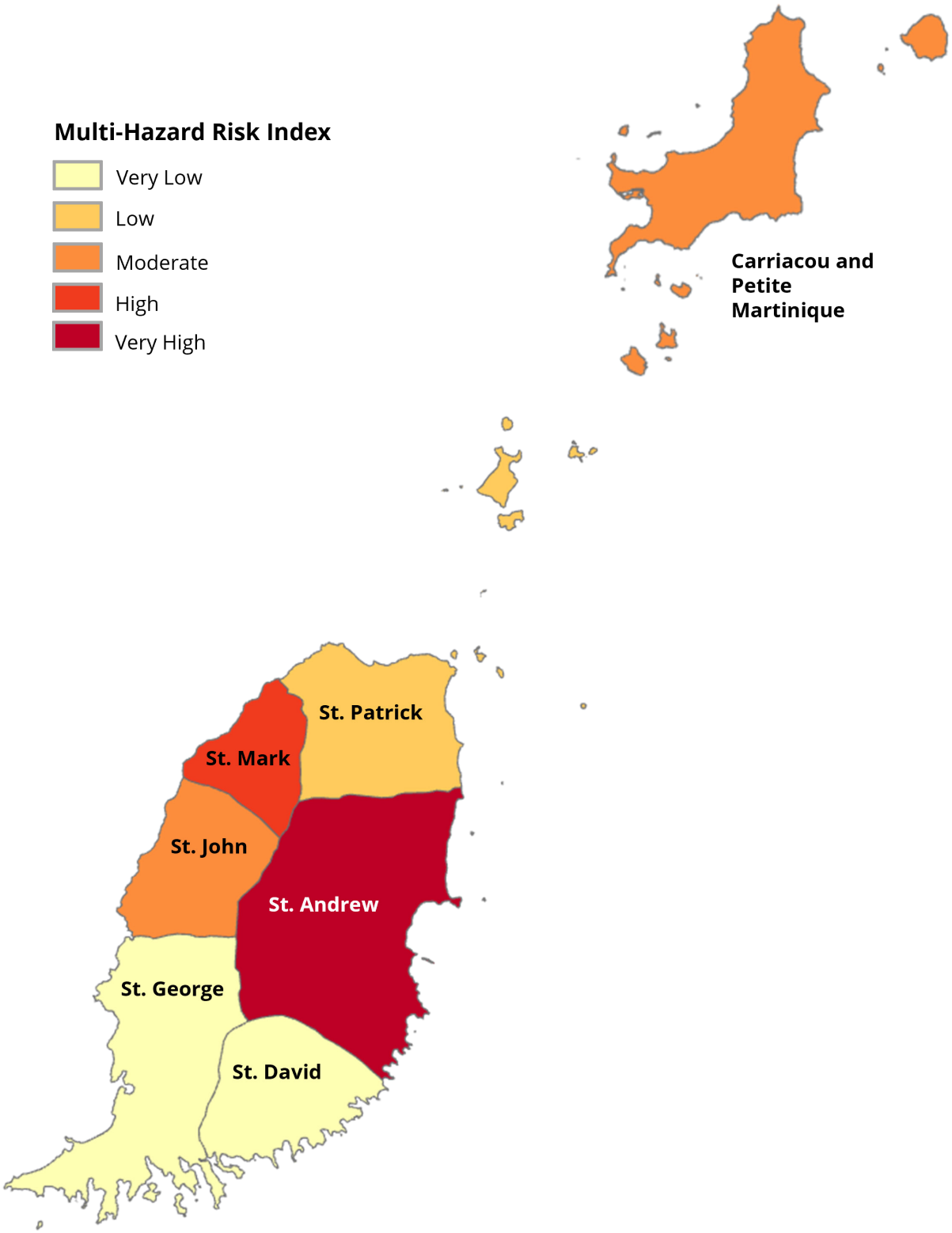
MULTI-HAZARD RISK COMPONENTS



Multi-Hazard Exposure **Vulnerability** **Island Capacity** **Logistics Capacity**

MULTI-HAZARD RISK BY PARISH

	RANK	PARISH	INDEX SCORE
VERY HIGH	1	Saint Andrew	0.557
HIGH	2	Saint Mark	0.542
MODERATE	3	Carriacou and Petite Martinique	0.503
	3	Saint John	0.503
LOW	5	Saint Patrick	0.476
VERY LOW	6	Saint George	0.456
	7	Saint David	0.350


Multi-Hazard Risk Index
Very Low
Low
Moderate
High
Very High
Carriacou and Petite Martinique
St. Patrick
St. Mark
St. John
St. Andrew
St. George
St. David

THE DMA

DISASTER MANAGEMENT ANALYSIS

SUMMARY OF FINDINGS

DISASTER MANAGEMENT ANALYSIS

Provided in this section are the results of the Disaster Management Analysis (DMA) conducted as part of the Grenada National Disaster Preparedness Baseline Assessment. The recommendations presented as part of this analysis support opportunities to enable more effective prioritization of risk-reduction and resilience-building initiatives and investments.

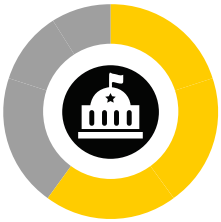
Considering a spectrum of operational achievements and challenges, the DMA examined six core disaster management themes: Enabling Environment; Institutional Arrangements; Disaster Governance Mechanisms; Capabilities and Resources; Capacity Development; and Communication and Information Management.

DISASTER MANAGEMENT ANALYSIS RESULTS

CURRENT STATUS

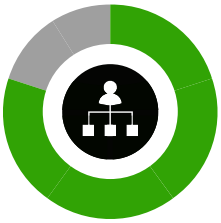
Limited or No Capacity — Advanced Capacity

DISASTER MANAGEMENT ANALYSIS THEME AND SUBTHEMES



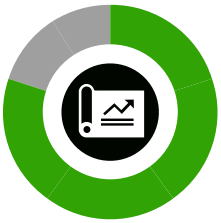
A. Enabling Environment

Legal Instruments
Financial Resources
Strategies
Public Confidence and Political Support
Attitudes and Experience



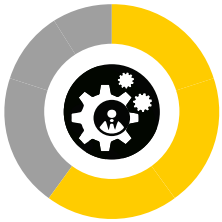
B. Institutional Arrangements

Organizational Structures
Leadership Arrangements
Mechanisms for Stakeholder Engagement



C. Disaster Governance Mechanisms

Plans and Processes
Command, Control, and Coordination Systems
Emergency Operations Centers

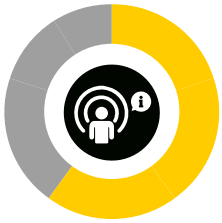


D. Capabilities and Resources

Dedicated Facilities and Equipment
Human Resources
Inventory of Commodities and Supplies
Targeted Functional Capabilities

E. Capacity Development

Capacity Development Plans and Strategies
Training and Education Programs and Facilities
Monitoring and Evaluation Processes and Systems



F. Communication and Information Management

Hazard and Risk Analysis Systems
Monitoring and Notifications
Disaster Assessment
Information Collection, Management, and Distribution
Media and Public Affairs

Limited or No Capacity | Early Capacity Development | Achievement with Significant Limitation | Substantial Progress with Some Limitation | Advanced Capacity

DISASTER MANAGEMENT ANALYSIS RESULTS

Grenada has progressively advanced its disaster management capabilities on several fronts, especially the institutional, legal, and governance frameworks within the mitigation, preparedness, response, and recovery phases of disasters.

Major strengths for Grenada include robust institutional arrangements with well-defined organizational structures and clear mechanisms for stakeholder engagement enabled through legal frameworks – especially the achievement of the National Comprehensive Disaster Management Act No.2 of 2023. The Act is effective across all phases of disaster management and establishes a disaster risk reduction and management framework aimed at mitigating the socio-economic, fiscal, and environmental impacts of disasters while addressing the longer-term effects of climate change. The emphasis on a shared responsibility approach and active private and public sector involvement reflects Grenada's commitment to fostering a comprehensive disaster management strategy that is both responsive and adaptable. It also aligns strategically with international and regional disaster risk reduction commitments.

Other major accomplishments for Grenada include the Tsunami Ready Programme, the Declaration of School Safety and commitment to fortify school safety protocols, and the Smart Hospital and Regional Health Project's that Grenada has implemented. These capacity-building initiatives steer the nation towards a trajectory of sustainability and ensure the country's resilience in the face of uncertainties.

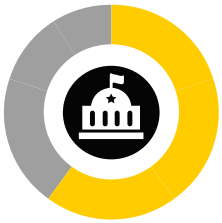
Additionally, Grenada is participating in the Organization of Eastern Caribbean State (OECS) Regional Health Project supported by the World Bank who provided financial and technical assistance in bolstering capabilities for public health emergencies. This project enhances essential capabilities in surveillance, laboratories, and emergency management throughout Grenada. It also promotes coordination among the workforce, improving effective collaboration to prevent and mitigate public health risks.

Areas where strengthened capacities are most crucial include financial support to bolster human resource capabilities that support implementation of disaster management goals, and information gathering, sharing, and technology to enhance Grenada's data management framework.

This study is designed to establish Grenada's baseline disaster management preparedness levels presented in six interconnected themes. It is a step towards meaningfully tracking progress while setting clear and coherent objectives aligned with Grenada's commitment to the Sendai Framework for Disaster Risk Reduction, the United Nations Sustainable Development Goals, CDEMA's CDM Priority Areas, and the Paris Agreement for Climate Change.

