CRF Canada Caribbean Resilience Facility

Sectoral Recovery Capacity Assessment Report for Grenada's Housing Sector

In partnership with Canada

GFDRR Global Facility for Disaster Reduction and Recovery

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Acknowledgements

This Sectoral Recovery Capacity Assessment (SRCA) was prepared by a World Bank team composed of Clara Ariza (Senior Disaster Risk Management and Climate Adaptation Specialist, Consultant), Roberto Mendez (Senior Disaster Risk Management Specialist, Consultant) and Francesco Varotto (Disaster Risk Management Specialist, Consultant), with inputs from Linda Anderson Berry (Senior Disability Specialist, Consultant) and Marcela Natalicchio (Senior Gender Specialist, Consultant), and overall guidance from Naraya Carrasco (Senior Disaster Risk Management Specialist) and Suranga Kahandawa (Senior Disaster Risk Management Specialist). The team is grateful to the Caribbean Disaster Emergency Management Agency (CDEMA) for its active involvement in government engagement and stakeholder consultations. The assessment was financed by the Canada-Caribbean Resilience Facility, a single-donor World Bank-executed trust fund managed by the Global Facility for Disaster Reduction and Recovery.

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Executive Summary

Grenada is highly exposed to the impacts of natural hazards, including earthquakes and hurricanes, has suffered major disasters in the past decades, and is currently coping with the impacts of the COVID-19 pandemic. With more frequent, intense, and extreme weather events expected in the coming decades due to climate change, there is an urgent need to prepare for timely, effective, and efficient disaster recovery, while building resilience at all levels and sectors of government and society. This involves strengthening the capacity of key national sectors to develop and execute climate-resilient recovery project portfolios that are gender-responsive and disability-inclusive.

This report presents the results of the Sectoral Recovery Capacity Assessment (SRCA) undertaken in Grenada to assess the capacity of the country's housing sector to plan, design, implement, monitor, and evaluate resilient and inclusive recovery projects. Housing was selected as the priority sector for the SRCA by the Government of Grenada due to its economic importance and high exposure to natural hazard impacts. The assessment followed a consultative process facilitated by the Housing Unit at the Ministry of Social Development, Housing and Community Empowerment (MSDHCE) and the National Disaster Management Agency (NADMA). It was supported by the Canada-Caribbean Resilience Facility (CRF), hosted by the GFDRR at the World Bank Group, and the Caribbean Disaster Emergency Management Agency (CDEMA).

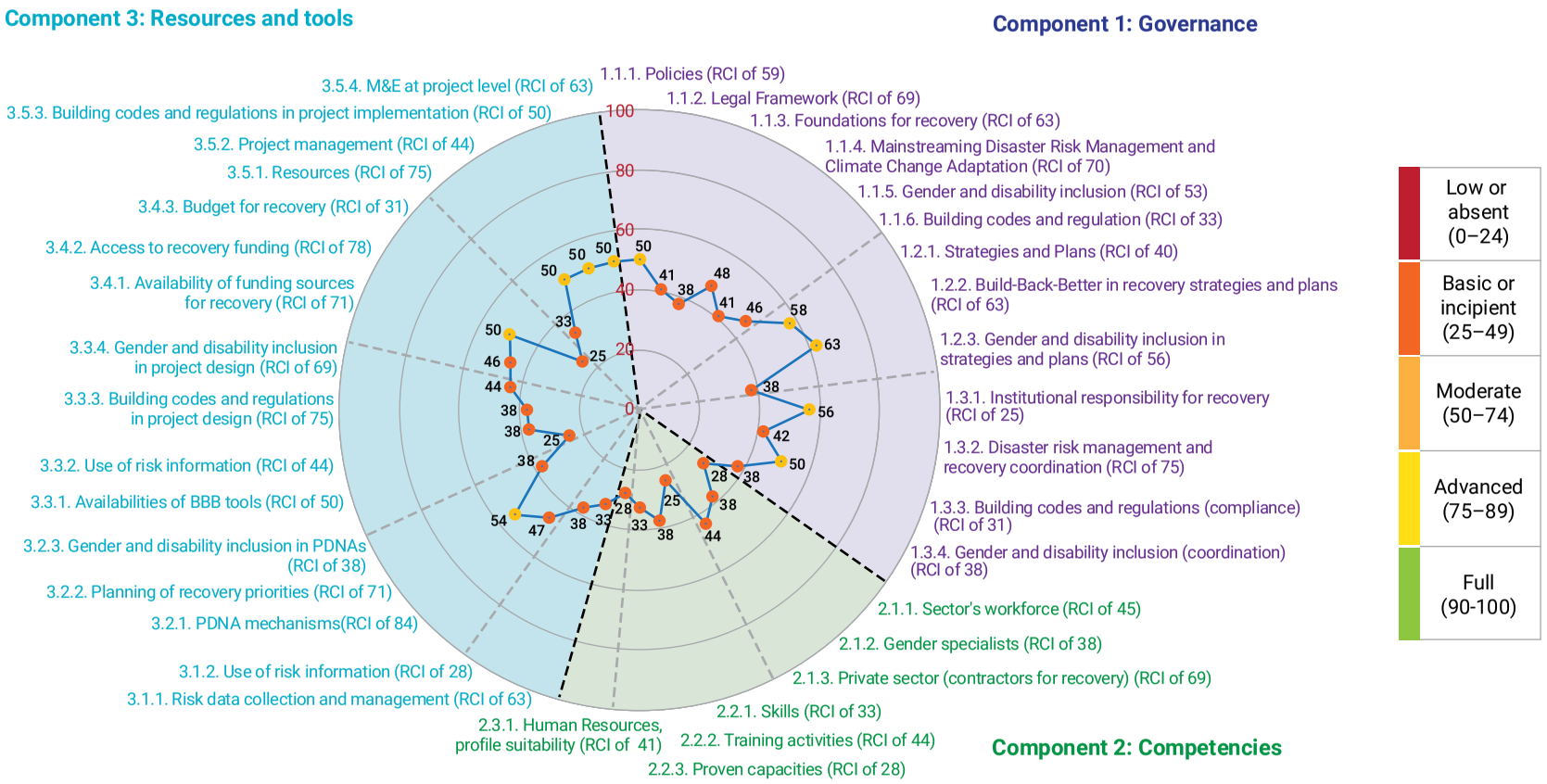
The SRCA assessed in detail the existing capacity for resilient recovery in the housing sector in terms of enabling policies and legal frameworks, institutional arrangements, and available resources and tools. The assessment allowed the identification of gaps, bottlenecks, deficits, blockages, and other factors that limit the planning, design, implementation, monitoring, and evaluation of resilient and inclusive recovery projects, as well as capacity building interventions, investments, and opportunities to solve pressing issues. The report includes practical recommendations, including proposed interventions to facilitate the prioritization and decision making on investments by national and international agencies supporting disaster risk management (DRM) and development efforts in Grenada. Figure 1 presents the results of the SRCA for each of the assessed issues.

At a high and strategic level, the assessment determined that the capacity of Grenada's housing sector to implement resilient and inclusive recovery projects in a timely, efficient, and effective manner is basic or incipient. However, key results of a more detailed analysis indicate that although progress has been made in national and sectoral policy and legislation to enable —to a certain extent— the development of recovery projects, the level of knowledge and skills of sectoral actors is still insufficient for planning and implementing rapid and effective recovery interventions. The SRCA identified a critical need for additional technical and human resources to enable the MSDHCE and NADMA to effectively fulfill their functions, including those related to DRM in the housing sector. These institutions, and the Government in general, need to create and sustain DRM, resilient and inclusive recovery capacity, and to improve the operationalization of DRM and recovery-related policies. The scarce and outdated hazard and risk information available, and the narrow range of financial mechanisms offered to homeowners for DRM and recovery —including insur-

FIGURE 1

Sectoral Recovery Capacity Assessment results overview.

The issues addressed in the assessment were classified under three main components: Governance, Competencies and Resources, and Tools. For each issue, the level of existing capacity within the sector was determined using the Recovery Capacity Index.



ance— further affect the sector's capacity to reduce the risk of natural hazard and climate change impacts.

The SRCA identified the following as crucial for building recovery capacity in Grenada's housing sector:

- Ensure that resilient and inclusive recovery considerations are integrated into ongoing and upcoming policy, strategic, and planning processes at the national and sectoral level. It is particularly important to finalize and approve the MSDHCE's National Multi-Hazard Disaster Emergency Management Plan and to develop the sub-sectoral multi-hazard emergency management plans and SOPs it mandates, including the plans for housing. In addition, it is necessary to revise —from a recovery and inclusion perspective— the National Disaster Management Plan, and by using the same perspective, to elaborate the national climate-smart housing strategy and the national urban development strategy, as well as to obtain the approval for the National Disaster Bill and the National Land Policy.
- Ensure that all critical infrastructure projects in the national project pipeline and the National Adaptation Plan are screened for climate resilience and ready to finance by conducting the necessary studies (for example, feasibility studies).
- Create an overall asset management and maintenance process to ensure the sustainability of infrastructure investments.
- Encourage homeowners to retrofit their properties to resist major adverse events by creating a technical assistance plan with a range of risk-reduction interventions.
- Strengthen the generation, management, and use of risk and recovery-relevant data and information by establishing a clearinghouse and data management unit, a national data repository with online and public access, a digital and georeferenced cadastre, and an inventory of public assets. Generate multi-hazard maps, topographic and soil maps, natural resource inventories, and update existing and outdated maps.
- Enhance resilience and recovery funding instruments for homeowners by creating the conditions for private insurance companies to improve the offer and cost of property insurance options for increased adoption.
- Build and sustain the required knowledge and skills for the implementation of resilient and inclusive recovery projects in the sector through the recruitment of specialized staff in areas specific to DRM, the institutionalization of training in DRM, gender and disability inclusion for public and private sectoral stakeholders, and the improvement of public recruitment protocols, among other measures.

It is expected that the findings of this report and its recommendations will be taken into consideration and integrated in the design and implementation of DRM and recovery strategies and plans.

Acronyms

BBB	Build Back Better
CAT-DDO	Catastrophe. Deferred Drawdown
CARICOM	Caribbean Community
CDEMA	Caribbean Disaster Emergency Management Agency
CDM	Comprehensive Disaster Management
CRPD	United Nations Convention on the Rights of Persons with Disabilities
CRF	Canada-Caribbean Resilience Facility
DANA	Damage Assessment and Needs Analysis
DGFA	Division of Gender and Family Affairs
DIMS	Disaster Information Management System
DRM	Disaster Risk Management
DRFS	National Disaster Risk Financing Strategy
DRR	Disaster Risk Reduction
EnGenDER	Enabling Gender-Responsive Disaster Recovery, Climate and Environmental Resilience in the Caribbean
GDP	Gross Domestic Product
GEPAP	Gender Equality Policy and Action Plan
GFDRR	Global Facility for Disaster Reduction and Recovery
GIS	Geographic Information Systems
GoG	Government of Grenada
GCF	Green Climate Fund
GNOW	Grenada National Organisation of Women
HAG	Housing Authority of Grenada
IPCC	Intergovernmental Panel on Climate Change
M&E	Monitoring and Evaluation
MATPs	Medium-Term Action Plans
MSDHCE	Ministry of Social Development, Housing and Community Empowerment
NADMA	National Disaster Management Agency
NADMAC	National Disaster Management Advisory Council

NAP	National Adaptation Plan
NSDP	National Sustainable Development Plan (2020-2035)
NTA	Grenada National Training Agency
OECD	Organisation for Economic Co-operation and Development
OECS	Organisation of Eastern Caribbean States
PCM	Project Cycle Management
PDNA	Post-Disaster Needs Assessment
PwD	Persons Living with Disabilities
RCI	Recovery Capacity Index
RCP	Representative Concentration Pathway
SIDS	Small Island Developing States
SLR	Sea Level Rise
SMEs	Small- and Medium-sized Enterprises
SOPs	Standard Operating Procedures
SRCA	Sectoral Recovery Capacity Assessment
TORs	Terms of Reference
UNFCCC	United Nations Framework Convention on Climate Change

Glossary of key terminology[1]

Building code: A set of ordinances or regulations and associated standards intended to regulate aspects of the design, construction, materials, alteration and occupancy of structures which are necessary to ensure human safety and welfare, including resistance to collapse and damage.[1]

Build back better: The use of the recovery, rehabilitation and reconstruction phases after a disaster to increase the resilience of nations and communities through integrating disaster risk reduction measures into the restoration of physical infrastructure and societal systems, and into the revitalization of livelihoods, economies and the environment.

Coping capacity: The ability of people, organizations and systems, using available skills and resources, to manage adverse conditions, risk or disasters. The capacity to cope requires continuing awareness, resources and good management, both in normal times as well as during disasters or adverse conditions. Coping capacities contribute to the reduction of disaster risks.

Critical infrastructure: The physical structures, facilities, networks and other assets which provide services that are essential to the social and economic functioning of a community or society.

Disaster risk management: Disaster risk management is the application of disaster risk reduction policies and strategies to prevent new disaster risk, reduce existing disaster risk and manage residual risk, contributing to the strengthening of resilience and reduction of disaster losses.

Disaster risk reduction: Disaster risk reduction is aimed at preventing new and reducing existing disaster risk and managing residual risk, all of which contribute to strengthening resilience and therefore to the achievement of sustainable development.

Disaster risk assessment: A qualitative or quantitative approach to determine the nature and extent of disaster risk by analyzing potential hazards and evaluating existing conditions of exposure and vulnerability that together could harm people, property, services, livelihoods and the environment on which they depend.

Exposure: The situation of people, infrastructure, housing, production capacities and other tangible human assets located in hazard-prone areas.

Hazard: A process, phenomenon or human activity that may cause loss of life, injury or other health impacts, property damage, social and economic disruption or environmental degradation.

Preparedness: The knowledge and capacities developed by governments, response and recovery organizations, communities and individuals to effectively anticipate, respond to and recover from the impacts of likely, imminent or current disasters.

Prevention: Activities and measures to avoid existing and new disaster risks.

[1] The following key terminology is provided by the United Nations Office for Disaster Risk Reduction. Online resource available at: https://www.undrr.org/terminology

Recovery: The restoring or improving of livelihoods and health, as well as economic, physical, social, cultural and environmental assets, systems and activities, of a disaster-affected community or society, aligning with the principles of sustainable development and "build back better", to avoid or reduce future disaster risk.

Response: Actions taken directly before, during or immediately after a disaster in order to save lives, reduce health impacts, ensure public safety and meet the basic subsistence needs of the people affected.

Resilience: The ability of a system, community or society exposed to hazards to resist, absorb, accommodate, adapt to, transform and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions through risk management.

Retrofitting: Reinforcement or upgrading of existing structures to become more resistant and resilient to the damaging effects of hazards.

Reconstruction: The medium- and long-term rebuilding and sustainable restoration of resilient critical infrastructures, services, housing, facilities and livelihoods required for the full functioning of a community or a society affected by a disaster, aligning with the principles of sustainable development and the"build back better", to avoid or reduce future disaster risk.

Vulnerability: The conditions determined by physical, social, economic and environmental factors or processes which increase the susceptibility of an individual, a community, assets or systems to the impacts of hazards.