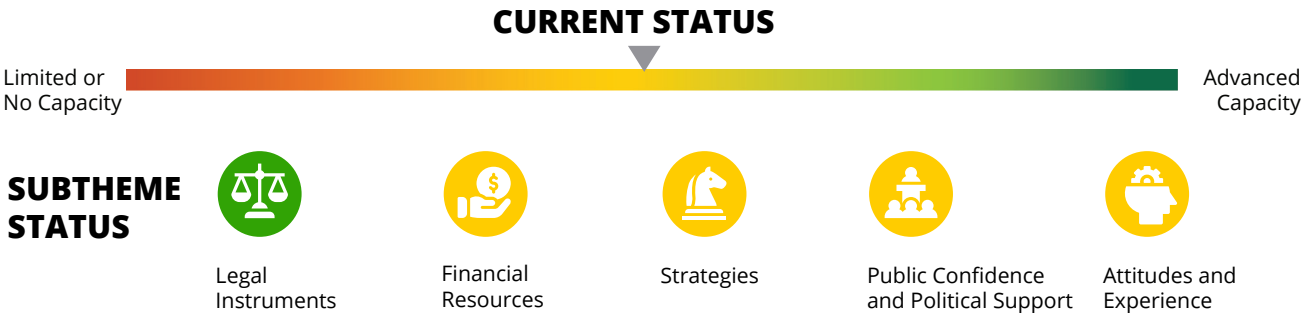
THE DMA

ENABLING ENVIRONMENT



ENABLING ENVIRONMENT

Findings indicate Grenada's current Enabling Environment shows achievement with significant limitations.



Grenada has achieved progress to support increasing the capacity of the disaster management structures, authorities, processes, and capabilities enabled by their legal, institutional, financial, and social instruments. These rules, laws, policies, and other instruments allow capacity to develop and to achieve an effective risk reduction vision. Characterization of an enabling environment covers a range of issues from the existence and applicability of legislation to disaster management stakeholders' attitudes and experience.

ENABLING ENVIRONMENT

FINANCIAL RESOURCES

FINDINGS

Grenada has made progress in identifying key financial mechanisms for post-disaster recovery. Grenada is a member of Caribbean Catastrophe Risk Insurance Facility and has in place a Disaster Risk Financing Policy, Excess Rainfall Policy, in addition to a Livelihood Protection Policy (LPP) and Loan Portfolio Cover (LPC). Yet, a persistent challenge remains in delivering prompt emergency financing and guidelines for financial disaster assistance to rapidly support relief and response efforts.

Grenada would benefit from the implementation of protocols for accessing public relief funding and bolstering financial disaster assistance programs. These programs should include strategies that are governed by agility, equity, and focused targeting. This initiative fortifies comprehensive recovery by hastening aid distribution, addressing specific needs of each Parish, and ensuring adaptability for the dynamic circumstances arising from post-disaster events.

RECOMMENDATIONS

It is recommended that the following activities be implemented to support Grenada:

- Develop a national Climate and Disaster Risk Financing Strategy to facilitate rapid financing in the event of disasters. Include establishment of formal programs for:
  - National Flood Insurance
  - Catastrophe Insurance
  - Public Assets Financial Protection
- Augment financial needs with micro-loans if the criteria for conventional loan options are not met.
- Explore adoption of formal National Incentive Policies offered to regional and national partners and tailor to Parish needs.
- Establish formal guidelines for funding distribution that include:
  - administrative procedures
  - eligibility criteria
  - defined categories of assistance

SENDAI FRAMEWORK, SDGS, PARIS AGREEMENT, AND CDEMA CDM PRIORITY AREAS ADVANCED

Priorities for Action
1, 2, 3, 4

Global Targets
A, C, D, F

Guiding Principles
(a), (b), (c), (d), (e), (f), (g), (h), (i), (j), (k), (l), (m)

SDGs
9, 10, 11, 13, 16, 17

Paris Agreement
7.1, 8.1

CDEMA CDM Priority Areas
1 (1.2, 1.3), 2 (2.2, 2.3), 3, 4 (4.2, 4.4)

Limited or No Capacity | Early Capacity Development | Achievement with Significant Limitation | Substantial Progress with Some Limitation | Advanced Capacity

ENABLING ENVIRONMENT

STRATEGIES

FINDINGS

Grenada has championed endeavors focused on diversifying projects, funding, and planning strategies and optimizing financial frameworks to enhance the nation's resilience. As these initiatives are implemented, it is important that investments are prioritized and allocated to meet the needs of the National Disaster Management Agency (NaDMA).

Effectively harmonizing the Sendai Framework for DRR, SDG, and CCA initiatives would prevent duplication of efforts and further improve coordination and collaboration among stakeholders.

It would be beneficial to continue efforts on capacity building, policy development, advocacy, and initiatives crucial to guiding the country towards improved preparedness and enhanced resilience in the face of climate change. This will, in turn, lead to efficient use of limited resources and strengthen planning endeavors across Grenada cultivating a more unified and synergistic approach to disaster management.

RECOMMENDATIONS

To support NaDMA in meeting its mission requirements effectively, the following activities are recommended:

- Develop clear project proposals where NaDMA can demonstrate the impact and alignment of proposed projects, funding and planning with national development goals and international agendas for DRR, SDGs, and CCA. Focus efforts on future climate impacts of coastal hazards and maritime infrastructure.
- Ensure strategically prioritized and allocated funding mechanisms to meet the specific needs of NaDMA. Include funding avenues for equipment, infrastructure, training, and capacity building.
  - Focus on strengthening maritime logistics and redundancies to ensure uninterrupted support of humanitarian activities and delivery of disaster relief supplies during an emergency response.
- Secure funding for the implementation of mitigation measures to reduce current and future impacts of coastal hazards due to climate change.
  - Focus on protection and management of coastal ecosystems to mitigate coastal hazards.

SENDAI FRAMEWORK, SDGS, PARIS AGREEMENT, AND CDEMA CDM PRIORITY AREAS ADVANCED

Priorities for Action

1, 2, 3, 4

Global Targets

A, B, C, D, F, G

Guiding Principles

(a), (b), (c), (d), (e), (g), (h), (i), (j), (k), (m)

SDGs

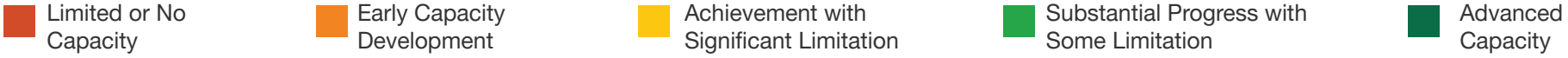
9, 10, 11, 13, 14, 15, 17

Paris Agreement Articles

7.1, 8.1

CDEMA CDM Priority Areas

1, 2 (2.2, 2.3, 2.4), 3(3.1, 3.2), 4 (4.2, 4.3, 4.4)



THE DMA

INSTITUTIONAL ARRANGEMENTS

INSTITUTIONAL ARRANGEMENTS

Findings indicate Grenada's current Institutional Arrangements show substantial progress with some limitations.

SUBTHEME STATUS


Organizational Structures


Leadership Arrangements


Mechanisms for Stakeholder Engagement

The organizational and institutional structures through which disaster management capacity forms are indicators of Grenada's Institutional Arrangements. By examining the organization and composition of diverse agencies and individuals that constitute a nation's disaster management capacity—detailing the relationships and collaboration between them — tangible opportunities for increased effectiveness are often revealed. Grenada has shown substantial progress within the organizational and institutional structures, their leadership, and their engagement with disaster management stakeholders.

INSTITUTIONAL ARRANGEMENTS

MECHANISMS FOR STAKEHOLDER ENGAGEMENT

FINDINGS

Volunteers play a crucial role in the success of disaster management initiatives within Grenada. The National Disaster Management Agency (NaDMA) has relied on volunteers to support preparedness and response operations with great success.

NaDMA's efforts to cultivate an active volunteer network to augment their operations has added value and allowed for them to meet mission requirements.

Recognizing the importance of volunteers, there is a pressing need to integrate volunteers and volunteer organizations more formally into the disaster management structure. This integration should involve establishing standardized processes to ensure continuity of operations and deliver quality services consistently.

RECOMMENDATIONS

To support NaDMA in meeting its mission requirements effectively, the following activities are recommended:

- Establish formalized roles for volunteers and volunteer organizations to engage in preparedness and response efforts in alignment with the requirements and mission of NaDMA.
- Develop a comprehensive volunteer policy outlining mechanisms and provisions for the successful integration of individuals and organizations into the formalized national response system.
- Ensure the appropriate recruiting, training, and tracking of volunteers to guarantee their reliability and availability during times of disasters.
  - Volunteers should undergo training and/or receive accreditations for technical tasks if they are directly supporting the government's disaster management efforts.

SENDAI FRAMEWORK, SDGS, AND CDEMA CDM PRIORITY AREAS ADVANCED

Priorities for Action
2, 3, 4

Global Targets
A, B, C, D

Guiding Principles
(a), (b), (c), (d), (e), (f), (g), (h), (i), (j), (k)

SDGs
3, 4, 11, 16

CDEMA CDM Priority Areas
1, 2 (2.3, 2.4), 3 (3.1), 4 (4.2, 4.4)

Limited or No Capacity | Early Capacity Development | Achievement with Significant Limitation | Substantial Progress with Some Limitation | Advanced Capacity

INSTITUTIONAL ARRANGEMENTS

ORGANIZATIONAL STRUCTURES

FINDINGS

The absence of technical staffing within key Disaster Management (DM) positions coupled with a lack of structured succession-based training hinders Grenada's ability to respond effectively to disasters.