01 Introduction

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1.1 Need for Timely, Inclusive and Resilient Recovery in the Caribbean

The Caribbean region is highly prone to disasters, including hurricanes, earthquakes, droughts, flooding, and landslides. Higher temperatures, changing precipitation patterns, more frequent, intense, and extreme weather events, and sea level rise (SLR) resulting from climate change, further exacerbate disaster risk in the region. Major hazard impacts destroy infrastructure and property, result in losses from foregone output and incomes, and escalate costs as individuals and businesses are forced to work around disruptions. Disasters jeopardize hard-won national development gains and growth prospects, erode fiscal cushions, and disproportionately impact the wellbeing of the poor. Caribbean countries lost an average of 3.6 percent of aggregate Gross Domestic Product (GDP) per year Between 2000 and 2019 to damages related to natural hazards, compared to 0.3 percent in all emerging markets and developing economies (World Bank, 2021). Indeed, the economic cost of disasters in the Caribbean region is so high that it often exceeds the size of the economy of the countries affected (Ötker and Srinivasan, 2018).

However, more timely and inclusive recovery efforts and consequently, faster and better reconstruction can lower social and economic burdens and allow a more rapid recovery of pre-disaster development levels. This critically depends on strong public systems that can rapidly coordinate and cost-effectively mobilize resources, reconstruct infrastructure, deliver services, and enable the rebuilding of local economies in the aftermath of disasters. Confronted with recurrent extreme weather conditions and the prospect of more frequent and intense hydrometeorological events with climate change, resilient recovery planning and investments have become a priority for the Caribbean region.

Preparing for recovery entails enhancing ex-ante the capacity of national governments to recover from losses and damages, define and strengthen institutional and financial systems that support the recovery process, and obtain the necessary political commitment for the development of recovery policies and programs (GFDRR, 2020) more rapidly. This is particularly important in the Caribbean Small Island Development States (SIDS), where long-standing and pervasive human-resource constraints and country-specific technical capacity gaps, both at the national government level and in all sectors, represent major obstacles for planning and implementing timely and efficient disaster-recovery operations. Consequently, a better understanding of capacity gaps and a focus on strengthening existing recovery capacity of the development sectors most affected by disasters in these countries can increase the efficiency and effectiveness of recovery investments. The Canada-Caribbean Resilience Facility (CRF) has engaged in the standardized assessment of recovery capacity needs in key development sectors of six Caribbean nations as a first step to assist countries to bridge recovery capacity gaps and build resilience to climate impacts and disasters. The countries are Antigua and Barbuda, Dominica, Grenada, Guyana, Saint Lucia, and Saint Vincent and the Grenadines and the assessment could be undertaken in other countries, depending on demand.

1.2 Assessing Sectoral Recovery Capacity in the Caribbean

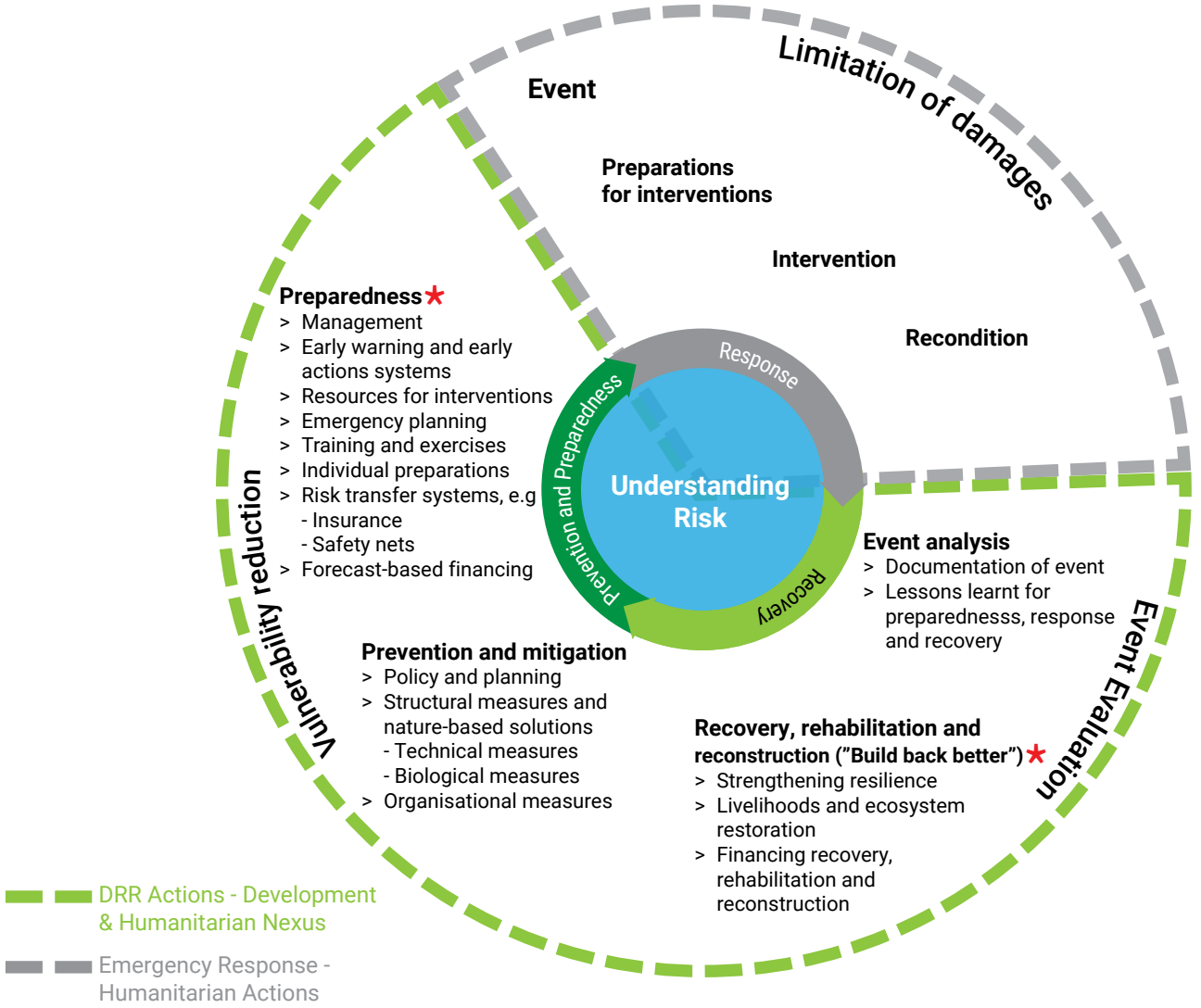
In order to assist Caribbean governments prepare for timely, efficient, and effective implementation of inclusive, climate-resilient recovery projects, the CRF developed the Sectoral Recovery Capacity Assessment (SRCA) in partnership with the Caribbean Disaster Emergency Management Agency (CDEMA) and has coordinated activities with the Enabling Gender-Responsive Disaster Recovery, Climate and Environmental Resilience in the Caribbean (EnGenDER) project for its implementation. The SRCA has been included in CDEMA's Comprehensive Disaster Management (CDM) Audit Tool, which covers the different phases of the Disaster Risk Management (DRM) cycle (figure 2), to complement the national recovery component of the tool, and to facilitate the identification of solutions to sectoral capacity issues that could delay the implementation of recovery projects.

Results of the SRCA are expected to serve as planning instruments and benefit national governments, sectoral

FIGURE 2

Disaster Risk Management cycle.

Asterisks indicate the phases of the DRM cycle that are most relevant for the SRCA. These are the recovery phase and the preparedness phase, where the necessary actions for recovery need to be implemented.



Source: Adapted from FOCP (2020).

stakeholders, national DRM agencies, and CDEMA in their efforts to enable a rapid and effective recovery in the aftermath of disasters. Recommendations emerging from the assessment will also inform the prioritization, design, and implementation of recovery-related capacity-building activities under the CRF, and inform potential investments to prepare for recovery as well as additional activities to be led by national governments and other stakeholders. Based on their own criteria, priorities, and needs, each government selects the sector to be assessed. The Government of Grenada selected the housing sector in view of its economic and social importance, the consequences of previous disasters and the vulnerability of the sector, its infrastructure, and investments vis-a-vis projected climate change impacts, including more frequent tropical storms and SLR.

1.3 Specific Objectives of the Sectoral Recovery Capacity Assessment for the Housing Sector in Grenada

The objectives of the SRCA are to:

- Improve the understanding of the existing capacity of the Government of Grenada (GoG), its Ministry of Social Development, Housing and Community Empowerment, and other key stakeholders in the housing sector to take the necessary actions to prepare for and undertake timely and efficient climate-resilient, gender-responsive and disability-inclusive disaster-recovery projects.
- Identify capacity gaps, weaknesses, and challenges that limit the timely and efficient implementation of recovery projects in Grenada's housing sector.
- Identify opportunities for investments to support Grenada's housing sector and institutions in overcoming recovery capacity gaps, weaknesses, and limitations (for example, policy reforms, institutional restructuring, training, and investments), and prioritize interventions to be financed by the Government as well as by bilateral and multilateral donors to improve the sector's capacity to prepare for recovery.

1.4 Assessment Methodology

The SRCA methodology was designed to evaluate the conditions and extent to which existing national and sectoral capacity enable timely, effective, and coordinated gender-informed and disability-inclusive climate-resilient disaster recovery in the framework of national DRM policy. Specifically, the SRCA assesses the conditions under which recovery considerations have been integrated into sectoral policies, plans, institutions, and administrative, financial, and operative processes, as well as the extent of the integration.

Assessment Framework: The SRCA framework consists of three main and interrelated components, namely, (i) Governance, (ii) Competencies, and (iii) Resources and Tools. Each of these components includes a series of complementary areas covered under the component, referred to as key elements. In turn, each key element covers a series of topics, referred to as sub elements. Gender and disability inclusion are crosscutting issues. The assessment structure establishes a relational cascade between the components at policy-making level, their key elements at strategic and programmatic level, and the sub elements at operational level of each key element. This structure therefore allows addressing key enabling factors for recovery at each level of the framework (figure 3).

Data collection and analysis: The assessment is based on data and information retrieved from a desk review and a consultation process with key public and private stakeholders, who —over the course of multiple sessions carried out online— completed the SRCA questionnaire, which was designed following the SRCA framework structure (see Annex 3). When stakeholders disagreed on the response to specific questions, the team in charge of the assessment moderated discussions, based on evidence whenever possible, until an agreement was reached. Additionally, where the responses differed from the results of the desk review, the team posed additional questions to identify the reasons for the mismatch.

For the analysis of the collected information, the SRCA methodology uses semi-quantitative approaches that enable the translation of qualitative and value judgments into numerical values within established ranges. These approaches include a scoring system that assigns quantitative values to the qualitative information collected for each of the questions in the SRCA questionnaire, including the narrative responses that stakeholders provide during consultations (Table 1), and the Recovery Capacity Index (RCI) calculated from the scores assigned to the responses. Resulting RCI values describe the extent to which the considerations necessary for effective recovery are taken into account and integrated by the sector as part of standard sectoral processes and operationalization of the country's DRM policies.

FIGURE 3

The SRCA framework structure.

C1, C2, and C3 are the main and inter-related components of the assessment, each consisting of a set of key elements (KE) and their respective sub elements (SE). The information required for the analysis of components, key elements, and sub elements is provided by answers to a set of questions per sub element (Q) included in the SRCA assessment questionnaire. The yellow and purple circles represent crosscutting issues. The triangles indicate the relational cascade among the different levels of the structure and the dotted circle denotes the interconnectedness of the three main capacity components.

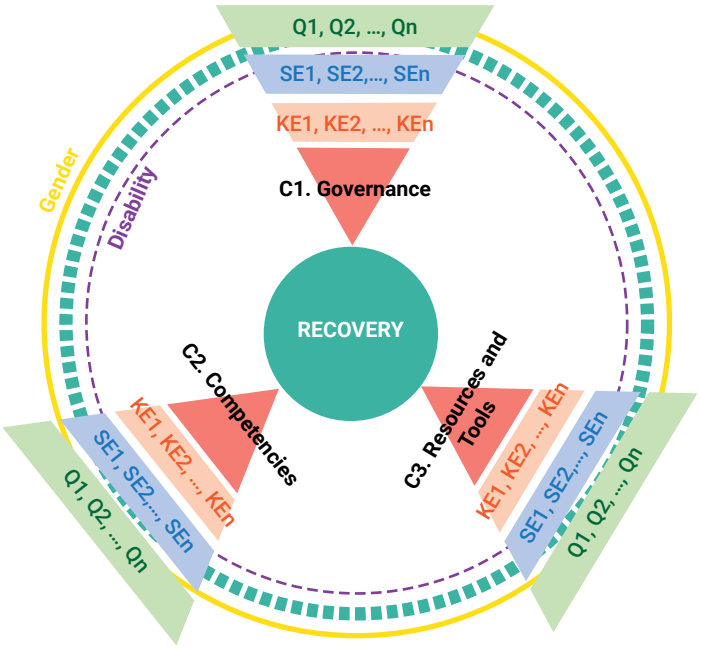


TABLE 1

Scoring system for the quantitative evaluation of qualitative responses to questions in the SRCA questionnaire.

Score	Type of response to the question				Evidence
4	A qualified YES	Minor problem / no problem	No need for action or measure	Yes	Adequate
3	In progress (> 75 percent completed)	Moderate problem	Need for action and measure	Partially	Acceptable
2	In progress (> 50 percent completed)	Major problem	Need for action and measure	Partially	Scarce
1	Planned or started with minimum actions	Severe problem	Immediate action and acute measure	No	Minimum
0	A definitive NO	Catastrophic problem	Immediate action and acute measure	No	None

The RCI values obtained for each level of the assessment are presented in spider charts and a traffic light system categorizes RCI values. This provides a rapid overview of the areas where recovery capacity is strong —high level of integration of factors enabling a timely, inclusive, and resilient recovery— and of those in need for urgent capacity building or other interventions—areas with absent or low level of integration of factors enabling a timely, inclusive, and resilient recovery. Table 2 presents the traffic light system.

TABLE 2

Traffic light system used to categorize Recovery Capacity Index (RCI) values.

RCI value range	Appreciation of the extent to which recovery considerations are integrated in the sector
Low or absent integration **0–24**	**Absent integration** of recovery considerations across the sector due to specific limiting elements. **Low level of awareness and knowledge** about the importance and added value of recovery integration for sectoral development.
Basic or incipient integration **25–49**	**Incipient integration** of recovery considerations takes place at different levels of the sector. Some elements are under development, with a certain level of incidence to generate an institutional culture. There is a **certain level of awareness and knowledge** about the importance and added value of recovery integration for sectoral development.
Moderated integration **50–74**	**Evident integration** of recovery considerations takes place at the majority of levels in the sector. An institutional culture that supports and updates recovery factors and includes them in sectoral planning processes is identified. A **good level of awareness and knowledge** about the importance and added value of recovery integration for sectoral development exists.
Advanced integration **75– 89**	**Evident integration** of recovery considerations takes place at most levels in the sector, as it is part of sectoral strategic planning processes. Adaptation tools are available to enable the continuity of operations during contingencies, in a coordinated, practical, and documented way. There is also a **high capacity to value the impact and contribution of recovery integration to the sector development**, and to programmatic efficiency and efficacy.
Full integration **90–100**	**Integrating recovery considerations at all levels is a working principle,** managed as part of the sector's organizational culture. Tools and protocols for the continuous improvement of the sector's performance and impact are available.