Grenada would benefit by prioritizing the development of technical skills, particularly in DM, disaster response and recovery, and GIS-based technologies. Establishing structured succession training, effective recruitment and retention plans for skilled personnel, and substantial investments in GIS-based technology would help create a resilient framework, enabling Grenada to respond effectively to disasters and mitigate their impact on the nation.

RECOMMENDATIONS

To support NaDMA in meeting its mission requirements effectively, the following activities are recommended:

- Establish structured succession-based training programs aimed at building technical expertise within government departments and ensure these programs include:
  - Comprehensive orientation processes for new employees
  - Guided knowledge transfer mechanisms to pass on institutional knowledge.
  - Ongoing employee feedback protocols to continuously improve training effectiveness.
- Invest in technical skills development by offering targeted training programs, workshops, and collaborations to enhance the capabilities of the existing workforce.
- Implement recruitment and retention strategies aimed at attracting and retaining skilled personnel in critical DM positions.
- Allocate resources for the acquisition and development of GIS-based technologies.
- Provide GIS training to existing staff and prioritize the recruitment of individuals with specialized GIS skills.

SENDAI FRAMEWORK, SDGS, AND CDEMA CDM PRIORITY AREAS ADVANCED

Priorities for Action
1, 2, 3, 4

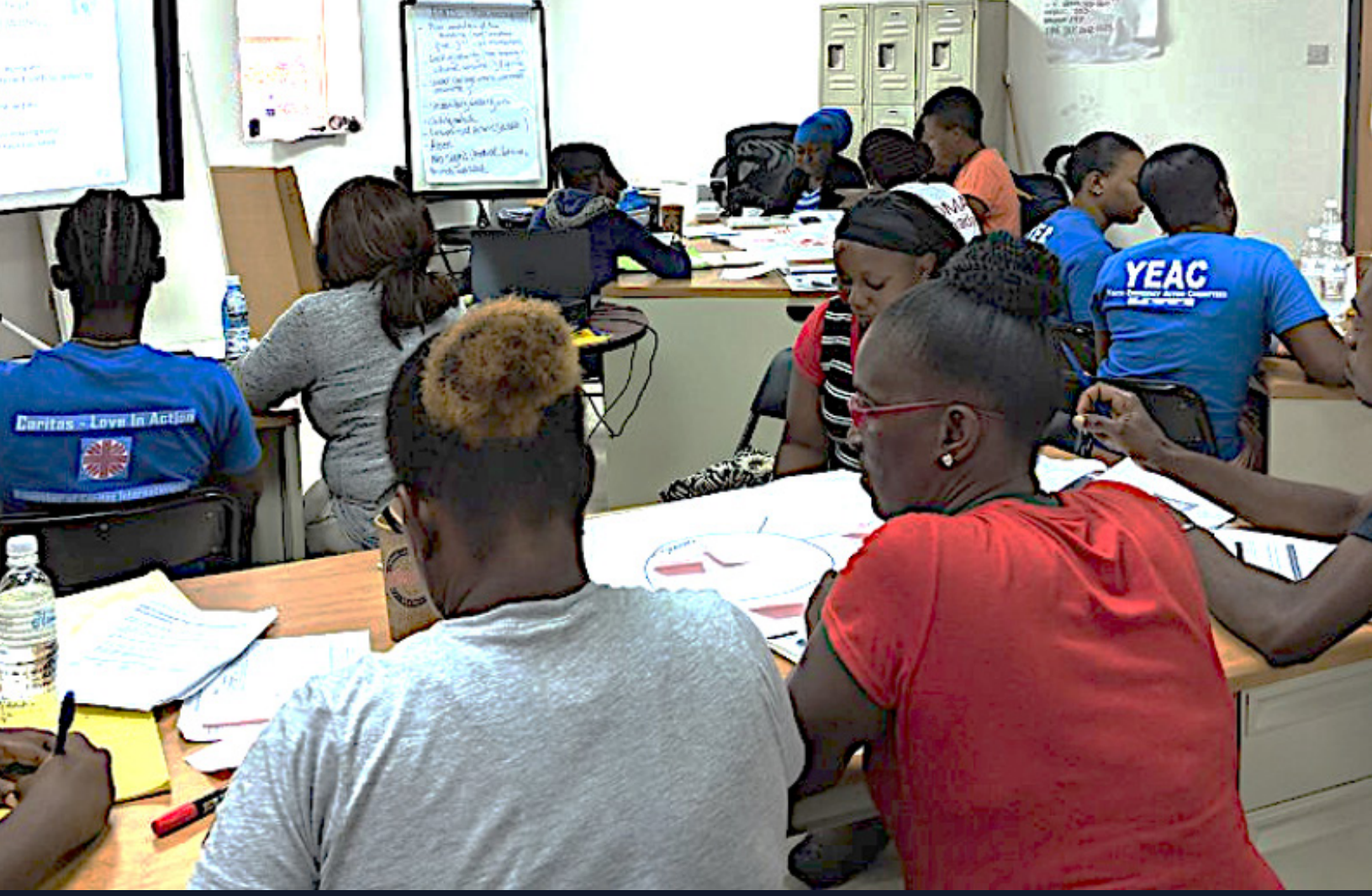
Global Targets
A, B, C, D, F, E, G

Guiding Principles
(a), (b), (c), (d), (e), (f), (g), (h), (i), (j), (k), (m)

SDGs
4, 11, 14,15

CDEMA CDM Priority Areas
1, 2 (2.1, 2.3), 3, 4 (4.1, 4.2)

Limited or No Capacity | Early Capacity Development | Achievement with Significant Limitation | Substantial Progress with Some Limitation | Advanced Capacity



THE DMA

DISASTER GOVERNANCE MECHANISMS

DISASTER GOVERNANCE MECHANISMS

Findings indicate Grenada's Disaster Governance Mechanisms show substantial progress with some limitations.

SUBTHEME STATUS

Plans and processes

Command, Control, and Coordination Systems

Emergency Operations Centers

Disaster management efforts are most effective when guided by standardized, formalized systems and procedures that dictate how and by whom activities are conducted. The effectiveness of all disaster management phases, including disaster preparedness, hazard mitigation, response, and recovery, is dependent on the establishment and documentation of such mechanisms.

The DMA analyzed the following sub-themes that characterize the Disaster Governance Mechanisms of Grenada: Plans and Standard Operating Procedures (SOPs); Command, Control, and Coordination Systems, and Emergency Operations Centers.

DISASTER GOVERNANCE MECHANISMS

PLANS AND PROCESSES

FINDINGS

Grenada currently lacks a comprehensive Mass Casualty Management Plan, necessitating a review of current protocols and guidelines. The plan should be specifically tailored to ensure an efficient and coordinated response to large-scale emergencies, thereby mitigating the potential impacts of mass casualty incidents.

Implementation, training, and exercising of the national Mass Casualty Plan would enhance Grenada's capacity to allocate finite resources effectively and improve overall response capabilities, increasing resilience in the face of unforeseen and exigent circumstances.

RECOMMENDATIONS

To support NaDMA in meeting its mission requirements effectively, the following activities are recommended:

- Develop and implement a comprehensive Mass Casualty Plan that includes:
  - Mass casualty management protocols
  - Response guidelines
  - Forensic analysis protocols
  - Procedures for storage, burial, and disposal of materials
- Collaborate with relevant stakeholders through workshops, focus groups, and ongoing meetings to ensure a holistic and well-informed planning approach..
- Conduct regular training and simulation exercises to enhance the preparedness and proficiency of first responders and personnel.
- Review and update existing policies relating to mass casualty management protocols, incorporating them as appendices to the Mass Casualty Management Plan.

SENDAI FRAMEWORK, SDGS, AND CDEMA CDM PRIORITY AREAS ADVANCED

Priorities for Action

1, 2, 4

Global Targets

A, C, D

Guiding Principles

(a), (b), (c), (d), (e), (f), (g), (h), (i), (j), (k)

SDGs

11, 16

CDEMA CDM Priority Areas

1 (1.1, 1.2, 1.3, 1.4), 2, 3 (3.1), 4 (4.2, 4.4)

Limited or No Capacity | Early Capacity Development | Achievement with Significant Limitation | Substantial Progress with Some Limitation | Advanced Capacity

DISASTER GOVERNANCE MECHANISMS

THE DMA

CAPABILITIES AND RESOURCES

CAPABILITIES AND RESOURCES

Findings indicate Grenada's current Capabilities and Resources show achievement with significant limitations.

SUBTHEME STATUS

The nature and extent of skills, knowledge, supplies, resources, equipment, facilities, and other capacity components dedicated to meeting disaster management needs is an indication of Grenada's' overall capabilities and resources. The DMA examines these components, the source and size of surge capacities available in times of disaster, and a broad array of disaster-focused functional capabilities like search and rescue, sanitation, and security.

CAPABILITIES AND RESOURCES

HUMAN RESOURCES

FINDINGS

Grenada is currently facing a critical shortage in staffing for disaster management, highlighting the urgent need for strategic interventions to address comprehensive staffing and resourcing. The lack of a fully equipped workforce underscores the importance of bolstering staffing levels through targeted initiatives.

A well-staffed and trained workforce would help facilitate decision making through evaluation of data analytics and research opportunities related to DRR, SDGs, and CCA efforts. Securing funding to support the recruitment of technical disaster management personnel is paramount in addressing these challenges.