HIGH

CAPACITY BUILDING NEEDS

LOW

02
The housing sector in Grenada

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The last census carried out in Grenada in 2011 provides some slightly outdated yet important evidence on the evolution of the housing sector in the country. In 2011, there were a total 36,111 households, indicating an almost 8 percent increase over the 2001 household count of 33,477. The administrative divisions that grew in terms of population were the parishes of Saint George (situated outside the capital), Saint David, and Saint Mark, while the other parishes and St. George's all registered decreases in the number of households between 2001 and 2011. The area with the largest total number of households in 2011 was the parish of Saint George (except in the main city of Saint. George's) at 34 percent, followed by the parish of Saint Andrew, which was home to 23 percent of the population. Saint Mark and the town of Saint. George's accounted for the smallest portions, 4 and 3 percent respectively. In 2011, 86 percent of the dwellings consisted of separate or detached houses, a decrease from 90.30 percent in 2001, and in both 2011 and 2001 approximately 98 percent of all dwellings were used solely for residential purposes, while the few remaining were used for both residential and business purposes (GoG 2011).

Provided that the figures may have changed considerably since the last census was taken, in 2011 only 21 percent of households in Grenada indicated having home insurance. Residences in the town of St. George's registered the highest share (39 percent), followed by the rest of the parishes of Saint George, and Saint David, with 30 and 21 percent respectively. The prevalence of home insurance in the remaining parishes ranged from 12 percent in Saint Mark's to 15 percent in St. Andrew's. The census results showed that merely 16 percent of the insured housing stock was owned fully, as compared to 73 percent that were financed with a mortgage. The content of the households was almost twice less likely to be insured, as only 12 percent of all households confirmed that they had insured their personal belongings. The largest proportion of insured content was detected in the town of St. George's, with 25 percent. St. Mark's parish had the smallest share of contents insurance, with only 7 percent (GoG 2011).

The conditions of Grenada's housing stock have improved significantly, partly due to the rebuilding process that came after Hurricane Ivan in 2004, when more durable materials such as concrete or bricks started to be utilized with more frequency for outer wall construction. The proportion of households with timber as the main material for the outer wall decreased from 33 percent in 2008 to 25 percent in 2018. In the same period, the proportion of houses with concrete walls increased from 39 percent to 43 percent. Nonetheless, while a greater proportion of dwellings has replaced the combination of wood or plywood with concrete for more quality construction materials, metal sheets are still prominently used for roof construction (World Bank 2021), as they are resilient, can be easily disassembled, and reused when necessary. The use of different construction materials is especially relevant because older and lower quality buildings are the ones that suffer the greatest damage when impacted by adverse events. This is due to a mix of factors including the lack of compliance with and lack of enforcement of resilient building codes, poor roof-wall connections, the poor quality and non-resilience nature of building materials, lack of adequate maintenance, and poor construction practices (Interamerican Development Bank 2021).

In Grenada, the two public entities in charge of matters regarding housing, function under the Ministry of Social Development and Housing and Community Empowerment (MSDHCE). These are the Housing Authority of Grenada (HAG) and the Housing Unit of the MSDHCE. The MSDHCE —through its Housing Unit— is in charge of the development of policies and legal framework related to housing and the maintenance of public housing; the HAG has a more practical role as the primary source of quality affordable housing for the citizens of Grenada. Since its creation in 1981, the HAG has been involved in the construction of houses and residential land sales throughout the country with its services including architectural drawing, home construction, home renovations and estimations, project management, and the procurement of building permits and licenses (GoG 2022b and HAG 2022).

To improve the resilience of the housing sector in the aftermath of Hurricane Ivan, the Housing Unit established a National House Repair Program, where a series of criteria were set out for the provision of housing assistance to needy citizens in cases such as economic vulnerability, marginalization, natural disasters, or disability (GoG 2022b). Under the Program, the GoG provided loans as well as manpower through volunteers of the housing brigades, although to date there is no available data for repairs and renovations performed through the Program (Personal communication with staff of the MSDHCE, March 2022). Additional GoG programs in housing have included the Emergency Housing Response Program, designed to aid very dire cases of housing support needs; the Materials Assistance Program, a politically driven initiative under which individuals receive subsidized building materials closer to elections; and the Housing Loan Program, which offered loans up to a maximum of EC$ 20,000 (Personal communication with staff of the MSDHCE, March 2022).

Such initiatives are crucial in enhancing the resilience of the sector, especially given that some data indicate that many households are in an increasingly vulnerable position relative to external shocks. For instance, analysis of survey results on the proportion of families who own their dwellings shows that there has been a notable decrease between 2008 and 2018 —from 83 percent to 78 percent— which is of concern, as evidence shows housing tenure reduces social vulnerability and contributes to disaster preparedness and recovery (for example, UN-Habitat 2019; Lee & Van Zandt 2019). Additionally, the same survey concluded that a relatively high number of people —34 percent of the population— felt deprived in relation to housing and access to piped water —14 percent— and toilet facilities —30 percent—, while 13 percent said they lived in overcrowded conditions (World Bank 2021).

Housing has become one of the most politically and socially charged development demands of the Grenadian population, especially since Hurricanes Ivan (2004) and Emily (2005). In the aftermath of these two events, the GoG successfully negotiated with the People's Republic of China Phase 1 of the China-Aid Low-Income Housing Project, a housing grant of 2000 units. By 2020, the Chinese Government had built another 647 units in five sites across the country under Phase 2 of the China-Aid Low-Income Housing Project, including 70 units in Saint Patrick, 150 units at Soubise, Saint Andrew, and 100 units in Dumfries, Carriacou. In July 2021, 226 housing units were completed in Saint David, which represented the biggest share of the housing project. Just recently —in March 2022— an additional 100 units in Beausejour were finalized under the project (Ministry of Foreign Affairs of the People's Republic of China 2020 and Personal communication with staff of the MSDHCE, March 2022).

In view of the growing demand for housing, a successful approach to improving the availability, accessibility to, and resilience of housing will require a hybrid strategy involving a combination of public and private initiatives, government financing and programs, and continuous partnerships with multilateral as well as bilateral donors, for housing solutions that are cost-effective, compliant with building codes, and ensure resilience against negative climate change impacts.

2.1 Disaster impacts in Grenada

Grenada currently designates 13 percent of its budget to climate resilience and disaster management (GoG 2022a). The country is exposed to numerous natural hazards arising from both meteorological (high wind, excess rainfall, and hurricanes) and geophysical events (earthquake, volcano, and tsunami). In 2017, Germanwatch's Global Climate Risk Index placed Grenada in the top 2 percent for losses to climate-related natural disasters as a percent of GDP during 1997–2017, and in the top 5 percent of climate-related disaster fatalities, out of a total 182 countries (Eckstein et al. 2017). Recurrent events have harmed the population's socioeconomic well-being as well as the country's economic and fiscal stability.

Located near the Lesser Antilles subduction zone, it is susceptible to destructive earthquakes that can lead to tsunamis (World Bank 2017). While earthquake risk is considered moderate to low, and Grenada is

classified to be in seismic zone 2 under a 4-zone system, an eruption of Kick Em Jenny, located merely eight kms north of the main island, has the potential to produce a significant earthquake which can affect the country (GFDRR 2010). The volcano has erupted 14 times since 1939, with the last event being in 2017, and given its proximity to Grenada, a tsunami could reach the country in less than five minutes after an episode and threaten coastal life and property, depending on the size of the wave generated (NADMA 2014).

Due to the rugged nature of Grenada's interior, lives and livelihoods are predominantly located along the coast. Most of the population and assets are concentrated in the country's main city and capital, St. George's —set around a horseshoe-shaped harbor— which makes it highly prone to coastal and hydrometeorological hazards. A single major event can provoke tremendous losses to the building stock and the economy.

In the last 40 years, several hurricanes have hit Grenada, causing highly significant physical and financial damages. For instance, the impact of Hurricane Ivan in 2004 amounted to over 200 percent of GDP, as it affected —through damage or destruction— 90 percent of the island's building stock, including the housing stock, of which 30 percent required complete replacement, and caused damages to an estimated 80 percent of Grenada's electricity distribution system, leaving three quarters of its residents without power (IMF 2019, NADMA 2014 and GoG, 2021). Heavy and prolonged rainfall and storm surges can provoke flooding and landslides. Major rivers run through several towns and settlements in various parishes, and the basins of the rivers flowing through St. John's, St. Mark's, Saint. George's, and St. Patrick's are areas especially vulnerable to flood events, as are other low lying coastal areas. Landslides are also a common feature along Grenada's roads, particularly during the wet season from June-November.

Grenada's annual average loss from wind-related events and floods averages around US$ 20 million, or 1.7 percent of GDP, out of which roughly US$ 12 million represents the estimated replacement values associated with direct, physical damage. In addition to that, the government will experience direct damage to its own assets amounting to about US$ 3.5 million (which is 0.3 percent of GDP). On average, once every 100 years, these costs are expected to exceed US$ 386 million, which is more than 35 percent of Grenada's GDP. That is, even without considering the threat posed by climate change, there is a 1 percent probability in any given year that a disaster will impose direct and indirect losses exceeding 35 percent of GDP (IMF 2019).

The damages and losses caused by hurricanes and floods —the most frequent hazards impacting Grenada— occur largely in the residential infrastructure and they mostly have to do with deficiencies in the way roofs are constructed and connected to walls. The damage to building roofs and their connection to walls is the most widely reported type of building damage in the Caribbean and is the main reason for water and wind penetrating the buildings and soaking and damaging furniture, equipment, and supplies inside. There seems to be a correlation between the construction materials used and the impact of climate events to housing infrastructure, as analyses showed that countries where residential buildings use more concrete as material for the outer walls and roofs are also the ones that present the lower shares of damages and losses, showing the importance to comply with building codes, adopt solid construction practices, and utilize resilient building materials (Interamerican Development Bank 2021).

2.2 Climate change impacts in Grenada

It is anticipated that the Caribbean region, largely consisting of Small Island Developing States (SIDS), will be among the most severely impacted regions due to changes in climate conditions. Most Caribbean nations are relatively small in size, with high concentrations of human presence and infrastructure along the coast, and are located in areas which are already highly prone to extreme weather events. Grenada is no exception, and climate change has the potential to result in serious human, financial, and environmental losses.

Higher regional temperatures and uncertain precipitation patterns are expected to produce more transitory and more severe phenomena during the wet season while correspondingly intensifying the duration and harshness of the dry season. The Intergovernmental Panel on Climate Change (IPCC) estimates that the consequences of climate change for the Caribbean will include an increase in average annual temperatures and sea surface temperatures, as well as an intensification of the impacts from natural hazards, with extreme weather events becoming both more frequent and more intense (IPCC 2022 and GoG 2017). Temperatures in Grenada have risen steadily over time, at an average rate of 0.14˚C every ten years, and it is projected that the mean annual temperature will continue to increase over the coming decades, irrespective of which climate scenario is adopted. It is also likely that there will be drier conditions overall, with protracted drought periods, even if rainfall patterns are somewhat difficult to detect due to the large inter-annual variability. Sea surface temperatures however —particularly combined with the threat of sea level rise (SLR)— are expected to have major effects on Grenada's coastal ecosystems, which form the basis of the tourist attraction, protect Grenada's coastal infrastructure and contribute to food security (GoG 2017).

Grenada's main infrastructure and settlements are located on or near the coast, including government, health, commercial, and transportation facilities. These areas already face pressure from natural phenomena (wind, waves, tides, and currents) and human activities (beach sand removal and inappropriate construction of shoreline structures). The impacts of climate change —SLR in particular,— intense rainfall events, storm surges, and associated flooding, will exacerbate coastal erosion. SLR and storm surges represent the biggest climate change–related threats to Grenada's economy (Rozenberg et al.,2021).

The housing market will be impacted by climate change in multiple ways. More frequent and severe events will make maintaining, repairing, and strengthening property resilience significantly more expensive, and cause home insurance premiums to increase consequently (Clayton, J.; Devaney, S.; Sayce, S. and van de Wetering, J. 2021). Rising temperatures will additionally impose a higher burden on the electrical grid —already strained in most Caribbean nations— and force higher energy costs upon homeowners and tenants alike to cool properties from the heat (Clayton, J.; Devaney, S.; Sayce, S. and van de Wetering, J. 2021). Finally, home values will be shifting significantly —decreasing or increasing— as some areas become more livable than others, with impacts on tax revenues at both the local and national levels (Center for Climate and Energy Solutions 2021).

Climate change projections for Grenada*

- Temperature rise of 1.0°C to 3.5°C and sea level rise of 15 cm to 95 cm by 2100.
- A positive or negative variation of 5 percent to 20 percent in total precipitation by the year 2100 may be considered.
- By 2100, 5 to 10 percent increase in the wind speeds of tropical storms for a Sea Surface Temperature increase of 2.2 °C.

*Representative concentration pathway (RCP) 8.5 ensemble.

Source: World Bank, 2020.

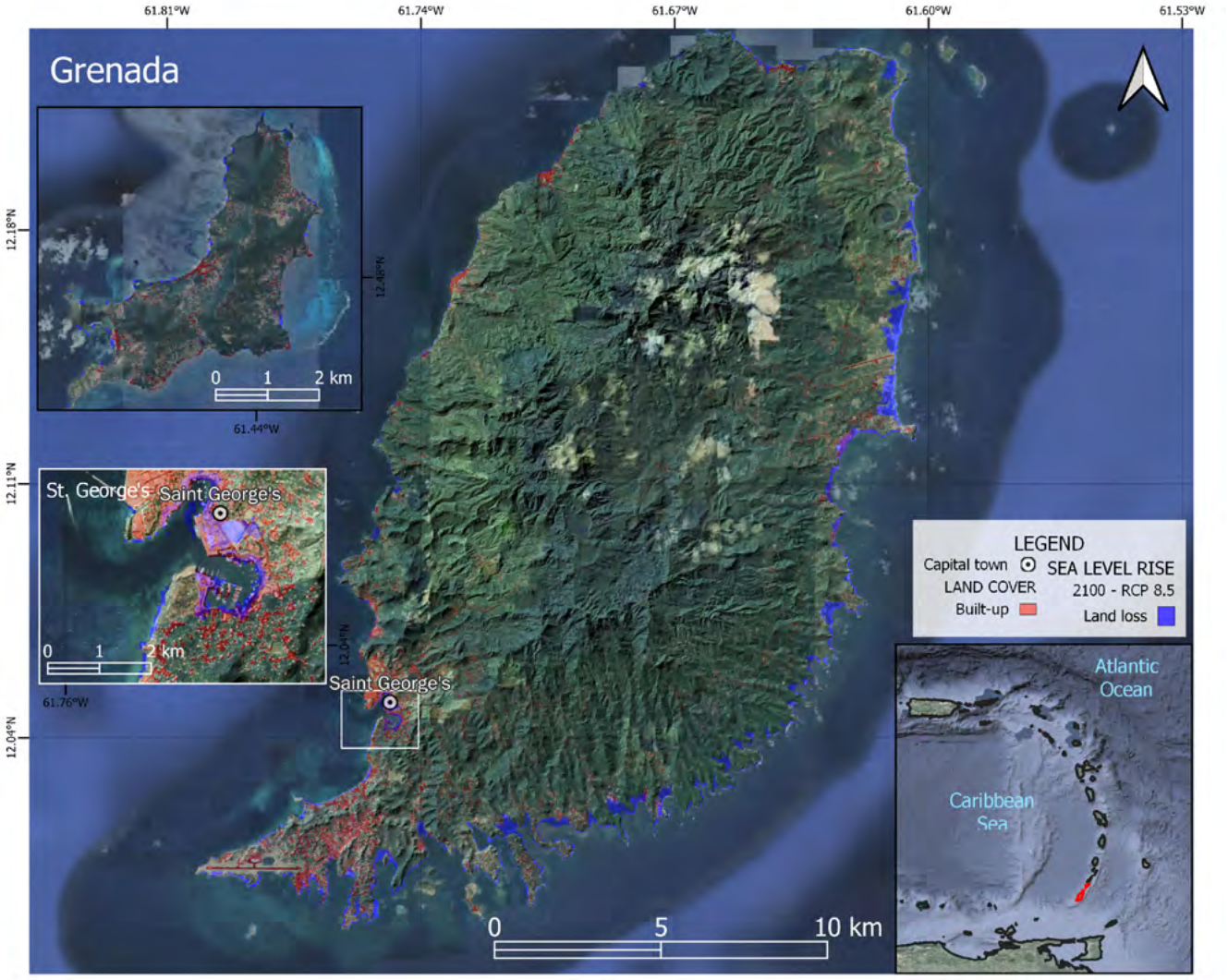
Figure 4 shows the areas affected by SLR under a high climate change scenario (RCP 8.5). Other inundation scenario maps for Grenada are presented in Annex 2.

2.3 Infrastructure

Communities located in low-lying coastal areas and on slopes, are vulnerable to the impacts of multiple natural hazards, not only due to their exposure but also due to weak structural integrity of a large part of the residential infrastructure. In Grenada, as in most other neighboring Caribbean countries, investments are needed to upgrade or retrofit the existing housing stock. Currently, a higher proportion of poor households live in high-risk locations compared to non-poor

FIGURE 4

Areas affected by sea level rise in Grenada by 2100 under a high climate change scenario (RCP 8.5)



households. In 2018, 4.2 percent of poor households were living close to the sea (for example, less than 10m), and 3.2 percent were living next to a river, compared to 3.3 and 3.7 percent of non-poor households, respectively (World Bank 2021). Furthermore, isolation due to natural hazard disruptions was shown to be a higher concern for poor than for non-poor households (World Bank 2021).

In addition to the pressing necessity of improving the housing stock, parallel investments will have to also focus on DRM aspects, primarily on the construction and retrofitting of protection infrastructure along coastal areas, to shield housing from destructive impacts. Similarly, purpose-built warehouses and a logistics system for emergency relief supplies are lacking. These issues were reiterated multiple times during a recent consultation with representatives of the MSDHCE (Personal communication with staff of the MSDHCE, March 2022). Grenada also needs to increase its spending on infrastructure, including its budget for infrastructure maintenance, which currently reaches only about 0.2 percent of GDP, significantly lower than the estimated minimum annual requirement to maintain the integrity and functionality of infrastructure assets (GoG 2021).

2.4 Gender and disaster risk management

In Grenada, the Division of Gender and Family Affairs (DGFA) is the agency in charge of coordinating and mainstreaming gender across government agencies, policies, and programs. It falls under the Ministry of Social Development, Housing and Community Empowerment (MSDHCE). Its key objectives are to implement the Gender Equality Policy and Action Plan (GEPAP) and provide technical assistance for gender mainstreaming activities. One of the propositions contained in the GEPAP is to achieve gender parity (50–50 male-female representation), or 40 percent of either sex, at all levels of decision making in Grenada's society (DGFA 2019). While information about the number of women in disaster and climate change management positions is absent, at the ministerial level Grenada has indeed achieved its goal of 40 percent women representation, as six out of the fifteen government ministries are headed by women, and both the MSDHCE and the DGFA are currently headed by women (GFDRR 2021).

The GoG has recently intensified its efforts to integrate gender considerations into DRM and climate change resilience projects. The DGFA was actively involved in consultations related to projects and proposals submitted to the Green Climate Fund (GCF), whose gender policy requires inclusion of a gender perspective in climate change initiatives (DGFA 2019). One of the key objectives of these consultations was to ensure that all project proposals for the GCF reflect adequate gender analyses, gender action plans, and gender-responsive monitoring and evaluation frameworks. The GoG is currently also participating in the regional EnGenDER project, whose implementation is expected to provide technical support for gender equality policy mainstreaming to agencies responsible for the development and implementation of gender-responsive and gender-inclusive national adaptation plans (NAPs) and nationally appropriate mitigation actions (GFDRR 2021).

While the DGFA has been making commendable efforts to incorporate gender considerations into Grenada's national policies, it is noted that at the sectoral level a gender perspective is still lacking in most DRM and climate change policies and programmatic plans. This partly stems from the fact that there are significant gaps of information on the number of women in DRM- and climate change-related decision-making processes, as well as in gender differentiated disaster impacts and gender data and analyses that might assist in the design of social safety net programs. There are also insufficient discussions on gender equality in policymaking, planning, and developing programs related to water management, waste management, land management, renewable energy, clean transportation, and other environmental topics, and an absence of awareness-raising campaigns about the importance of gender-sensitive budgeting (GFDRR 2021).

A gender desk review recently carried out in the framework of the CRF underscored that all CRF members are experiencing insufficient institutional support, limited financial resources, and human resource constraints (GFDRR 2021). These factors negatively influence their national capacity to coordinate gender mainstreaming across governmental agencies, divisions, and programs, and inhibit their capacity to raise awareness about existing gender disparities, including in DRM and climate change activities. Moreover, national gender divisions are not spread across their countries, hindering the provision of special services related to GBV, economic empowerment, and social protection (Caribbean Development Bank 2016).

Still, the same desk review emphasized that in Grenada, various women's organizations and civil society organizations participate actively in national and regional discussions on gender equality, women's rights, child protection, support of people with disabilities, and the environment (GFDRR 2021). They include, for example, the Grenada National Organisation of Women (GNOW); the Legal Aid and Counselling Clinic; the Program for Adolescent Mothers; the Grenada Planned Parenthood Association; the Inter-Agency Group of Development Organisations; and the GrenCap which promotes LGBTI rights. Some of these organizations were able to influence DRM and climate-change-related policy making. For instance,

the Inter-Agency Group of Development Organisations and the GNOW are identified as key stakeholders in the Agriculture Drought Management Plan (GoG 2019), and the GNOW also contributed to the development of the Aligned National Action Program for Grenada's Commitment under the United Nations Convention to Combat Desertification and Drought (GoG 2015).

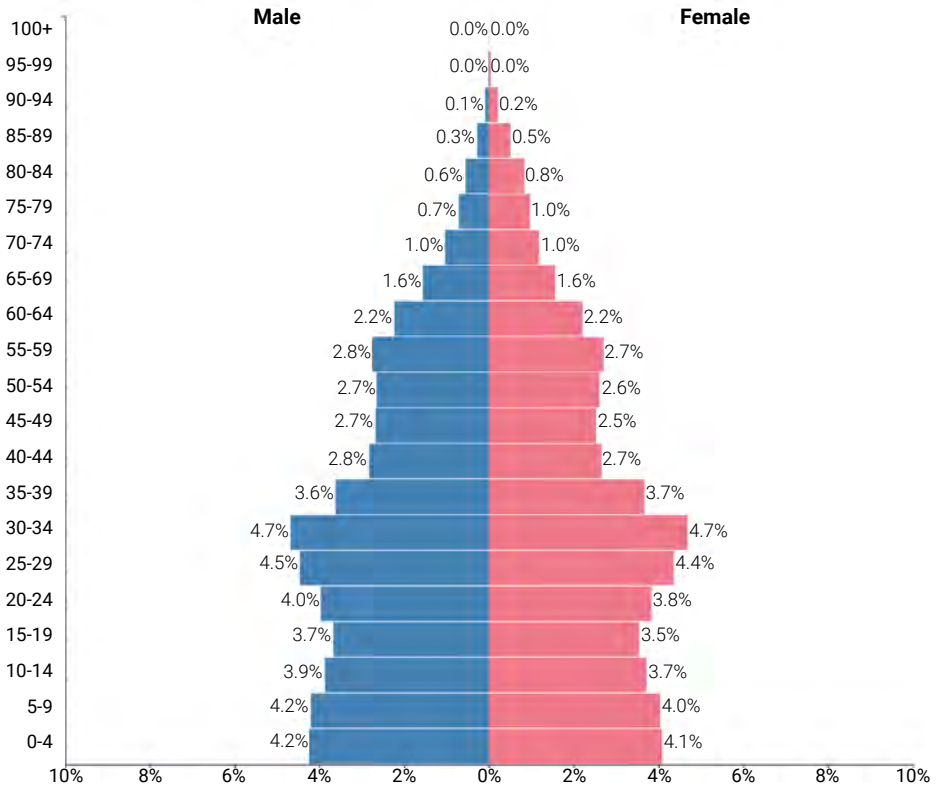
2.5 Disability and disaster risk management

It is estimated that in every thousand people in Grenada 178 have sight problems, 46 experience trouble with hearing, 114 with walking, 30 with communicating, 65 with remembering or concentrating, 31 with their self-care, and 38 with their upper body mobility. Disability prevalence is considerably high for such a small country and is consistently reported to be higher among females across all type, degree of difficulty, and age categories (GFDRR 2022).

Over the next few decades, the Caribbean region will see an increase in its ageing population and therefore an increase in the proportion of the population living with disabilities, as it is calculated that the 60 plus years-old cohort in the population will double over the next two decades (figure 5). Along with the worsening of physical, sensory, and mental conditions that lead to disability, it is expected that there will be an associated increase in chronic illnesses and diseases, which can also be linked to the onset of disability. In Grenada, like many other Caribbean countries, a decline in total population figures is expected between 2040 and 2050, due to decreasing fertility rates and increasing outward migration (ECLAC 2008).

FIGURE 5

2019 population pyramid providing a snapshot of how Grenada's population is expected to age over time.



Source: PopulationPyramid.net

Grenada signed in July 2010 and ratified in August 2014 the Convention on the Rights of Persons with Disabilities (CRPD), although it has not yet ratified or acceded its optional protocol (United Nations 2006). From the international agreements, treaties, and conventions signed by Grenada, the CRPD is the most important for the protection of the rights of persons with disabilities (PwD) including the right to dignity, liberty, security of a person on an equal basis with others, and to be free from torture and from cruel inhuman, or degrading treatment or punishment. The Sendai Framework for Disaster Risk Reduction 2015–2030 (UNDRR 2015), the 2030 Agenda for Sustainable Development (United Nations 2015c) and the Sustainable Development Goals (SDGs) of 2015 (United Nations 2015b), as well as the Paris Agreement of 2015 of the United Nations Framework Convention for Climate Change (UNFCCC) (United Nations 2015a) are other important international instruments recognizing the rights of PwD of which Grenada is a party.

Several Caribbean regional agreements also promote the rights and dignity of PwD and support their inclusion and participation in society and DRM. Grenada further established its commitment to the rights of PwD through ratification of the Inter-American Convention on the Elimination of All Forms of Discrimination against Persons with Disabilities of 1999 (United Nations 1999), the Kingston Accord of 2004 (Caribbean Community 2004), and more recently, the Declaration of Pétion Ville of 2013 (Caribbean Community 2013), which was signed by all 15 members of the Caribbean Community (CARICOM) to reiterate their commitments to implement the Convention on the Rights of Persons with Disabilities (CRPD).

At the national level, the entities in charge of delineating policies for PwD are the Ministry of Social Development, Housing and Community Empowerment and the Ministry of Health, Social Security, and International Business. State parties to the CRPD have acknowledged and agreed to support and promote the fundamental rights of PwD in all societal contexts, by facilitating their full and meaningful inclusion in DRM processes, decisions, and actions that will impact their safety and security during emergencies, and their ability to adapt and build resilience to the impacts of climate change. Therefore, Grenada is currently developing a policy for PwD, a process that was initiated in 2014 and revisited in 2019 (GFDRR 2022). Currently though, there are no constitutional provisions or any national disability legislation making direct mention of the rights of PwD in the event of disasters or impacts related to climate change. There is no legislation, policy, or administrative and operational framework on disaster management that contain provisions for the inclusion of people with disabilities, and the Emergency Powers Act of 1987 makes no direct reference to PwD specifically, or to vulnerable and disadvantaged persons generally (GFDRR 2022). Grenada's national disaster risk management framework is being developed following CDEMA's guidance and support[2]. CDEMA is working towards more explicit and greater inclusion at both policy and operational levels.

In Grenada, building accessibility provisions are generally based on international standards that are prescribed in the Organisation of Eastern Caribbean States (OECS) building code, specifically Annex F. This includes accessibility features such as ramps, hand and guard rails, clear access and egress, doorway width and openings specifications, the placement of internal fittings, accessible toilets and washrooms, lighting, tactile floor, and pavement markers. The Grenada National Council of the Disabled (GNCD) proactively provides new public building developers and builders copies of the OECS building code's Appendix F accessibility provisions. These provisions are most often applied when requested, particularly for those that may be used as places of refuge and shelter in times of disaster. The OECS codes also include specifications for walkways and footpaths that will ensure safe and accessible transit routes for persons with a range of physical and sensory disabilities. These requirements appear to be followed less often. Private dwellings are poorly supported with building

[2] CDEMA has been responsible for developing and supporting the implementation of the CDM 2014–2024, which provides a strategic and consistent approach to DRM that focuses on mainstreaming CDM in key sectors across society and building disaster resilience.

regulations and persons with disabilities requiring the greatest assistance with accessibility and living conditions within their own homes, particularly in times of disaster, when immediate assistance may not be available. For example, people who depend on wheelchairs or have very limited mobility, and the severely vision impaired may become trapped in their own homes if roads and footpaths are impassable, or they may not be able to reach evacuation centers if there is no appropriate transport. People who experience hearing difficulties may miss essential warning messages.

Universal Design principles that support universal access are supported by the World Bank and other UN and international organizations as a base standard. When applied to the design and construction of buildings and infrastructure they will enable unimpeded access for people of all ages and abilities in different situations and under various circumstances. Something that's universally designed will work for all those who are considered to be able-bodied as well as people who struggle with: upper body movement, strength, and/or sensation; lower body movement, strength, and/or sensation; balance; vision; hearing; cognition and memory; activity tolerances; speech and/or communication; chemical sensitivities; sensory tolerance; needs for caregiver assistance; and extremes in height and weight (Universal Design Project 2022).

Universal Design standards should be applied and Grenada's building codes enforced (United Nations 2020) while planning support for Grenada's diverse community of persons with disabilities, in managing their disaster risk in the preparedness and response phases, when the buildings and transport vehicles are being retrofitted and transport routes established, and during recovery-,when physical infrastructure is restored using Building Back Better (BBB) approaches so as to build future resilience. This is particularly important for planning responses to catastrophic events that may include evacuation and recovery processes (GFDRR 2022).