Staffing shortages often post significant challenges in effectively fulfilling crucial disaster management roles. Additional technical staffing would enhance existing capacities, enabling the continued leveraging of effective policies, programs, and planning efforts to advance sustainable energy and renewable resource initiatives by 2030.

RECOMMENDATIONS

To support NaDMA in meeting its mission requirements effectively, the following activities are recommended:

- Implement targeted recruitment and training programs to address the current staffing shortages in disaster management and ensure the effective execution of mandated requirements.
- Identify funding allocations and available resources to support the recruitment and hiring of additional personnel.
- Establish partnerships and implement training programs for existing staff to address immediate staffing gaps and enhance their capabilities.
- Foster collaborations with international organizations, in-country stakeholders, and non-governmental organizations to facilitate resource-sharing and knowledge transfer.

SENDAI FRAMEWORK, SDGS, PARIS AGREEMENT, AND CDEMA CDM PRIORITY AREAS ADVANCED

Priorities for Action
1, 2, 3, 4

Global Targets
A, B, C, D, F, G

Guiding Principles
(a), (c), (d), (e), (f), (g), (h), (i), (j), (k), (l), (m)

SDGs
4,11, 13,16, 17

Paris Agreement
7.1, 8.1

CDEMA CDM Priority Areas
1, 2 (2.2, 2.3), 3 (3.1, 3.2), 4 (4.2, 4.4)

Limited or No Capacity | Early Capacity Development | Achievement with Significant Limitation | Substantial Progress with Some Limitation | Advanced Capacity

CAPABILITIES AND RESOURCES

TARGETED FUNCTIONAL CAPABILITIES

FINDINGS

Memorandums of Understanding (MOUs) play a proactive role in securing assets and resources that are necessary to establish operational capacity for comprehensive disaster preparedness, response, and recovery efforts. The National Disaster Management Agency (NaDMA) would benefit by securing focused MOUs in critical areas such as medical provisions and services, transportation needs, and information governance and communication coordination.

Parish involvement serves as the foundation for implementing and providing reinforcing support during critical phases of disaster management. Securing MOUs would provide NaDMA with a strategic framework to optimize resource allocation, directing efforts where they are most needed. This fosters cross sector collaboration and coordination, leading to more effective disaster management.

RECOMMENDATIONS

To support NaDMA in meeting its mission requirements effectively, the following activities are recommended:

- Establish MOUs to implement a systematic approach for securing assets and resources, ensuring a coordinated Parish response within critical areas including:
  - Medical
  - Transportation
  - Information/Communication
- Outline transparent roles and responsibilities within the MOUs to activate the mobilization of volunteers, responders, and resources.
- Define explicit protocols within MOUs for efficient and timely information management, ensuring the prompt dissemination of critical information during a disaster to all relevant stakeholders.

SENDAI FRAMEWORK, SDGS, AND CDEMA CDM PRIORITY AREAS ADVANCED

Priorities for Action
1, 2, 4

Global Targets
A, B, C, D

Guiding Principles
(a), (b), (c), (d), (e), (f), (g), (h), (i), (j), (k)

SDGs
11, 16

CDEMA CDM Priority Areas
1 (1.3, 1.4, 1.5), 3 (3.2), 4 (4.1, 4.2, 4.4)

Limited or No Capacity | Early Capacity Development | Achievement with Significant Limitation | Substantial Progress with Some Limitation | Advanced Capacity

THE DMA

CAPACITY DEVELOPMENT

CAPACITY DEVELOPMENT

Findings indicate Grenada's current Capacity Development efforts are at achievement with significant limitations.

SUBTHEME STATUS

Plans and Strategies

Training and Education Programs and Facilities

Monitoring and Evaluation

Grenada's ability to advance disaster management strategies that achieve risk reduction and resilience goals is ultimately dependent on its ability to support capacity development. From training and education that supports the advancement of knowledge and skills to the institutionalization of appropriate attitudes and cultures, capacity development requires the continuous advancement of assessments, strategic plans, programs, facilities, and many other components of the sub-themes examined in this report. The DMA analyzes resources and opportunities for all stakeholders and all sectors, from individuals and vulnerable populations to government responders.

CAPACITY DEVELOPMENT

CD PLANS AND STRATEGIES

FINDINGS

There is a need for Grenada to formally establish Continuity of Government (COG) Plans at both the national and parish level, encompassing all sectors of government. The formulation of these plans should focus on a unified and coordinated structure and priority by function, ensuring seamless integration into the broader national response framework.

It would benefit all stakeholders in Grenada for NaDMA to provide leadership, planning templates, and training resources to promote COG planning among government and the private sector enterprises.

Additionally, harmonizing COG efforts is essential to ensure the provision of critical services, maintain systematic oversight of vital personnel and infrastructure, and uphold the objectives and principles of disaster management during disasters.

RECOMMENDATIONS

To support NaDMA in meeting its mission requirements effectively, the following activities are recommended:

- Consider appointing NaDMA as the lead agency to ensure COG planning from the national to the local level.
- Develop and disseminate a standardized template for COG Plans, facilitating consistency and effective planning across all sectors of government.
- Create mechanisms for sharing critical information, data, and resources to include access to real-time data, such as weather forecasts and disaster impact assessments, which can be crucial for decision-making during a crisis.
- Establish and integrate formal memoranda of understanding (MOU) into plans and protocols, outlining roles, responsibilities, and expectations of both government and private sector entities, and ensure inclusion of liabilities and resource allocation.
- Establish joint COG training and exercises to ensure alignment in response and recovery procedures, enhancing readiness and coordination among stakeholders.

SENDAI FRAMEWORK, SDGS, AND CDEMA CDM PRIORITY AREAS ADVANCED

Priorities for Action
2, 4

Global Targets
A, C, D

Guiding Principles
(a), (b), (e), (h)

SDGs
11, 16

CDEMA CDM Priority Areas
1 (1.1, 1.2, 1.3, 1.4), 3 (3.1, 3.2), 4 (4.2, 4.4)

Limited or No Capacity | Early Capacity Development | Achievement with Significant Limitation | Substantial Progress with Some Limitation | Advanced Capacity

CAPACITY DEVELOPMENT

TRAINING AND EDUCATION

FINDINGS

Grenada would benefit from an official centralized disaster training and exercise (T&E) initiative led and coordinated by the National Disaster Management Agency (NaDMA).

A centralized training and information initiative would further foster interagency collaboration and communication among the disaster management community within Grenada leading to a more effective and coordinated response to disasters.

RECOMMENDATIONS

To support NaDMA in meeting its mission requirements effectively, the following activities are recommended:

- Identify staff within NaDMA to oversee and manage the T&E program, with primary responsibilities including exercise logistics, coordination, and alignment with multi-agency calendars.
  - Increase simulation and scenario-based exercises involving the tri-islands to enhance collaboration and capacity building across communities.
- Create a master training schedule and oversee communication channels and social media platforms to increase visibility, facilitate information sharing, and optimize collaboration.
- Implement a digital record management system accessible to all participating agencies to track T&E schedules, participants, evaluations, and lessons-learned for both review and real-time updates.
- Ensure a standardized T&E reporting framework for consistent data collection, encompassing key metrics, observations, and feedback mechanisms for formal performance evaluations and after-action reporting.

SENDAI FRAMEWORK, SDGS, AND CDEMA CDM PRIORITY AREAS ADVANCED

Priorities for Action

1, 2, 3, 4

Global Targets

A, B, C, D, F

Guiding Principles

(a), (b), (c), (d), (e), (f), (g), (h), (i), (j), (k), (l), (m)

SDGs

4, 11, 16, 17

CDEMA CDM Priority Areas

1 (1.1, 1.2, 1.3, 1.4), 2 (2.1, 2.3), 3, 4 (4.1, 4.2, 4.4)

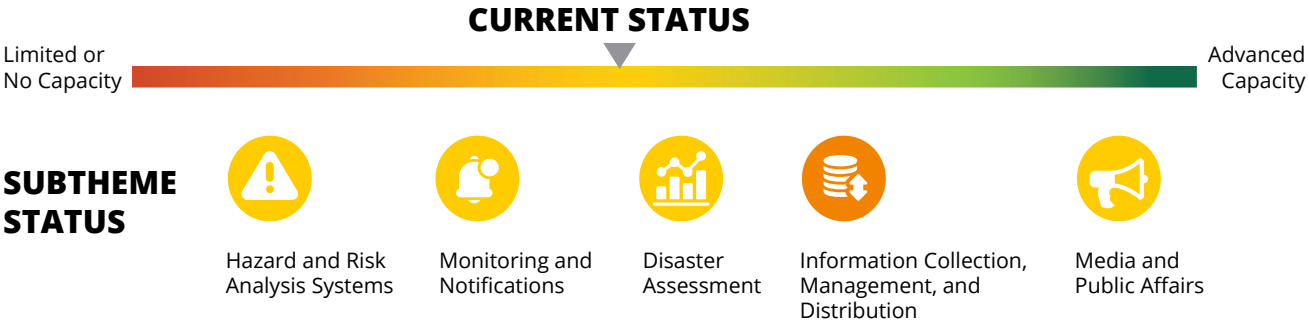
Limited or No Capacity | Early Capacity Development | Achievement with Significant Limitation | Substantial Progress with Some Limitation | Advanced Capacity

THE DMA

COMMUNICATION AND INFORMATION

COMMUNICATION AND INFORMATION MANAGEMENT

Findings indicate Grenada's Communication and Information Management capacity shows achievement with significant limitation.