Many other actions can support PWD inclusion in DRM. For example, the blind and visually impaired will, in varying degrees, experience difficulty while trying to access warnings and information in written language formats. For them, alerting devices such as sirens, alarms, radio broadcasts, and sound or voice messages are generally more accessible. Large print documents and a range of accessible communication technologies that can be used on smart devices —if available and affordable— may also be useful. Tactile paving, tactile signage, large print signage for directions, audible traffic signals and large electronic light signage along roadways may need to be provided to support independent travel, and accommodation in evacuation centers. Profoundly deaf and hearing-impaired people depend to some extent on non-verbal communication. Access to emergency notification systems such as televised and radio broadcasts, stationary and mobile sirens, public address systems, and alarms may be limited, and they may need to be alerted ahead of an incoming televised message. Information can then be accessed via speech-to-text technologies that are available and can be used through compatible electronic devices and software, or with Sign Language translations. People with a physical disability that limits mobility are likely to encounter difficulties while traveling to evacuation centers and while trying to access the facilities there. They will require fit-for-purpose vehicles, such as those equipped with wheelchair lifts and wide door access. Access to evacuation centers can also present difficulties. The design features of buildings that are designated as evacuation or assembly centers should be accessible to people with diverse abilities and accommodate a wide range of individual abilities and preferences for accessibility[3].

[3] Accessibility features are a component of the Universal Design that, ideally, should be included in all national building standards.

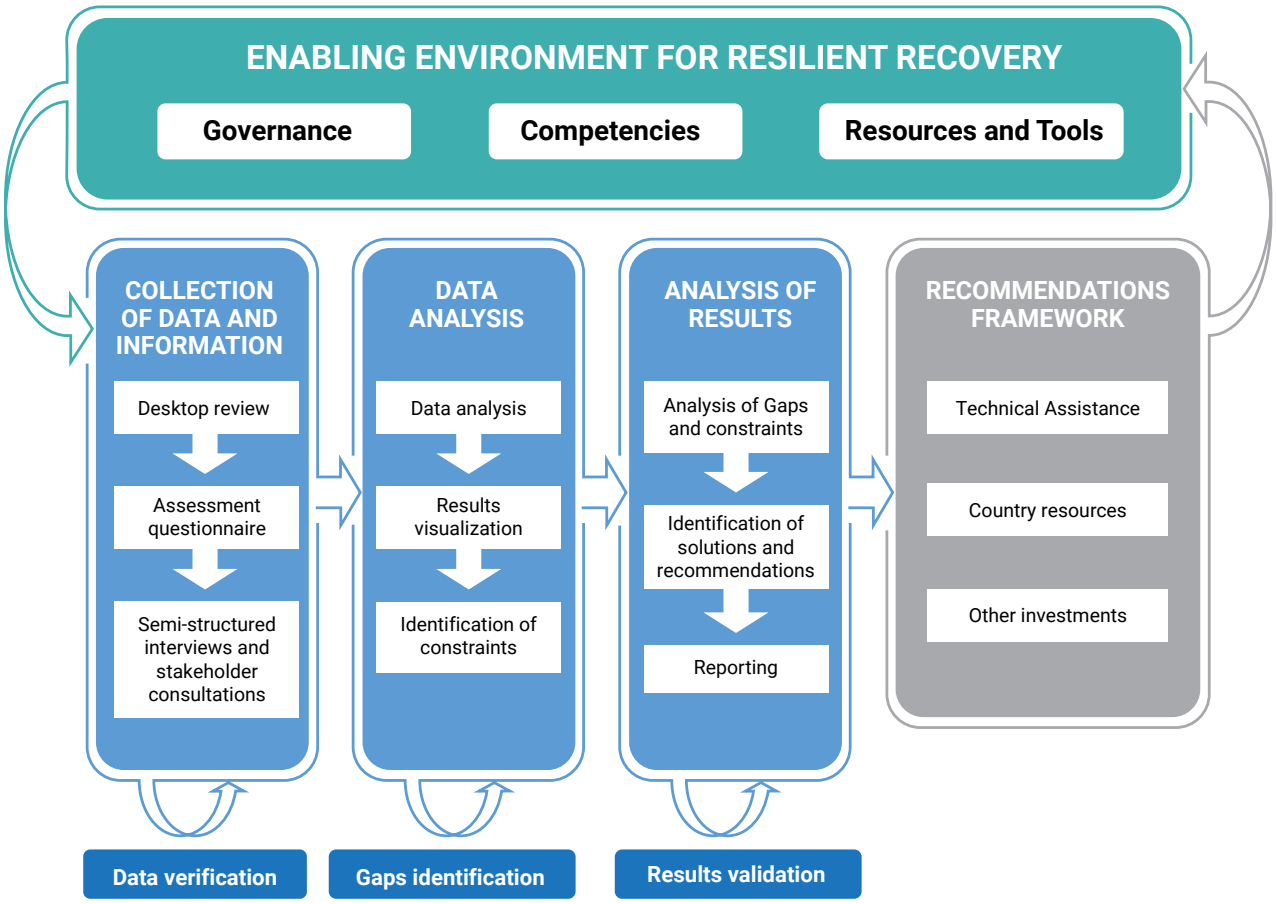
03 The Sectoral Recovery Capacity Assessment implementation process in Grenada

Photo: htomas | istock.com

In Grenada, the National Disaster Management Agency (NADMA) bears the institutional responsibility for disaster management. At the national and sectoral levels, NADMA works closely with and supports the work of ministries, line agencies, and other actors in risk management. This SRCA has been implemented under the leadership of the Housing Unit at the Ministry of Social Development, Housing and Community Development, and NADMA. The implementation followed the process presented in figure 6. It started with a briefing to the NADMA and the Housing Unit on the methodology and a desktop review. The Housing Unit of the MSDHCE completed the assessment questionnaire and coordinated a consultation, involving the HAG and other stakeholders, to confirm, complement, and discuss the responses provided on the questionnaire. The information collected was analyzed and results were presented and validated.

FIGURE 6

Diagrammatic representation of the assessment process



04
Results Overview

Photo: Christopher Klontz / istock.com

4.1 General Findings

The analyses conducted assessed the capacity of Grenada's housing sector to implement resilient and inclusive projects in a timely, efficient, and effective manner as basic or incipient, with a sector-level RCI of 42 (figure 7). The implementation of recovery projects is limited by an incipient integration of recovery considerations into national and sectoral governance frameworks (RCI of 46), specifically into national and sectoral policy and legislation, by the resources and tools (RCI of 43) and by the competencies, operational capacity, and skills available (RCI of 41), particularly, in the knowledge and skills available within the sector for planning and implementing recovery projects (RCI of 34).

The above findings are supported by the analysis of results at the key element level (figure 8), which confirm the need for building sectoral recovery capacity in all areas assessed. It should be noted that while this more in-depth analysis suggests that a moderate capacity exists at the level of strategies and plans available for recovery in the sector (RCI of 53), this capacity is yet to be realized as it depends on the finalization, approval, and operationalization of the MSDHCE National Multi-Hazard Disaster Emergency Management Plan for Grenada, Carriacou, and Petite Martinique. Despite reiterated calls for a more comprehensive approach to DRM, policies, laws, and regulations in Grenada remain focused on response and relief. Recovery —as a main phase of the disaster management cycle— is yet to be better understood and integrated into Grenada's DRM processes, in general, particularly into the MSDHCE processes.

The assessment found that the MSDHCE does not have the mandate or capacity to design and implement the full management cycle of recovery projects, as it lacks the necessary personnel, knowledge, skills, and tools. Post-Disaster Needs Assessments (PDNAs) are undertaken by the Ministry responsible for infrastructure and recovery priorities determined by the Ministry of Finance and funded by donors according to their own interests. However, findings and lessons learned from PDNA- and other DRM-related processes are not clearly communicated within the sector. National enterprises working in housing construction lack sufficient tools, knowledge, experience, and mentoring to ensure the BBB approach is applied during reconstruction interventions and much remains to be done to ensure enforcement in the application of building codes.

FIGURE 7

Recovery Capacity Index for the components assessed in the sector: Governance, Competencies (operational capacity) and skills, and Resources and tools.
Capacity levels are indicated by colored dots.

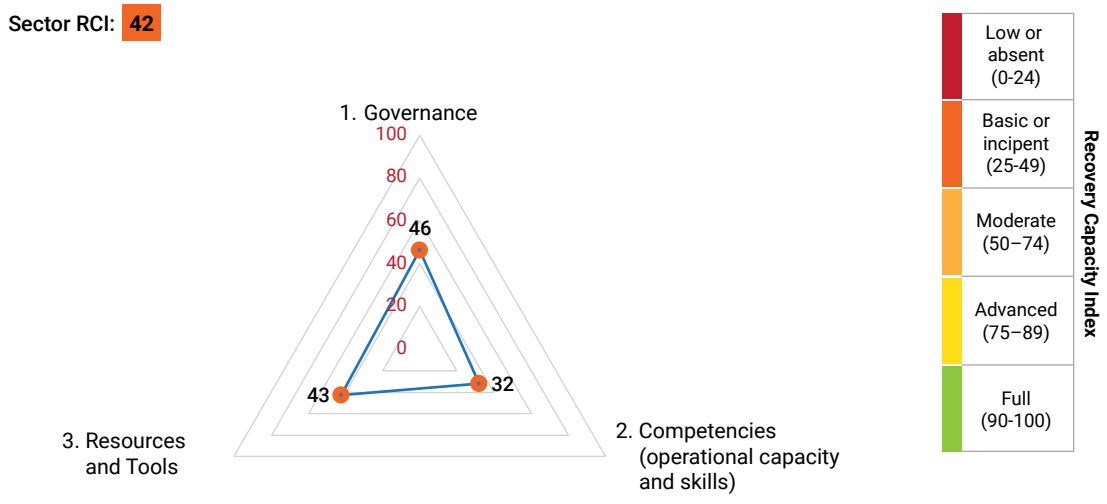
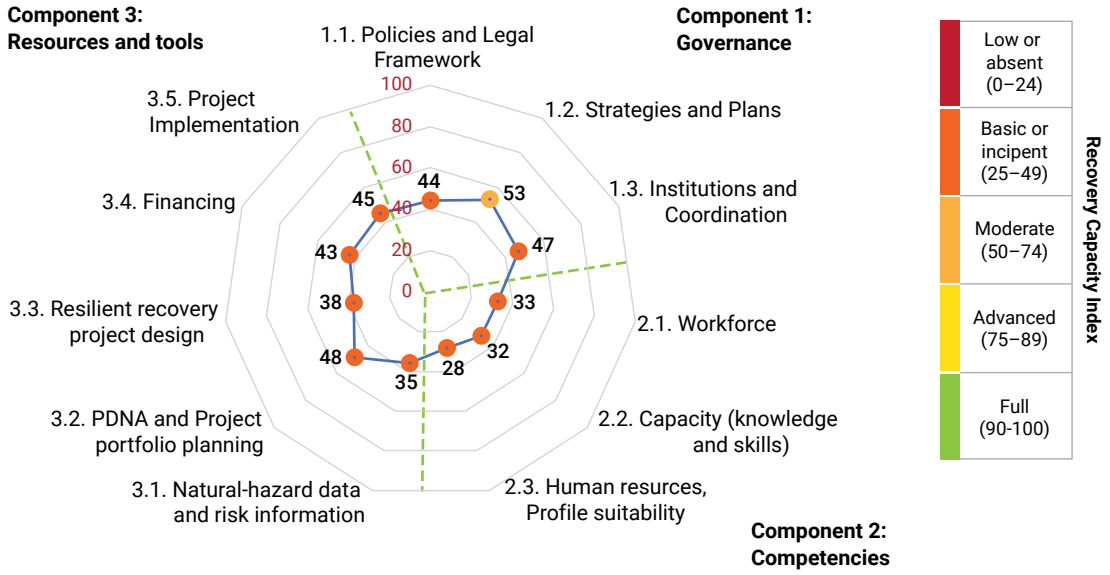


FIGURE 8

Recovery Capacity Index for the key elements assessed: Policies and legal framework; Strategies and plans; Institutions and coordination; Workforce; Capacity (knowledge and skills); Human resources, Profile suitability; Natural-hazard data and risk information; Post-Disaster Needs Assessment (PDNA) and Project portfolio planning; Resilient recovery project design; Financing; and Project implementation.
Capacity levels are indicated by colored dots.



Strengthening the capacity of the MSDHCE to acquire, sustain, and transfer to other actors in the housing sector gender- and disability-inclusive DRM and recovery knowledge and skills is crucial. It is also necessary to enable a significant increase in the number of staff working in NADMA and the housing institutions under the MSDHCE (RCI of 33) and to build national expertise in DRM, as professionals are sought to assist the MSDHCE with DRM functions, but not easily found in Grenada (RCI of 28). This, along with an improvement in the quality, availability, and access to and use of relevant natural hazard data and risk information, can contribute to enabling public and private actors in the sector to adopt a risk-based approach to project design and implementation, and build the foundations for effective DRM and recovery integration, coordination, and action.

In general, capacity building interventions are required to:

- Increase general DRM knowledge and basic DRM implementation capacity, with a focus on gender- and disability-inclusive recovery frameworks across key public and private actors in the housing sector. This can facilitate the coordination and execution of recovery planning before a catastrophic event and enable better communication on the topic within the sector and across government agencies.
- Strengthen and streamline strategic planning processes for recovery in the housing sector, including ex-ante definition of institutional arrangements for the development, coordination, and implementation of inclusive recovery strategies and plans.
- Strengthen the generation, recording, and management of hazard data and risk information, and its use in the design of resilient and inclusive recovery projects.
- Improve and more widely disseminate information on funding sources, opportunities, and access mechanisms for recovery in the sector. Information

should be shared using a range of communication platforms and networks utilizing accessible communication technologies, with a deliberate focus on reaching women, people with disabilities, and other excluded groups.

- Strengthen gender- and disability-inclusive DRM and climate change integration in project design, implementation, monitoring, and evaluation through early engagement and working in partnership with gender specialists, people with disabilities, or their agents.
- Enable MSDHCE staff to actively represent the housing sector in PDNA processes.

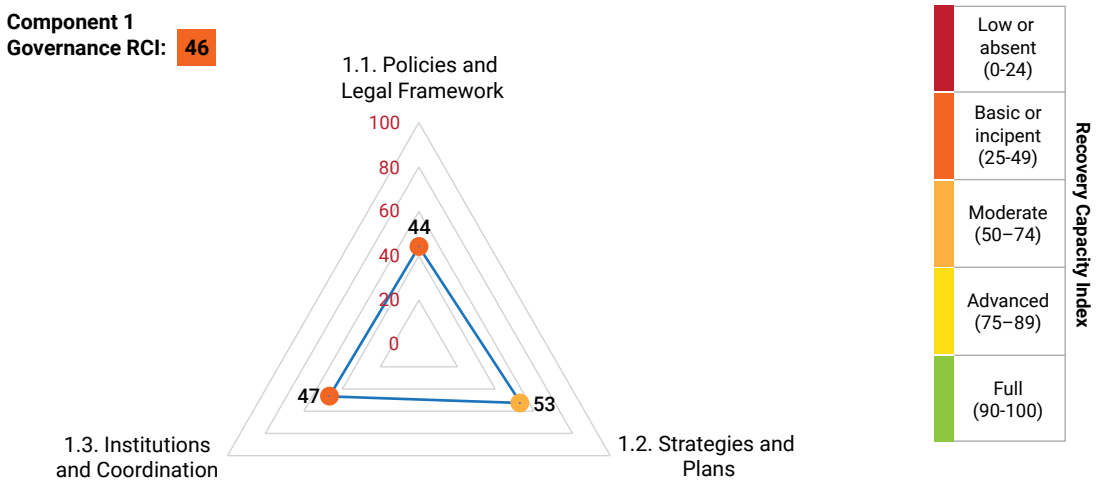
The following sections offer a more detailed analysis of the results obtained for each of the components assessed. Key recommendations, are provided in Section 5 and more detailed recommendations, including capacity building interventions, can be found in Annex 1.