Disaster management is a risk-based endeavor, and as such the capacity of stakeholders to generate, manage, and share risk and incident related information is critical. This area of analysis looks at the systems, processes, and procedures that have been established in Grenada to inform pre-and post-disaster activities. From hazard mapping and event monitoring, to warning and notification, communication and information management sub-themes address a broad range of topics that highlight effective practices.

COMMUNICATION AND INFORMATION MANAGEMENT

MEDIA AND PUBLIC AFFAIRS

FINDINGS

The National Disaster Management Agency (NaDMA) would benefit from a focused and expanded public information campaign to enhance the effectiveness of its outreach efforts.

While the NaDMA Facebook page remains active and serves as a valuable platform for public information, the maintenance of other social media outlets, as well as the NaDMA website is inconsistent. Expanding efforts to maintain these channels would better serve the public and improve communications during disaster events.

RECOMMENDATIONS

To improve media and public affairs efforts towards advanced capacity, the following actions are recommended:

- Develop and implement a comprehensive public outreach campaign to centralize information and ensure that before, during and after an event, the public knows where to find trusted information.
- Consider an outreach approach that can be scaled, including:
  - Maintaining traditional messaging through radio and television.
  - Leveraging a social media campaign with consistent messaging across various platforms to maintain a strong presence and connection with the public.

SENDAI FRAMEWORK, SDGS, PARIS AGREEMENT, AND CDEMA CDM PRIORITY AREAS ADVANCED

Priorities for Action
1, 2, 3, 4

Global Targets
A, B, C, D, E

Guiding Principles
(a), (b), (c), (d), (e), (f), (h), (i), (j), (k)

SDGs
4, 11, 13

Paris Agreement Articles
7.1, 8.1

CDEMA CDM Priority Areas
1, (1.1, 1.2, 1.3, 1.4), 2 (2.3, 2.4), 3 (3.2), 4 (4.2)

Limited or No Capacity | Early Capacity Development | Achievement with Significant Limitation | Substantial Progress with Some Limitation | Advanced Capacity

COMMUNICATION AND INFORMATION MANAGEMENT

MONITORING AND NOTIFICATION

FINDINGS

Hazard monitoring efforts in Grenada are currently focused on three major events: tsunamis, drought, and pandemics. However, the existing notification and early warning functions lack centralization, leading to variability across parishes. To address this, standardized practices and procedures for advanced notification and early warning processes should be streamlined nationwide, incorporating an early warning system (EWS) capable of addressing all-hazards.

In addition to developing standardized EWS protocols, Grenada would benefit from establishing marked evacuation routes to ensure consistent and efficient emergency response and critical information access across diverse parishes.

Investing in EWS infrastructure, coupled with expanded pre-disaster training programs, would contribute to a more resilient, informed, and cohesive disaster management and response framework.

RECOMMENDATIONS

To support NaDMA in meeting its mission requirements effectively, the following activities are recommended:

- Continue upgrading and investing in all-hazards monitoring and communications technology, expanding coverage and targeted infrastructure, and translating data into comprehensive EWS capabilities.
- Complete installation of weather radars and seismic monitors and ensure the technical capacity required to support this capability.
- Customize EWS to meet the specific demographic needs of communities and establish marked evacuation routes throughout all parishes.
- Promote community engagement by involving members in planning, training, and decision-making processes of EWS, fostering ownership and resilience at the local level.
- Conduct regular evaluations of the notification processes and EWS to identify areas for improvement and ongoing effectiveness.

SENDAI FRAMEWORK, SDGS, AND CDEMA CDM PRIORITY AREAS ADVANCED

Priorities for Action
1, 2, 3, 4

Global Targets
A, B, C, D, G

Guiding Principles
(a), (b), (c), (d), (e), (f), (g), (h), (i), (j), (k)

SDGs
9, 10, 11

CDEMA CDM Priority Areas
1 (1.1, 1.2, 1.3, 1.4), 2 (2.1, 2.2, 2.3), 3 (3.1, 3.2), 4 (4.2, 4.3, 4.4)

Limited or No Capacity | Early Capacity Development | Achievement with Significant Limitation | Substantial Progress with Some Limitation | Advanced Capacity

COMMUNICATION AND INFORMATION MANAGEMENT

HAZARD AND RISK ANALYSIS

FINDINGS

Grenada has robust data holdings; however, they are not easily accessible to support the Disaster Management Mission of the National Disaster Management Agency (NaDMA).

The data in current form are not uniform, centralized or easily applied without extensive statistical or GIS knowledge and skills.

The completed NDPBA provides Grenada with a baseline and starting point. The Risk and Vulnerability Assessment (RVA) can support planning for critical infrastructure identification and exposure analysis and can provide NaDMA and Disaster Management (DM) stakeholders with the necessary scientific information to prioritize strengthening existing physical infrastructures. The data can also be used to plan, justify, and budget for local mitigation projects.

RECOMMENDATIONS

To support NaDMA in meeting its mission requirements effectively, the following activities are recommended:

- Consider utilizing the NDPBA data alongside GIS-mapping capabilities and systems to address geospatial data and logistics to inform community-based DM and planning efforts.
- Leverage resources within the RVA, including hazard mapping for population exposures, critical infrastructure locations, and evacuation/shelter identification, to drive sector-based community planning, improved infrastructure for facilities, and provide for vulnerable groups.
- Generate local hazard and risk maps to facilitate and advance data-driven and scenario-based training, exercise planning, and preparedness activities.
- Utilize GIS-based mapping systems to assist in risk assessments, management, and decision-making processes, determining necessary requirements for risk and vulnerability assessments in DM and DRR planning.

SENDAI FRAMEWORK, SDGS, PARIS AGREEMENT, AND CDEMA CDM PRIORITY AREAS ADVANCED

Priorities for Action
1, 2, 3, 4

Global Targets
A, B, C, D, E, F, G

Guiding Principles
(a), (b), (c), (d), (e), (f), (g), (h), (i), (j), (k), (l), (m)

SDGs
1, 2, 3, 6, 7, 9, 11, 13, 14, 15, 17

Paris Agreement
7.1, 8.1

CDEMA CDM Priority Areas
1 (1.1, 1.2, 1.3, 1.4), 2, (2.1, 2.2, 2.3), 3 (3.1, 3.2), 4 (4.2, 4.3, 4.4)

Limited or No Capacity | Early Capacity Development | Achievement with Significant Limitation | Substantial Progress with Some Limitation | Advanced Capacity

COMMUNICATION AND INFORMATION MANAGEMENT

INFORMATION COLLECTION, MANAGEMENT, AND DISTRIBUTION

FINDINGS

Grenada has made significant progress in communication infrastructure investment, prioritizing this initiative to stay ahead in the digital arena. To fortify this leading position and address additional digital infrastructure gaps, Grenada would benefit from establishing a robust and collaborative data management framework with integration of existing GIS capabilities.

The National Disaster Management Agency (NaDMA) could derive advantages from collaborating with agencies proficient in utilizing GIS data and mapping capabilities, thereby applying them across sectors and supporting NaDMA in its disaster risk reduction endeavors.

With the addition of GIS, a data framework would ensure a digital platform for collectively addressing the critical aspects of data collection, sharing, integration, and accessibility, fundamental for informed decision-making.

RECOMMENDATIONS

To support NaDMA in meeting its mission requirements effectively, the following activities are recommended:

- Harmonize national data collection and storage standards with Grenada's overarching digital agenda to ensure consistency and compatibility across platforms.
- Facilitate the sharing of data among governmental entities, non-governmental stakeholders, and with the general public to enhance collaboration and decision-making processes.
- Implement a centralized, GIS-based data management system and utilize to leverage a common operating picture.
- Identify priority needs, conduct risk assessments, assess losses, and compile disaster data for capacity development initiatives.

SENDAI FRAMEWORK, SDGS, AND CDEMA CDM PRIORITY AREAS ADVANCED

Priorities for Action
1, 2, 3, 4

Global Targets
A, B, C, D, E, F, G

Guiding Principles
(a), (b), (c), (d), (e), (f), (g), (h), (i), (j), (k), (l), (m)

SDGs
1, 2, 3, 4, 6, 7, 9, 11, 13, 14, 15, 16, 17

Paris Agreement
7.1, 8.1

CDEMA CDM Priority Areas
1 (1.1, 1.2, 1.3, 1.4), 2, 3 (3.1, 3.2), 4 (4.2, 4.3, 4.4)

Limited or No Capacity | Early Capacity Development | Achievement with Significant Limitation | Substantial Progress with Some Limitation | Advanced Capacity

THE NDPBA

COMMENDATIONS FOR BEST PRACTICES

COMMENDATIONS FOR BEST PRACTICES

LEGAL INSTRUMENTS

Highlighting the National Comprehensive Disaster Management Act No.2 of 2023

Grenada is to be commended for the institution of a comprehensive all-hazards disaster management (DM) Act, effective across the entire spectrum of prevention and mitigation, preparedness, response, recovery, and reconstruction. The Act encompasses the public and private sectors, civil society, and the general public. It establishes a disaster risk reduction and management framework focused on mitigating the socio-economic, fiscal, and environmental impacts of disasters while addressing the longer-term effects of climate change.

The commitment to DM is further exemplified through the allocation of resources, personnel, and community engagement facilitated by government DM programs. These programs, directed by the National Emergency Advisory Council and the National Disaster Management Agency (NaDMA), enhance capacity building, training, and educational opportunities. They also delineate responsibilities for DM, empowering lead agencies to develop, implement, and sustain initiatives, programs, and interventions aimed at reducing the risk and impact of hazards and disasters. This legislative framework outlines community resources for disaster preparedness, response, and recovery and ensures systematic evaluations of the effectiveness and preparedness levels of the Ministries, DM Committees, communities, volunteers, and statutory bodies responding to disasters. A significant asset to Grenada is their continued focus on comprehensive disaster preparedness and effective coordinated responses to disasters contributing to the overall resilience of the country.