4.2 Findings for Governance

At the level of governance, the capacity and enabling factors for recovery in the housing sector were assessed as basic, with an RCI of 46 (figure 9). The country has a clear DRM governance structure, where sectoral government agencies, the private sector, and civil society are well represented. However currently Grenada lacks a national DRM policy and a policy to guide the development of the social sector, including housing. National and sectoral DRM strategies, plans, and protocols exist although these are often outdated and are primarily focused on emergency preparedness and response (RCI of 53). In the aftermath of Hurricane Ivan Grenada established temporary plans and institutions to support recovery. However, only recently recovery has started to resurface in national development strategic and planning processes, including in the NSDP 2020-2035 and, in a broad sense, in the Disaster Resilience Strategy of 2021. The early stages of recovery are also included in a comprehensive multi-hazard disaster emergency management plan prepared by the MSDHCE that is yet to be approved and operationalized. Institutional roles in national DRM, including for coordination, have been established. However, intersectoral collaboration and coordination at the level of the housing sector requires improvement (RCI of 47).

FIGURE 9

Recovery Capacity Index for the key elements of Component 1: Policies and Legal Framework, Strategies and Plans, and Institutions and Coordination.
Capacity levels are indicated by colored dots.



The results obtained at the sub-element level support these findings (figure 10) and highlight that Grenada has a moderate capacity to integrate necessary DRM and recovery considerations into national policy (RCI of 50); to apply the BBB approach and building codes in recovery (RCI of 63 and 50, respectively). The capacity of institutions to lead recovery operations in housing was also found to be moderate (RCI of 56). All other governance sub elements ranked as basic or incipient.

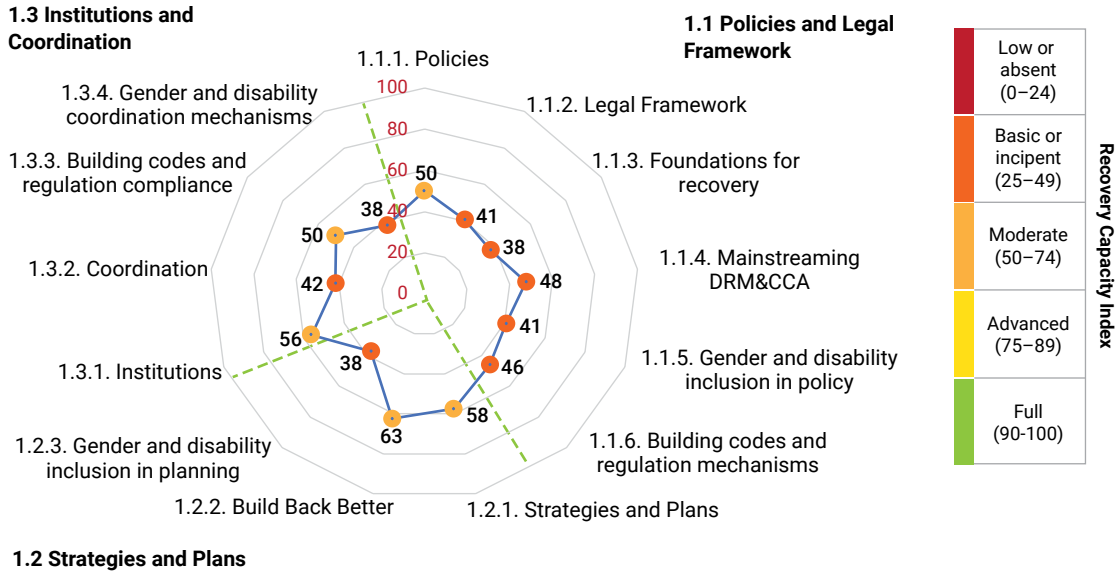
Important findings from the Policy and Legal Framework and other governance key elements include:

- In the absence of a national disaster policy, the National Disaster Plan of 2005 has been the most important, among the strategic planning documents elaborated in the past two decades, to provide DRM guidance in the country. This plan establishes institutional roles and mandates in the national disaster management system. This system consists of a National Disaster Management Advisory Council (NADMAC), with policy and strategic responsibilities for DRM, where various ministries, the police, the transportation sector, public utilities, relief agencies, community organizations, churches, and the private sector are represented and operate under the general direction of Grenada's Prime Minister. NADMA is the national DRM coordinating body. The DRM system operates through 15 National Committees chaired by Permanent Secretaries and Heads of Departments, which ensure that requisite emergency preparedness measures are instituted. Seventeen District Disaster Management Committees link national directions with communities. Each District Disaster Management Committee is chaired by a volunteer District Coordinator. NADMA is responsible for emergency management, development of national disaster plans, and coordination of any international assistance. The NADMA Secretariat executes the day-to-day program manage-

FIGURE 10

Recovery Capacity Index for the sub elements of Component 1: Policies, Legal Framework, Foundations for recovery, Mainstreaming DRM & Climate Change Adaptation (CCA), Gender and disability inclusion in policy, Building codes and regulation mechanisms, Strategies and Plans, Build Back Better, Gender and disability inclusion in planning, Institutions, Coordination, Building codes and regulation compliance, and Gender and disability coordination mechanisms.

Capacity levels are indicated by colored dots.



ment NADMA Secretariat while the National Committees are responsible for operational functions. NADMA also seeks to improve the capacity of the population of Grenada to prepare for, respond to, and recover from disasters.

- There is no comprehensive DRM legislation in Grenada. However, the Disaster Management Bill (2022), approved by the House of Representatives on May 10, 2022, and soon to be submitted for approval by the Senate and the Governor-General, offers a clear legislative basis to support the functions of the entities and actors involved in DRM.
- Grenada lacks a national policy for the housing sector and a national policy for urban development. However, the NSDP (2020-2035) acknowledges the urgent need for the formulation of a national climate-smart housing policy and strategy, along with a supporting legislative and regulatory framework. The Plan also calls for the systematic integration of climate-change considerations into housing developments and programs, the strict enforcement of building codes and standards with constant monitoring and review, the adoption of innovative technologies to expand access to affordable and climate-smart houses, and the expansion of financing options for housing.
- Risk management in the housing sector is mainly guided by the provisions included in Grenada's Land Management Policy, which was developed between 2016 and 2018, through the revision and updating of the Draft Land Development Policy of 1986 (revised in 1992). This document has been submitted to Cabinet and awaits approval and adoption.
- The MSDHCE has prepared a draft National Multi-Hazard Disaster Emergency Management Plan, which is national in scope, addresses preparedness, response, and early stages of recovery, and integrates gender and disability-differentiated needs. This plan provides clear roles, responsibilities, and guidance on operational procedures to be applied at the social development sector level after an emergency is declared. The plan also guides sub-sectoral agencies, in areas including housing, gender, and disability, in the preparation of their own multi-hazard emergency management plans and SOPs. However, this plan still needs to be approved and operationalized.
- Grenada follows the OECD Building codes, and compliance with building codes is a requirement for the financing of housing projects. However, the GoG has no effective mechanisms in place, or budget for monitoring the application of the codes beyond project design.
- There is no single institution in the country that is officially charged with the responsibility of leading recovery operations in the housing sector beyond the initial stage of recovery after a major disaster. The role of the MSDHCE, its Housing Unit. and the HAG is limited to restoring their services, ensuring that emergency housing interventions are implemented in adherence to building codes, and providing advice on priority housing interventions. The HAG also participates in the National Disaster Committee on Public Utilities, Rehabilitation, and Reconstruction, along with the ministries and agencies responsible for public works, finance, physical planning, and port management, among others. In post-disaster situations this committee oversees the relocation of people and assets from high-risk areas and manages buildings and infrastructure reconstruction efforts, including the procurement of building supplies. It is also responsible for planning, coordinating, and liaising with external assistance avenues for reconstruction and rehabilitation, if required. Improved communication between the HAG and the Housing Unit on DRM matters is required to strengthen the capacity of the sector's agencies to plan long-term resilience and recovery interventions.
- Mainstreaming of gender and disability inclusion into development and DRM processes has progressed over time. There is a draft of a National Policy for Disability, and both gender and disability are integrated into the National Sustainable Development Plan 2020-2035 (NSDP). The Grenada National Council of the Disabled, the umbrella NGO for disabilities in the country actively participates in NADMA's activities and trainings, while providing advice to national processes for PWD inclusion. Further, the upcoming MSDHCE National Multi-Hazard Disaster Emergency Management Plan assigns the Division of Gender and Family

Affairs with functions to ensure that gender-differentiated needs are considered in emergency and post-disaster situations.

Opportunities identified for strengthening recovery capacity at the governance level include:

- Ensuring the integration of DRM, climate change, disability inclusion, and gender considerations in the drafting process of the updated National Disaster Plan that NADMA will prepare. Grenada will greatly benefit from a clear definition of roles and responsibilities for DRM in the Plan, particularly for the coordination of recovery in the housing sector, and beyond the initial stages of recovery.
- Completing the approval process for the Disaster Management Bill.
- Approving and initiating the implementation of the National Multi-Hazard Disaster Emergency Management Plan drafted by the MSDHCE. Strong collaboration between the Housing Unit, the HAG and NADMA is recommended for the creation of a planning framework and SOPs for DRM and recovery in housing as part of the implementation of this Plan.
- Formulating a National Climate-Smart Housing Policy and Strategy, supported by a relevant legislative and regulatory framework —including recommendations on gender and disability— and prioritizing appropriate retrofitting solutions to enhance resilience to the impact of multiple hazards.

4.3 Findings for Competencies

The capacity and skills existing in Grenada's housing sector are basic and insufficient to design and implement resilient and inclusive recovery projects. This is indicated by the RCI of 32 obtained for the Competencies component (figure 11), which indicates that institutional limitations affect the effective consideration and integration of DRM and recovery in relevant sectoral processes. Major limitations were identified at the level of the three key elements included in this component: workforce (RCI of 33), knowledge and skills (RCI of 32), and human resources (RCI of 28).

The results at the level of sub elements support these findings (figure 12) and clearly highlight capacity limitations that exist both in sectoral government institutions and private enterprises for all competencies addressed by the assessment. In general, the level of DRM knowledge in the housing sector is low and there

FIGURE 11

Recovery Capacity Index for the key elements of Component 2: Workforce, Capacity (knowledge and skills) and Human Resources, Profile suitability.
Capacity levels are indicated by colored dots.

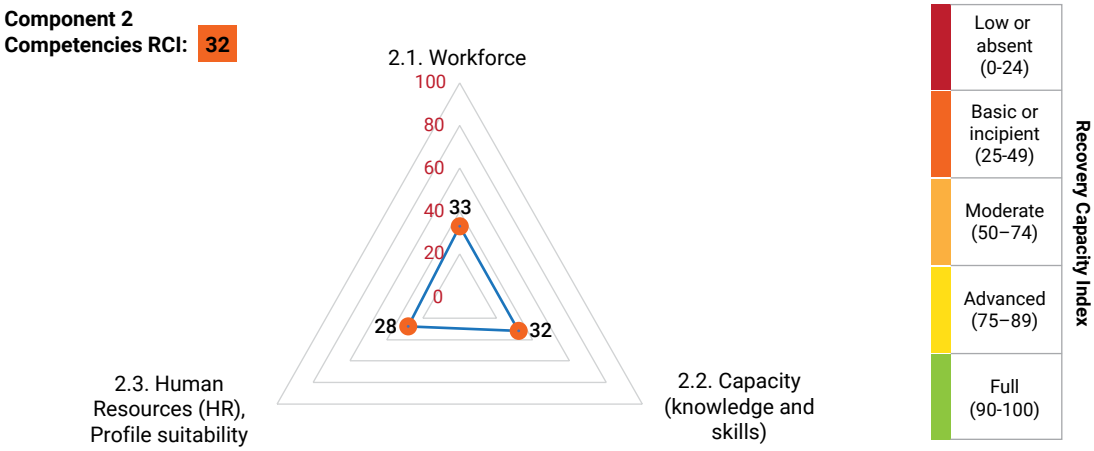
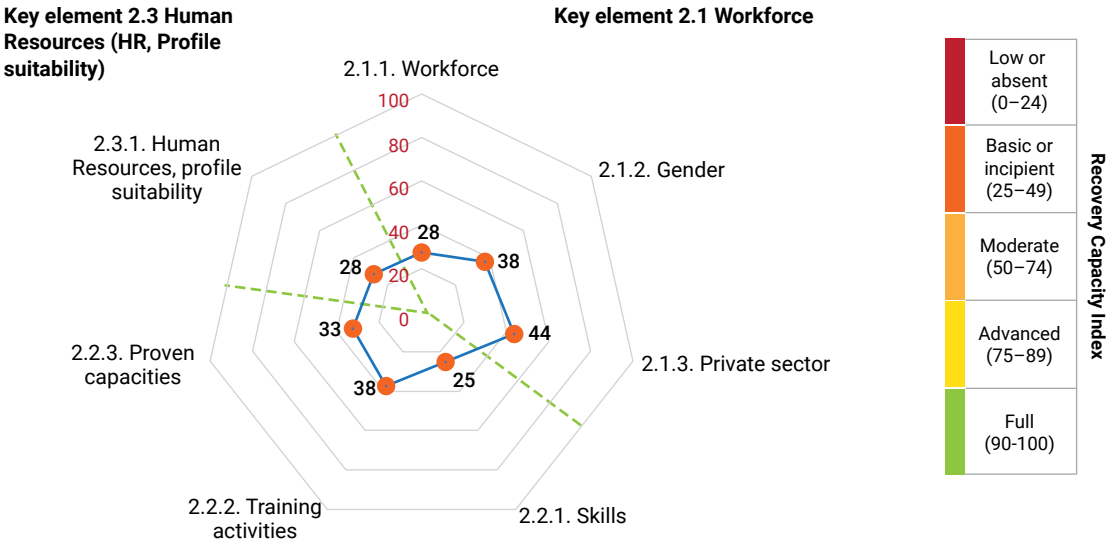


FIGURE 12

Recovery Capacity Index for the sub elements of Component 2: Workforce; Gender; Private sector; Skills; Training activities; Proven capacities; and Human Resources, profile suitability.

Capacity levels are indicated by colored dots.



is an insufficient number of permanent staff trained in DRM, including in recovery (Workforce RCI of 28), and gender and disability inclusion (Gender RCI of 38). There is practically no staff with the required knowledge of DRM methods and tools and with the expertise to implement resilient recovery projects (Skills RCI of 25); and insufficient staff with adequate technical capacity for the implementation of Project Cycle Management (PCM) activities, including M&E, budgeting and financing tasks, as well as for the elaboration of quality Terms of Reference (ToRs) for recovery projects, the use of hazard maps, and the elaboration of recovery plans (Proven capacities RCI of 33). Both training and recruitment in these areas are urgently needed, along with mechanisms to ensure long-term DRM and recovery knowledge sustainability, and transfer within the sector.