SENDAI FRAMEWORK, SDGS, PARIS AGREEMENT, AND CDEMA CDM PRIORITY AREAS ADVANCED

Priorities for Action
1, 2, 3, 4

Global Targets
A, B, C, D, E, F, G

Guiding Principles
(a), (b), (c), (d), (e), (f), (g), (h), (i), (j), (k), (l)

SDGs
3, 9, 11, 13, 14, 15, 16, 17

Paris Agreement
7.1, 8.1

CDEMA CDM Priority Areas
1 (1.1, 1.2, 1.4), 2 (2.3, 2.4), 3, 4

COMMENDATIONS FOR BEST PRACTICES

DISASTER GOVERNANCE MECHANISMS

Highlighting Grenada's Declaration of School Safety

In 2019, at the second Caribbean Safe School Ministerial Forum, Grenada adopted the "Declaration of School Safety". Serving as an instrumental document for the country, this declaration forms the cornerstone for the systematic implementation of strategies focused on disaster risk reduction and the enhancement of climate change resilience within the broader context of the Caribbean Safe School initiative.

A particular focus of this declaration lies in enhanced coordination and cooperation mechanisms among stakeholders, extending from the community, regional, national, and international levels. Emphasis is also placed on cultivating collaboration among Caribbean Ministries of Education, relevant private sector, non-governmental organizations, and various regional and international entities.

The Declaration of School Safety outlines a comprehensive framework designed to monitor and assess progress in the implementation of initiatives outlined in the Road Map on School Safety. This framework is authorized under the Minister of Education, symbolizing a concerted commitment to fortify school safety protocols and regional resilience against potential adversities. Such proactive measures highlight the dedication to creating a safe and secure educational environment throughout the region.

SENDAI FRAMEWORK, SDGS, PARIS AGREEMENT, AND CDEMA CDM PRIORITY AREAS ADVANCED

Priorities for Action
1, 2, 3, 4

Global Targets
A, B, D, E

Guiding Principles
(a), (b), (c), (d), (e), (f), (g), (h), (i), (j), (k), (l)

SDGs
4, 11, 13,16, 17

Paris Agreement
7.1, 8.1

CDEMA CDM Priority Areas
1 (1.3, 1.4), 2, 3 (3.1, 3.2), 4 (4.2, 4.4)

COMMENDATIONS FOR BEST PRACTICES

CAPABILITIES AND RESOURCES

Highlighting Smart Hospitals & Regional Health Project's Implemented in Grenada

As the global community collectively addresses the escalating impacts of climate change, the imperative to foster climate resilience becomes increasingly urgent. Demonstrating foresight, Grenada has engaged in the "Smart Hospital" initiative, collaborating with the UK Government and the Pan American Health Organization (PAHO) and has upgraded five facilities to-date. This initiative fully retrofits hospitals and health centers to improve their structural, non-structural, and functional standards to support climate change mitigation and enhance disaster resilience across the country. The Grenada Smart Hospitals project has not only been noted to enhance staff well-being, but also contributes to capacity-building initiatives while in compliance with the 'green' construction practices. The multifaceted approach is formed through strategic actions, including the enhancements of infrastructure, promotion of sustainable resource management practices, and the advancement of innovative technologies designed to mitigate and adapt to changing climate conditions. These collective initiatives steer the nation towards a trajectory of sustainability and resilience.

The persistent pursuit of a climate-resilient Grenada is a visionary and proactive approach. This approach addresses the challenges and vulnerabilities presented by impending climate change, safeguards the citizens and ecosystems, and contributes meaningfully to environmental stewardship and sustainable development.

SENDAI FRAMEWORK, SDGS, PARIS AGREEMENT, AND CDEMA CDM PRIORITY AREAS ADVANCED

Priorities for Action
1, 2, 3, 4

Global Targets
A, D, E, F

Guiding Principles
(a), (b), (e), (h), (i), (j), (k), (l), (m)

SDGs
3, 11, 13, 16, 17

Paris Agreement
7.1, 8.1

CDEMA CDM Priority Areas
1 (1.3, 1.4), 2 (2.3), 3 (3.1, 3.2), 4 (4.2, 4.4)

COMMENDATIONS FOR BEST PRACTICES

COMMUNICATION AND INFORMATION MANAGEMENT

Enhanced Tsunami Preparedness and Community Resilience in Grenada: Tsunami Ready Programme

On September 20, 2018 (St. Patrick) and September 24, 2019, (communities of Carriacou and Petite Martinique), Grenada, received recognition for completing and adhering to the Tsunami Ready Programme. This compliance has empowered vulnerable coastal communities within the nation to take effective measures in the face of potential tsunami threats. This initiative involved tailoring inundation and evacuation maps to every community, installing evacuation route signage and assembly points, as well as clear demarcation of tsunami hazard zones. Additionally, extensive public outreach and communication awareness campaigns were conducted to disseminate critical information.

The successful recognition and renewal of Grenada's Tsunami Ready achievement was acknowledged by international partners who validated and encouraged their ongoing commitment to preparedness. These efforts not only strengthened the country's ability to respond to tsunamis effectively but also contributed to the overall resilience of the coastal communities.

By improving awareness, knowledge, and response capabilities, these initiatives empower residents to take decisive action during tsunami events, ultimately saving lives and minimizing the impact of disasters on the community.

SENDAI FRAMEWORK, SDGS, AND CDEMA CDM PRIORITY AREAS ADVANCED

Priorities for Action
1, 2, 4

Global Targets
A, B, F, G

Guiding Principles
(a), (b), (c), (d), (e), (f), (g), (h), (i), (k), (l)

SDGs
3, 11,16, 17

CDEMA CDM Priority Areas
1 (1.1, 1.2, 1.3, 1.4), 2, (2.3, 2.4), 4

COMMENDATIONS FOR BEST PRACTICES

NaDMA Grenada
September 24, 2019 ·

Happening now: The team has arrived on Petite Martinique for Tsunami Ready verification trip to the sister islands

THE NDPBA

NATIONAL RECOMMENDATIONS

THE NDPBA NATIONAL RECOMMENDATIONS

1 DEVELOP A NATIONAL CLIMATE AND DISASTER RISK FINANCING STRATEGY TO BOLSTER LONG-TERM NATIONAL ECONOMIC AND FINANCIAL STABILITY WHILE ADAPTING TO CLIMATE CHANGE IMPACTS.

- Include comprehensive insurance programs that cover primary hazards.
- Include establishment of formal programs for:
  - National Flood Insurance
  - Catastrophe Insurance
  - Public Assets Financial Protection
- Ensure rapid financing in the event of a disaster.

ALIGNMENTS: SENDAI FRAMEWORK, SDGS, PARIS AGREEMENT, AND CDEMA CDM PRIORITY AREAS ADVANCED

Priorities for Action 1, 2, 3, 4	**SDGs** 9, 10, 11, 13, 16, 17
Global Target (s) A, C, D, F	**Paris Agreement Articles** 7.1, 8.1
Guiding Principle(s) (a), (b), (c), (d), (e), (f), (g), (h), (i), (j), (k), (l)	**CDEMA CDM Priority Areas** 1 (1.2, 1.3), 2 (2.2, 2.3), 3 (3.1, 3.2), 4 (4.2, 4.4)

2 STRENGTHEN COMMUNICATION AND COLLABORATION AMONG ALL GOVERNMENT MINISTRIES AND DEPARTMENTS INVOLVED IN DISASTER MANAGEMENT.

- Ensure and maintain strong lines of communication with the Prime Minister's Office and other high-level decision-making bodies for swift coordination, resource allocation, and synergistic planning.
- Establish information-sharing mechanisms to foster a more harmonious approach to planning, ensuring efficiency of resources and prevent duplication of effort.
- Prioritize the alignment of government efforts and improve inter-agency coordination.
- Track all Disaster Risk Reduction (DRR), Sustainable Development Goals (SDGs), and Climate Change Adaptation (CCA) initiatives to streamline efforts and avoid duplication of resources.

ALIGNMENTS: SENDAI FRAMEWORK, SDGS, PARIS AGREEMENT, AND CDEMA CDM PRIORITY AREAS ADVANCED

Priorities for Action
1, 2, 4

SDGs
9, 11, 13, 14, 15, 16

Global Target (s)
A, B, C, D

Paris Agreement Articles
7.1, 8.1

Guiding Principle(s)
(a), (b), (c), (e), (f), (g), (h), (k)

CDEMA CDM Priority Areas
1 (1.1, 1.2, 1.3, 1.4), 2 (2.1, 2.2, 2.3), 3 (3.1, 3.2), 4 (4.2, 4.4)

3

CONDUCT A COMPREHENSIVE PLANNING AUDIT TO IDENTIFY GAPS WITHIN/ AMONG EXISTING PLANS AND UPDATE OUTDATED ONES.