The assessment of competencies indicates the following:

- There is only one contractual staff member of the MSDHCE working at the Housing Unit. Therefore, the knowledge, experience, and time and effort required to identify, plan, design, implement, and oversee resilient recovery projects in the unit is highly limited. To overcome this situation the MSDHCE recently opened a position for DRM support. The position remains open as a candidate with the required profile has not yet been found. Staff limitations also affect the other two government agencies involved in housing and NADMA. The Disaster Resilience Strategy (2022) identified that whilst NADMA needs at least 11 people to run its operations, it currently only has 6 permanent staff and 2 interns. with clear implications on Grenada's capacity to prepare for, respond to, and recover from disasters.
- Project officers trained in project management, gender mainstreaming, disability inclusion, and climate resilience work for the GoG. However, besides gender, these competencies do not reside within the MSDHCE, and although they can be called upon

when required, the capacity of the housing sector is limited when it comes to systematically applying knowledge and skills in these areas in day-to-day operations and decisions.

- Project Cycle Management (PCM) skills and knowledge are weak across government agencies in Grenada, including the agencies involved in the housing and infrastructure development. Despite some relevant training offered by international agencies in the past, PCM processes are not yet institutionalized. Staff shortages and weak PCM knowledge and skills contribute to weak project preparation and implementation in the country and represent major challenges to the design and implementation of resilient recovery projects.
- General and specialized knowledge and skills in DRM —especially in recovery— are needed both in private enterprises and government institutions associated with the housing sector. Specific areas where capacity-building interventions are required include:
  - Damage assessment and need analysis.
  - Geographic Information Systems (GIS), modelling, and scenario planning.
  - Hazard and risk map use.
  - PDNA and recovery planning.
  - Recovery project formulation based on PDNA results.
  - BBB and resilient infrastructure. Whilst BBB is being promoted and advocated for, operational information —including guidelines— are lacking. Sectoral stakeholders recognize their need for this information, particularly for training and skills building in the construction of resilient roofs and foundations.
- Building capacity of government agencies on DRM and recovery has not been implemented as part of the housing sector development agenda. Public recruitment protocols, such as ToRs, do not include knowledge on DRM, gender, or disability inclusion, which limits the likelihood of improving competencies required for recovery in a sustained manner. In addition, work opportunities abroad attract qualified individuals and contribute to human resource shortages for resilient recovery.
- Grenada lacks a training or mentoring program on the BBB approach —necessary for resilience building in the aftermath of disasters— and the opportunities for acquiring the necessary skills and knowledge are infrequent and, in most cases, targeted to sectors different from housing. Building capacity in planning and implementing BBB interventions is necessary for homeowners and national businesses that play a major role in housing construction, retrofitting, and reconstruction.

Opportunities to build the necessary knowledge and skills for resilient recovery in Grenada's housing sector include the following:

- Support the establishment and operationalization of the Sustainable Development Institute (SDI) of Grenada, a stand-alone agency with the mandate to coordinate the implementation of Grenada's NSDP. The SDI provides technical support for the design and preparation of the Medium-Term Action Plans (MATPs) and serves as the national coordinating entity for SDG implementation in Grenada. Ensuring SDI staff is equipped with the necessary skills for mainstreaming resilient and inclusive DRM and recovery is crucial as this agency is expected to support line ministries and departments in the preparation of sectoral strategies and plans, and will review policies, plans, programs, and projects across the Government to ensure that they are in line with the NSDP. SDI will also facilitate capacity building —including in M&E— to strengthen national institutional performance.
- Include and re-evaluate the implementation of capacity-building interventions on PCM, DRM, climate resilience, and gender- and disability- inclusion mainstreaming for all government agencies in each of the Medium-Term Action Plans (MTAPs) that will be prepared as part of the implementation of the NSDP.
- Include specific capacity building interventions for DRM and resilient housing and infrastructure construction and maintenance in the Climate-Smart Housing Policy and Strategy that will be prepared as part of the NSDP implementation.
- Establish project management, GIS, and climate-resilient housing and infrastructure programs in the Certified skills training centers that will be estab-

lished as part of the NSDP implementation to train secondary and post-secondary level students in creative arts, technology, and engineering disciplines to meet the demands of emerging industries.

- Integrate DRM, gender, and disability inclusion–considerations into all of Grenada's National Training Agency (NTA) programs and ensure their training on Construction, Engineering, and Maintenance include lessons on the BBB approach.
- Create and tailor DRM and project management trainings for public servants to the needs of the housing and infrastructure sectors, while exploring possibilities for continuous training delivered by national academic institutions.
- Develop guidelines in the BBB approach to be followed in all new housing projects and used in training and other capacity-building opportunities.
- Establish credentials for DRM, including recovery skills, and offer or mandate training of all public sector officials, and of all private sector contractors and staff working on contract.
- Encourage donors to support provision of technical experts to cover knowledge gaps and constrained workforce and to offer both technical and financial assistance for capacity-building programs.

4.4 Findings for Resources and Tools

The resources and tools available for resilient recovery in Grenada's housing sector are assessed as basic or incipient, with an RCI of 43 (figure 13). The systematic consideration of risks in the management processes of the housing sector and other sectors in Grenada is limited by the availability, generation of, access to, and use of natural hazard and risk information (RCI of 38), specifically of functional, up-to-date, and useful information to plan, design, and implement risk-based projects and resilient investments, including recovery interventions. This encompasses data and information that is of high quality and systematically collected or generated, at a frequency and scale that can be used for housing projects and investments, including gender- and disability-disaggregated data. The analysis of RCI values at the sub element level support these results (figure 14), and also shows that the areas from where higher RCI values were obtained correspond mainly to those that relate to donor requirements (for example, M&E tools, with an RCI of 50) or to those for which agencies outside the MSDHCE are responsible (for example, building codes, planning of recovery priorities, and access to recovery funding).

FIGURE 13

Recovery Capacity Index for the key elements of Component 3: Natural hazard data and risk information, PDNA and Project portfolio planning, Resilient recovery project design, Financing, and Project implementation.
Capacity levels are indicated by colored dots.

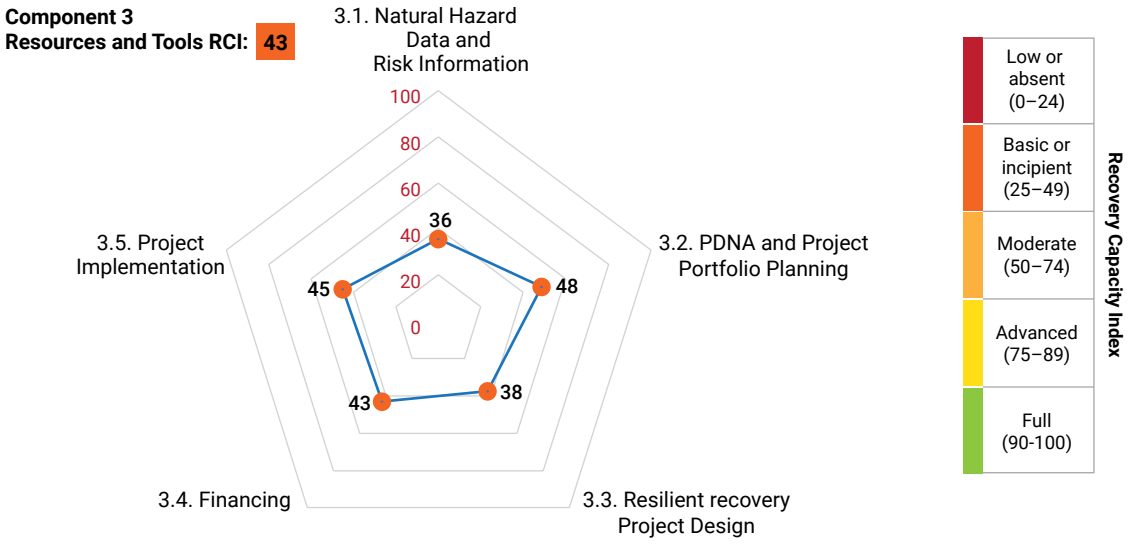
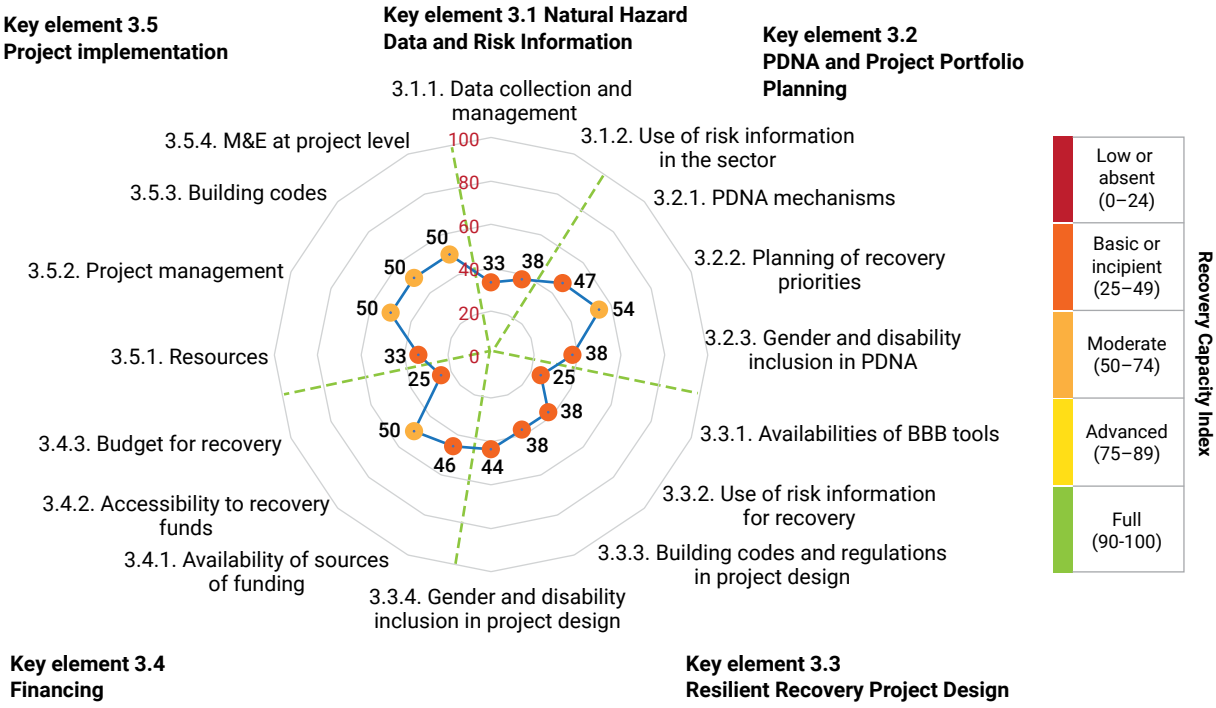


FIGURE 14

Recovery Capacity Index for the sub elements of the key elements of Component 3: Data collection and management, Use of risk information in the sector, PDNA mechanisms, Planning of recovery priorities, Gender and disability inclusion in PDNA, Availability of BBB tools, Use of risk information for recovery, Building codes and regulations in project design, Gender and disability inclusion in project design, Availability of sources of funding, Accessibility to recovery funds, Budget for recovery, Resources, Project management, Building code implementation resources and M&E at project level.

Capacity levels are indicated by colored dots.



Detailed findings of the assessment include the following:

- Although natural hazard data and risk information exist, it is incomplete and mostly outdated. The Draft National Land Policy of 2016 indicates that the risk-mapping exercises completed in Grenada include: a school construction risk assessment, a school landslide vulnerability assessment, a shelter vulnerability assessment, and a coastal multi-hazard analysis prepared for selected communities. It also confirms that a national-level comprehensive multi-hazard map has not yet been prepared and that the country needs updated hazard maps, national topographic maps, as well as soils, infrastructure, rainfall, and other base map elements. A comprehensive natural resource inventory and mapping is also lacking.
- The collection and management of hazard and risk data in Grenada does not follow a systematic approach and this information is not accessible without requests nor is it used by all agencies involved in the housing sector. Similarly, data on damage and losses caused by disasters is recorded for large impact events but not for low impact —but frequent— events (IMF 2019). The absence of an updated, digitized, and geolocated national cadastre, as well as of an inventory of public assets, further reduces the opportunity of making risk-informed decisions across the housing and infrastructure sectors.
- A national data repository with online and public access, and an associated knowledge management

system that screens for data quality is required, along with awareness-raising efforts among GoG's staff on the need to systematically use hazard-related information and mapping while making economic decisions.

- Although housing has been the sector most affected by high impact disasters, including Hurricane Ivan, the agencies involved in the housing sector do not directly participate in PDNA processes, as, for this purpose, housing falls under the responsibility of the Ministry in charge of infrastructure. Strengthening the coordination of the exchange of information acquired and lessons learned among the agencies involved in PDNA elaboration and those in charge of housing is required.
- Investments are urgently needed to retrofit sub-standard housing units and climate-proof critical infrastructure in Grenada, including infrastructure assets that are essential for building resilience to climate and natural hazards in the housing sector. Whilst the country has been increasing its climate adaptation budget in recent years (1.8 percent of GDP in 2019), preliminary estimates indicate that Grenada would need to allocate about 4 percent of its GDP as soon as possible for 15 years, to cover national adaptation priorities, including those related to climate-resilient infrastructure. This also includes the budget required to transform St. George's into a climate-smart city, taking into consideration the projected SLR. The Disaster Resilience Strategy (2021) lays out a general plan for funding these expenditures. However, given staffing and capacity constraints, it suggests that donors provide capacity support to their specific projects to increase efficiency. Further it proposes —as a strategic action— establishing criteria and systems for estimating maintenance and rehabilitation costs for public physical infrastructure.
- Building codes exist and are integrated into the designs of new constructions, including public buildings. However, their application enforcement at the construction stage is weak and the codes are often completely disregarded in small-scale housing projects, particularly in informal private projects.
- Grenada has made major efforts to improve its financial resilience to disasters. In 2019 the country adopted its National Disaster Risk Financing Strategy (DRFS) and its associated implementation plan. The DRFS seeks to build complementarity between several risk retention and risk transfer instruments, and to provide adequate access to financial resources in the event of a disaster. The DRFS is based on a risk- layering framework that covers incremental risk and damage. It layers self-insurance in the form of a contingency fund; risk transfer mechanisms such as coverage by the Catastrophe Risk Insurance Facility (CCRIF), the World Bank's CAT-DDO, the hurricane clause for debt service, and private sector insurance mechanisms. The implementation of the DRFS has rapidly advanced, however there is room for improvement in the coverage provided by the layered system adopted (GoG 2021).
- The adoption and offer of private property insurance options need to be strengthened in Grenada. The country's insurance sector is small and fragmented and lacks trust and confidence by homeowners. Only 20–40 percent of homeowners have insured their properties against windstorms and most people who have taken an insurance have done it to access their mortgages. They often only insure the value of their loans and cancel the insurance after the loan is repaid. Consequently, home insurance settlements are often insufficient because properties were underinsured or because material prices increased following a disaster. Low-income homeowners can access insurance from wind and excess rain through the Livelihood Protection Policy, a weather index-based insurance policy that provides timely cash payouts after major weather events. This insurance is available through cooperative banks, credit unions, and farmer associations, among other local channels.
- The MSDHCE does not have a budget line earmarked for recovery, or direct access to recovery funding. Sectoral public stakeholders state that accessing such funding is difficult and time-demanding and they are not aware of international funding sources for recovery interventions in the housing sector.
- As the MSDHCE is not directly involved in large recovery interventions, the housing institutions it hosts do not have a list of qualified contractors to undertake recovery operations. Further, the stake-

holders interviewed for this assessment do not consider that the GoG has the necessary equipment to implement large-scale reconstruction after a major hazard event.