- Harmonize Continuity of Government (COG) and Business Continuity Planning (BCP) efforts to ensure the provision of critical services, while upholding the objectives of disaster management and sustainable governance to enhance the nation's resilience.
    - Create mechanisms for sharing critical information, data, and resources to include access to real-time data, such as weather forecasts and disaster impact assessments, which can be crucial for decision-making during a crisis.
    - Develop joint COG/BCP training and exercises to ensure alignment in response and recovery procedures.
- Develop and implement a comprehensive Mass Casualty Plan that includes:
    - Mass casualty management protocols
    - Response guidelines
    - Forensic analysis protocols
    - Procedures for storage, burial, and disposal of materials
- Secure focused Memorandums of Understanding (MOUs) in critical areas such as medical provisions and services, transportation needs, and information governance and communication coordination.

ALIGNMENTS: SENDAI FRAMEWORK, SDGS, AND CDEMA CDM PRIORITY AREAS ADVANCED

Priorities for Action
1, 2, 4

SDGs
11, 16

Global Target (s)
A, C, D

CDEMA CDM Priority Areas
1 (1.1, 1.2, 1.3, 1.4), 2, 3 (3.1, 3.2), 4 (4.2, 4.4)

Guiding Principle(s)
(a), (b), (c), (d), (e), (f), (g), (h), (i), (j), (k)

4 ENSURE THAT DISASTER MANAGEMENT PLANS ACCOUNT FOR THE COMPLEXITIES AND POTENTIAL CASCADING IMPACTS ASSOCIATED WITH RESPONSE TO EMERGENCIES IN DENSELY POPULATED COMMUNITIES AND URBAN AREAS.

- Utilize up-to-date hazard maps to identify locations where hazard impacts may interfere with ingress and egress routes.
- Identify locations of vulnerable populations that may require more time or assistance with evacuation.
- Engage communities in planning efforts to identify challenges and proactive solutions in advance of a disaster situation.
- Engage public transportation companies in disaster management planning processes.
- Establish formal arrangements to assist disaster-affected populations with transportation needs related to evacuation and sheltering.

ALIGNMENTS: SENDAI FRAMEWORK, SDGS, AND CDEMA CDM PRIORITY AREAS ADVANCED

Priorities for Action
1, 2, 4

SDGs
3, 9, 10, 11, 16

Global Target (s)
A, B, C, D

CDEMA CDM Priority Areas
1 (1.1, 1.2, 1.3, 1.4), 2 (2.1, 2.2, 2.3), 3 (3.1), 4 (4.2, 4.3, 4.4)

Guiding Principle(s)
(a), (b), (c), (d), (e), (f), (g), (h), (i), (j), (k)

5 UTILIZE GIS-MAPPING CAPABILITIES AND SYSTEMS TO ADDRESS GEOSPATIAL DATA AND LOGISTICS TO INFORM COMMUNITY-BASED DISASTER MANAGEMENT AND PLANNING EFFORTS.

- Leverage resources, including hazard mapping for population exposures, critical infrastructure locations, and evacuation/shelter identification, to drive sector-based community planning, improved infrastructure for facilities, and profiling of vulnerable groups.
- Generate local hazard and risk maps to facilitate and advance data-driven and scenario-based training, exercise planning, and preparedness activities.
- Utilize GIS-based mapping systems to assist in risk assessments, management, and decision-making processes, determining necessary requirements for risk and vulnerability assessments in Disaster Management and Disaster Risk Reduction planning.

ALIGNMENTS: SENDAI FRAMEWORK, SDGS, AND CDEMA CDM PRIORITY AREAS ADVANCED

Priorities for Action

1, 2, 3, 4

Global Target (s)

A, B, C, D, E, F, G

Guiding Principle(s)

(a), (b), (c), (d), (e), (f), (g), (h), (i), (j), (k), (l), (m)

SDGs

1, 2, 3, 6, 7, 9, 11, 13, 14, 15, 17

CDEMA CDM Priority Areas

1 (1.1, 1.2, 1.3, 1.4), 2 (2.1, 2.2, 2.3), 3 (3.1, 3.2), 4 (4.2, 4.3, 4.4)

6 FORMULATE AND DISSEMINATE DISASTER MANAGEMENT (DM) AND DISASTER RISK REDUCTION (DRR) DEVELOPMENT PLANS AND STRATEGIES TO ADVANCE CAPACITY-BUILDING INITIATIVES.

- Ensure linkage to key stakeholders such as the Red Cross and volunteers.
- Promote enhanced oversight of coordination and support to capacity development efforts for DM and DRR.
    - Support key sectors and requirements on incorporation of DRR into plan development, implementation, and maintenance.
    - Engage vulnerable groups and underserved populations in DM plans and strategies, focusing on response/recovery, evacuation, and shelter considerations.
- Conduct systematic evaluations to assess current capacity and identify resource requirements across sectors for DM and DRR on a predetermined basis.
- Prioritize sectoral integration and explicitly incorporate DRR and climate change considerations, aligning with overarching goals to contribute to a more cohesive and impactful strategy.

ALIGNMENTS: SENDAI FRAMEWORK, SDGS, PARIS AGREEMENT, AND CDEMA CDM PRIORITY AREAS ADVANCED

Priorities for Action
1, 2, 3, 4

SDGs
6, 7, 9, 11, 13, 14, 15

Global Target (s)
A, B, C, D, E

Paris Agreement Articles
7.1, 8.1

Guiding Principle(s)
(a), (b), (c), (d), (e), (f), (g), (h), (i), (j), (k)

CDEMA CDM Priority Areas
1 (1.1, 1.2, 1.3, 1.4), 2 (2.1, 2.2, 2.3), 3 (3.1, 3.2), 4 (4.2, 4.4)

7

PROMOTE EVIDENCE-BASED DECISION-MAKING BY ESTABLISHING A CENTRALIZED MULTI-AGENCY DATA REPOSITORY FOR DISASTER MANAGEMENT, RISK REDUCTION, AND RESILIENCE.

- Promote data sharing among governmental entities, non-governmental disaster management stakeholders, academia, and the public to ensure that the best and latest information is available to all stakeholders.
- Implement a centralized, GIS-based data management system and utilize to create a common operating picture. This system should support the identification of high-risk areas, priority needs, resource tracking, and damage/loss data to enhance response and recovery capacity development.

ALIGNMENTS: SENDAI FRAMEWORK, SDGS, AND CDEMA CDM PRIORITY AREAS ADVANCED

Priorities for Action
1, 2, 3, 4

Global Target (s)
A, B, C, D, E, F, G

Guiding Principle(s)
(a), (b), (c), (d), (e), (f), (g), (h), (i), (j), (k), (l), (m)

SDGs
1, 2, 3, 4, 6, 7, 9, 11, 13, 14, 15, 16, 17

CDEMA CDM Priority Areas
1 (1.1, 1.2, 1.3, 1.4), 2, 3 (3.1, 3.2), 4 (4.2, 4.3, 4.4)

8 ESTABLISH A CENTRALIZED DIGITAL REPOSITORY OF DISASTER MANAGEMENT (DM) SUPPLIES AND RESOURCES WITHIN NADMA TO SUPPORT STRATEGIC DESIGNATION AND MAINTENANCE OF STORAGE FACILITIES THROUGHOUT THE COUNTRY.

- Standardize reporting of DM supply inventories, encompassing all facilities and administrative levels.
- Maintain commodity stockpiles at levels that meet estimated requirements, particularly in underserved, and densely populated areas.

ALIGNMENTS: SENDAI FRAMEWORK, SDGS, AND CDEMA CDM PRIORITY AREAS ADVANCED

Priorities for Action
1, 2, 4

SDGs
3, 11, 16

Global Target (s)
A, C, D

CDEMA CDM Priority Areas
1, 3 (3.1, 3.2), 4 (4.1, 4.2)

Guiding Principle(s)
(a), (b), (e), (f), (g), (h), (i)

9 DEVELOP VOLUNTEER POLICIES TO FACILITATE THE SUCCESSFUL INTEGRATION OF INDIVIDUALS/ORGANIZATIONS INTO THE FORMALIZED NATIONAL RESPONSE SYSTEM.

- Establish formalized role(s) for volunteers and volunteer organizations to effectively engage in preparedness and response efforts consistent with the requirements and mission of NaDMA.
    - Ensure appropriate recruiting, training, and tracking of volunteers within the District Disaster Committees to ensure their reliability and availability.

ALIGNMENTS: SENDAI FRAMEWORK, SDGS, AND CDEMA CDM PRIORITY AREAS ADVANCED

Priorities for Action
2, 3, 4

SDGs
4, 11, 16

Global Target (s)
A, C, D, E

CDEMA CDM Priority Areas
1 (1.3, 1.4), 2 (2.1, 2.3, 2.4), 3 (3.1, 3.2), 4 (4.2, 4.4)

Guiding Principle(s)
(a), (b), (c), (d), (e), (f), (g), (h), (i), (j), (k)

10

FORMALIZE DISASTER TRAINING AND EXERCISE (T&E) INITIATIVES INTO A CENTRALIZED OFFICIAL PROGRAM, LED AND COORDINATED BY NADMA.

- Identify dedicated staff within NaDMA to support a formal T&E program with primary responsibilities that include exercise logistics, coordination, and alignment with multi-agency calendars.
- Create a master training schedule and oversee communication channels and social media platforms to enhance visibility, facilitate information sharing, and optimize collaboration.
- Implement a digital record management system accessible to all participating agencies to formalize T&E schedules, participants, evaluations, and lessons-learned, allowing for both review and real-time updates.
- Ensure the establishment of a standardized T&E reporting framework for consistent data collection, encompassing key metrics, observations, and feedback mechanisms for formal performance evaluations and after-action reporting.
- Increase simulation and scenario-based exercises, particularly among response agencies, to enhance collaboration and capacity building across communities.

ALIGNMENTS: SENDAI FRAMEWORK, SDGS, AND CDEMA CDM PRIORITY AREAS ADVANCED

Priorities for Action
1, 2, 3, 4

SDGs
4, 11, 16

Global Target (s)
A, B, C, D, F

CDEMA CDM Priority Areas
1 (1.1, 1.2, 1.3, 1.4), 2 (2.1, 2.2), 3, 4 (4.2, 4.4)

Guiding Principle(s)
(a), (b), (c), (d), (e), (f), (g), (h), (i), (j), (k), (l), (m)

11

INCREASE THE ANNUAL BUDGET FOR THE NATIONAL DISASTER MANAGEMENT AGENCY (NADMA) TO SUPPORT THE GROWING NEED FOR TECHNICAL STAFF AND EXPANDED PROGRAMS REQUIRED TO MITIGATE THE PREDICTED RISE IN CLIMATE-RELATED HAZARDS AFFECTING GRENADA.

- Include annual operating costs and necessary funds that allow NaDMA to meet program requirements.
- Ensure comprehensive and adequate funding to allow for necessary human resources, implement necessary programs, purchase equipment, sustain infrastructure, build capacity, and support response operations.
- Develop clear project proposals where NaDMA can demonstrate the impact and alignment of projects with climate change adaptation.
    - Focus on future climate impacts of coastal hazards and maritime infrastructure.

ALIGNMENTS: SENDAI FRAMEWORK, SDGS, PARIS AGREEMENT, AND CDEMA CDM PRIORITY AREAS ADVANCED

Priorities for Action
1, 2, 3, 4

SDGs
9, 11, 13, 14, 15, 17

Global Target (s)
A, B, C, D, F, G

Paris Agreement Articles
7.1, 8.1

Guiding Principle(s)
(a), (b), (c), (d), (e), (f), (g), (h), (i), (j), (k), (l), (m)

CDEMA CDM Priority Areas
1, 2 (2.2, 2.3), 3 (3.1, 3.2), 4 (4.2, 4.3, 4.4)

12 EXPAND AWARENESS AND PREPAREDNESS CAMPAIGNS AMONG RESIDENTS, VISITORS, AND BUSINESSES FOR BOTH NATURAL AND MANMADE HAZARDS AFFECTING GRENADA.

- Increase public understanding of hazards, their potential impacts, alert and warning messages, and safety and preparedness measures that can be taken to protect lives and livelihoods through a multi-faceted, multi-stakeholder engagement strategy involving disaster managers, schools, media, non-governmental organizations, and other supporting agencies.
- Institute evacuation plans and conduct exercises for high density housing developments and communities adjacent to industrial or hazardous material sites to mitigate exposure to harmful substances.
- Conduct outreach campaigns promoting knowledge and use of alert and warning system tools through a multi-faceted, multi-stakeholder engagement strategy.

ALIGNMENTS: SENDAI FRAMEWORK, SDGS, PARIS AGREEMENT, AND CDEMA CDM PRIORITY AREAS ADVANCED

Priorities for Action
1, 2, 3, 4

SDGs
4, 10, 11, 13, 16

Global Target (s)
A, B, C, D, E

Paris Agreement Articles
7.1, 8.1

Guiding Principle(s)
(a), (b), (c), (d), (e), (f), (h), (i), (j), (k)

CDEMA CDM Priority Areas
1 (1.1, 1.2, 1.3, 1.4), 2 (2.3, 2.4), 3 (3.2, 3.3), 4 (4.2, 4.4)

13

STRENGTHEN ALL-HAZARDS MONITORING AND COMMUNICATIONS SYSTEMS, TRANSLATING DATA INTO COMPREHENSIVE EARLY WARNING SYSTEMS (EWS) CAPABILITIES.

- Conduct regular evaluations of the notification and EWS to identify areas for improvement and ongoing effectiveness.
- Invest in advanced communication technologies to address challenges within "dead zones" and improve communication reliability.
- Customize EWS to meet the specific demographic needs of communities and ensure the effectiveness of reaching exposed and vulnerable communities promptly during emergencies.

ALIGNMENTS: SENDAI FRAMEWORK, SDGS, PARIS AGREEMENT, AND CDEMA CDM PRIORITY AREAS ADVANCED

Priorities for Action
1, 2, 3, 4

SDGs
9, 10, 11

Global Target (s)
A, B, C, D, G

CDEMA CDM Priority Areas
1 (1.1, 1.2, 1.3, 1.4), 2 (2.1, 2.2, 2.3), 3 (3.1, 3.2), 4 (4.2, 4.3, 4.4)

Guiding Principle(s)
(a), (b), (c), (d), (e), (f), (g), (h), (i), (j), (k), (l), (m)

14

EXPAND THE TSUNAMI READY PROGRAMME TO ALL SUSCEPTIBLE PARISHES LOCATED WITHIN THE TSUNAMI HAZARD ZONES.

- Ensure future planning and preparedness efforts are incorporating climate change adaptation and forecasting sea level rise.

ALIGNMENTS: SENDAI FRAMEWORK, SDGS, AND CDEMA CDM PRIORITY AREAS ADVANCED

Priorities for Action
1, 2, 4

SDGs
3, 11, 16, 17

Global Target (s)
A, B, F, G

CDEMA CDM Priority Areas
1 (1.1, 1.2, 1.3, 1.4), 2 (2.3, 2.4), 3 (3.2, 3.3), 4

Guiding Principle(s)
(a), (b), (c), (d), (e), (f), (h), (i), (k), (l)

15

PURSUE OPPORTUNITIES TO SHARE SUCCESSES AND LESSONS LEARNED THROUGH GRENADA'S CAPACITY-BUILDING EFFORTS, INCLUDING THE DECLARATION OF SCHOOL SAFETY, SMART HOSPITAL AND REGIONAL HEALTH PROJECT'S, SUPPORTING CLIMATE RESILIENCE AND RISK REDUCTION ACTIONS NATIONALLY AND INTERNATIONALLY.

- Promote Grenada's gold-standard strategies and capacity-building initiatives that steer the nation towards a trajectory of sustainability and ensure the country's resilience in the face of uncertainties.

ALIGNMENTS: SENDAI FRAMEWORK, SDGS, PARIS AGREEMENT, AND CDEMA CDM PRIORITY AREAS ADVANCED

Priorities for Action 2, 4	**SDGs** 4, 6, 7, 8, 9, 10, 11, 13, 17
Global Target (s) E, F	**Paris Agreement Articles** 7.1, 8.1
Guiding Principle(s) (a), (b), (c), (e), (f), (g), (h), (j), (k), (l), (m)	**CDEMA CDM Priority Areas** 1 (1.3, 1.4), 2, 3 (3.1, 3.2), 4 (4.1, 4.2, 4.4)

5-YEAR PLAN

GRENADA NATIONAL RECOMMENDATIONS

YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5

RECOMMENDATION 1

Develop a national climate and disaster risk financing strategy to bolster long-term national economic and financial stability while adapting to climate change impacts.

RECOMMENDATION 2

Strengthen communication and collaboration among all government ministries and departments involved in disaster management.

RECOMMENDATION 3

Conduct a comprehensive planning audit to identify gaps within/among existing plans and update outdated ones.

RECOMMENDATION 4

Ensure that disaster management plans account for the complexities and potential cascading impacts associated with response to emergencies in densely populated communities and urban areas.

RECOMMENDATION 5

Utilize GIS-mapping capabilities and systems to address geospatial data and logistics to inform community-based disaster management and planning efforts.

RECOMMENDATION 6

Formulate and disseminate Disaster Management (DM) and Disaster Risk Reduction (DRR) development plans and strategies to advance capacity-building initiatives.

RECOMMENDATION 7

Promote evidence-based decision-making by establishing a centralized multi-agency data repository for disaster management, risk reduction, and resilience.

RECOMMENDATION 8

Establish a centralized digital repository of disaster management (DM) supplies and resources within NaDMA to support strategic designation and maintenance of storage facilities throughout the country.

5-YEAR PLAN

GRENADA NATIONAL RECOMMENDATIONS

YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5

RECOMMENDATION 9

Develop volunteer policies to facilitate the successful integration of individuals/organizations into the formalized national response system.

RECOMMENDATION 10

Formalize disaster training and exercise (T&E) initiatives into a centralized official program, led and coordinated by NaDMA.

RECOMMENDATION 11

Increase the annual budget for the National Disaster Management Agency (NaDMA) to support the growing need for technical staff and expanded programs required to mitigate the predicted rise in climate-related hazards affecting Grenada.

RECOMMENDATION 12

Expand awareness and preparedness campaigns among residents, visitors, and businesses for both natural and manmade hazards affecting Grenada.

RECOMMENDATION 13

Strengthen all-hazards monitoring and communications systems, translating data into comprehensive early warning systems (EWS) capabilities.

RECOMMENDATION 14

Expand the Tsunami Ready Programme to all parishes within tsunami hazard zones.

RECOMMENDATION 15

Pursue opportunities to share successes and lessons learned through Grenada's capacity-building efforts, including the Declaration of School Safety, SMART Hospital and Regional Health Project's, supporting climate resilience and risk reduction actions nationally and internationally.

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GRENADA PARISH RISK PROFILES

SUBNATIONAL ASSESSMENT RESULTS

PARISH RISK PROFILES

The subnational report developed for each parish offers a more detailed understanding of risk in Grenada. These are provided separately from this report (linked below), and include drivers of vulnerability, coping capacity, and resilience; a comparison of each parish within overall country; and strategic, data-driven, actionable recommendations.

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