- The Housing unit and the HAG use very simple Microsoft Office tools for project management and conduct M&E tasks on a project basis, using the M&E tools requested by donors. However, access to up-to-date hardware and software —including basic computers— is often a limitation to the MSDHCE staff who work on housing.

The assessment identified the following opportunities to strengthen the resources and tools available for recovery in Grenada's housing sector:

- Use the opportunities presented by new development projects —funded by international donors— to build through technical assistance, national and sectoral capacity to generate, manage, and use hazard and risk information.
- Embed basic inclusive recovery and DRM elements (hazards, risk assessments, and measures) in all project management cycle protocols used in the sector.
- Include sectoral DRM allocations in the budget construction and planning processes of the country and donors.
- Increase the visibility of recovery-financing options for the sector and build requisite capacity on access protocols and criteria.
- Integrate the BBB approach and the application of appropriate building codes as requirements in the planning and design of national and sectoral strategies, plans, and budgets, particularly those related to recovery.
- Strengthen PDNA data collection processes by directly involving public institutions in charge of housing, and by establishing approved data management standards and sharing protocols.
- Conduct a nationwide exercise to test and evaluate the application of existing DRM and recovery protocols, with a specific focus on the housing sector. This exercise would identify their strengths and weaknesses, and would help guide the design of capacity-building interventions, including training, tailored for the sector's stakeholders.

4.5 Findings for the Inclusion of Gender and Disability in Recovery Processes

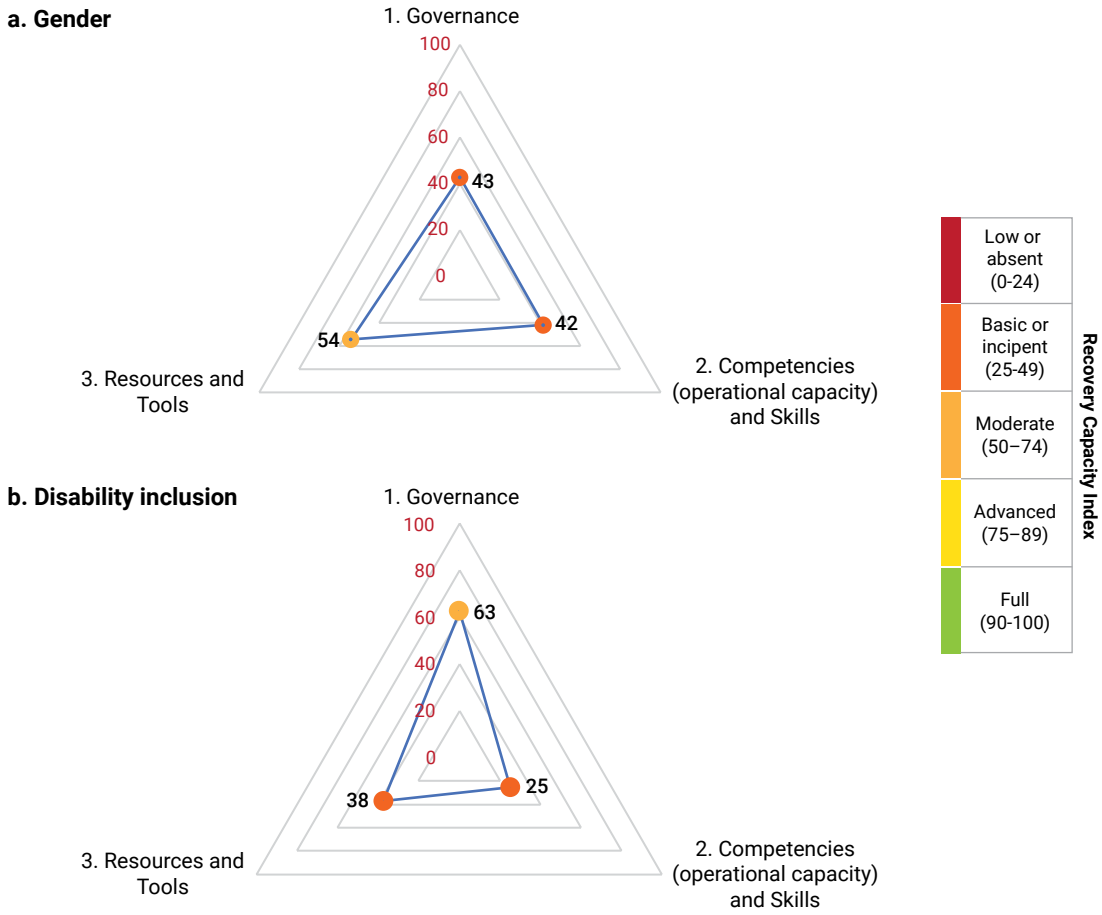
In general, the capacity of government agencies to integrate gender and disability considerations into the design and implementation of recovery projects is incipient. The needs of women, girls, men, boys, and PwD have been superficially included in the existing DRM policy and legal framework, as shown by the RCI of 43 and 63, respectively (figure 15). The MSDHCE has a gender specialist with multiple functions but no disability experts on a permanent basis, which limits the mainstreaming of disability inclusion into all operations, including into strategic planning and project implementation processes (RCI of 25). The level of resources and tools available for integrating gender considerations into recovery processes was assessed as moderate (RCI of 54) while existing resources and tools for disability inclusion in recovery are only basic (RCI of 38).

Government and NGOs with gender and disability inclusion mandates are involved in DRM activities led and coordinated by NADMA. However, this engagement is relatively weak and usually based on ad hoc awareness-training opportunities, and on participation in committees that are making DRM decisions —around policy and operations— often late in the process.

Currently, gender needs and disability inclusion are not consistently integrated in the design and implementation of housing projects, although requirements —including those in building codes— exist.

FIGURE 15

Recovery Capacity Indexes for a. Gender and b. Disability inclusion at the level of the components assessed: Governance, Competencies (operational capacity) and Skills, and Resources and Tools.
Capacity levels are indicated by colored dots.



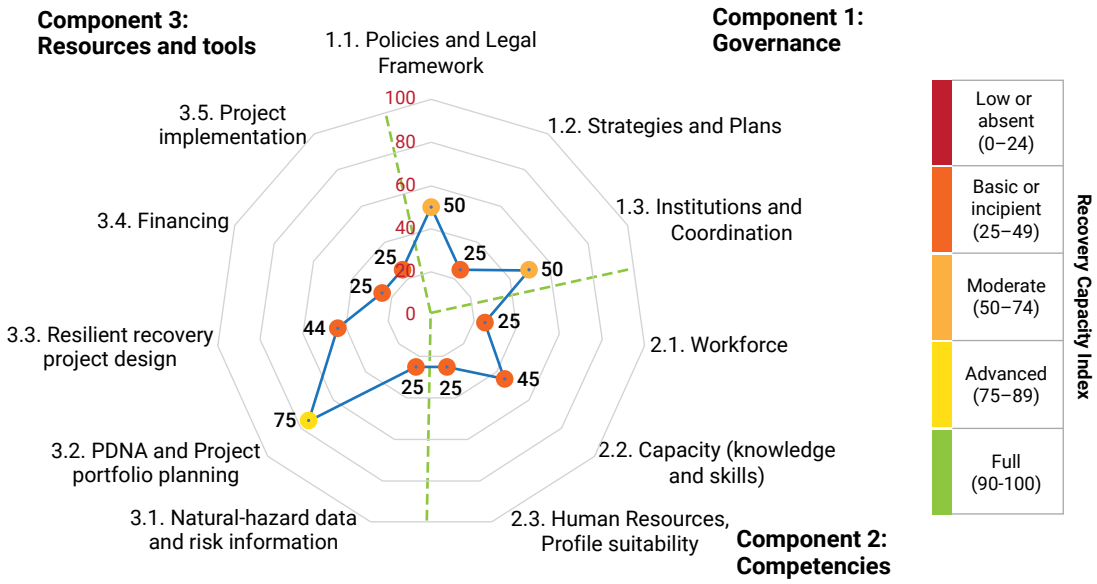
Recommendations

A series of steps are needed to ensure that recovery efforts are likely to be gender- and disability-inclusive. These include:

- Developing explicit operational guidance in policy and legal frameworks to ensure gender and disability inclusion are systematically considered in DRM.
- Recruiting dedicated staff with the requisite skills on gender and disability inclusion at NADMA, on disability inclusion at MSDHCE, and integrating these issues in HR protocols and processes to build and retain in-house capacity. At present, minimum knowledge of these issues is not included as a requirement in public recruitment processes.
- Elaborating guidance for staff, and training in gender and disability inclusion with a focus on DRM.
- Collecting robust disaggregated gender and disability data and storing it in managed and accessible databases.
- Enabling a more direct engagement of people with disabilities or their representatives with the housing sector in planning for recovery projects and BBB.

FIGURE 16

Recovery Capacity Index for Gender and Disability inclusion in recovery processes at the level of the key elements assessed: Policies and legal framework; Strategies and plans; Institutions and coordination; Workforce; Capacity (Knowledge and skills); Human resources, profile suitability; Natural hazard data and risk information; PDNA and project portfolio planning; Resilient recovery project design; Financing; and Project implementation.
Capacity levels are indicated by colored dots.



05 Recommendations

Photo: Orietta Gaspari | istock.com

The following points summarize the recommendations of this assessment, which are detailed in Annex 1. They are made with the objective of building and strengthening the capacity of Grenada's housing sector to prepare for the implementation of resilient and inclusive recovery projects well before disasters strike. The recommendations respond to the capacity needs for recovery identified in the SRCA, existing opportunities, and recommendations made by the consulted stakeholders, as well as by sectoral experts, gender and disability inclusion specialists, and World Bank experts. These recommendations principally target central government ministries, the MSDHCE, NADMA, CDEMA, and donor agencies involved in DRM and resilience building processes in the country.

Policy and strategic recommendations:

- Integrate climate-resilient and inclusive recovery considerations into the national and sectoral policy framework by: the finalization and approval of the MSDHCE's National Multi-Hazard Disaster Emergency Management Plan, as well as through the elaboration of the sub-sectoral multi-hazard emergency management plans and SOPs it mandates; the elaboration of NADMA's upcoming National Disaster Plan, and the formulation of the National Climate-Smart Housing Policy and Strategy.
- Accelerate the approval of the Draft National Land Policy and the Disaster Management Bill and elaborate a national urban planning policy and strategy.
- Identify steps that need to be taken to enhance women's participation in the housing and construction sector at all levels and identify their roles, earnings, and skills, to mainstream women's participation in the sector. To that extent, a strategy with accompanying incentive mechanisms, training programs, and alike, may need to be developed.

Physical investments:

a) Infrastructure

- Reduce the vulnerability of critical infrastructure to climate change and weather extremes to lower the risk of disruptions that affect Grenada. This involves implementing the Disaster Resilience Strategy strategic actions pertaining to infrastructure, namely, ensuring that all critical infrastructure projects in the national project pipeline and the National Adaptation Plan are screened for climate resilience and ready to finance by conducting the necessary studies, and creating an overall asset management and maintenance process for infrastructure.
- Encourage homeowners to retrofit their properties to resist major adverse events by creating a technical assistance plan with a range of risk reduction interventions, including for resilient roofing and foundations, and improved guttering and drainage, and increasing septic tank volumes to compensate for flooding.

b) Equipment, systems, and financial resources:

- Strengthen the generation, management, and use of risk and recovery-relevant data and information across sectors by: setting up a clearinghouse and data management unit, and a national data repository with online and public access; a national georeferenced digital cadastre, and a national public assets inventory, as well as by developing flood models for coastal areas under SLR; and integrating gender and disability-inclusive DRM considerations in the upcoming housing census.
- Strengthen sectoral budgets for DRM and recovery by accelerating the operationalization of the DRFS and estimating and including a contingent annual recovery allocation in the MSDHCE's budget.
- Ensure the necessary infrastructure, equipment, and tools are available for large-scale recovery interventions through a capacity assessment of the adequacy of existing infrastructure and equipment across parastatal agencies.
- Enhance resilience and recovery funding instruments for homeowners by creating the conditions for private insurance companies to improve the offer and cost of property insurance options for increased adoption.

- Create a plan to finance hardware and software updating and maintenance at the MSDHCE and NADMA to facilitate project management operations.

Capacity strengthening:

- Raise awareness, at the strategic and operational levels, of the added value of acquiring and sustaining DRM and inclusive recovery capacity for the development of all sectors, including housing. This can be achieved through well-designed awareness-raising campaigns and events for public officers.
- Build and sustain the required knowledge and skills for the implementation of resilient and inclusive recovery projects in the housing sector through the recruitment of specialized staff in areas specific to DRM and project management; the institutionalization of training in DRM, disaster cycle management, recovery and gender analysis and integration; establishing collaboration with academic institutions for the delivery of programs on project design and management, gender and DRM, tailored to the needs of the sector; and the improvement of public recruitment protocols, among other measures.

06 Conclusion

Photo: Orietta Gaspari | istock.com

The analyses conducted in this assessment determined that the capacity of Grenada's housing sector to implement resilient and inclusive projects in a timely, efficient, and effective manner is basic or incipient, with a sector-level RCI of 42. The implementation of recovery projects is limited by an only incipient integration of recovery considerations into national and sectoral governance frameworks (RCI of 46), specifically into national and sectoral policy and legislation, by the resources and tools (RCI of 43) and by the competencies, operational capacity, and skills available (RCI of 41), particularly, in the knowledge and skills available within the sector for planning and implementing recovery projects (RCI of 34).

Governance

The findings underscored the need for concrete actions to build and sustain national and sectoral knowledge and skills to ensure that the country and sector can systematically integrate resilient recovery considerations into their plans, programs, and projects in an effective and coordinated manner. Equally critical is to update the existing natural hazard data and risk information, ensuring that it is easily accessible to all housing actors in Grenada; to elaborate and operationalize a climate-smart housing policy inclusive of DRM and recovery considerations and responsive to differentiated gender and disability needs; to strengthen inter-agency coordination mechanisms for the design, implementation, monitoring, and evaluation of recovery project portfolios.

Grenada lacks a national policy for the housing and urban development sectors, and the NSDP (2020-2035) acknowledges the need for a national climate-smart housing policy and strategy. Risk management in the housing sector is guided by the provisions in Grenada's Land Management Policy, which is still awaiting approval and adoption. The MSDHCE has drafted a National Multi-Hazard Disaster Emergency Management Plan integrating gender and disability differentiated needs, but it still needs to be approved and operationalized. Compliance with building codes is a requirement for housing project financing, but there are no effective mechanisms or budget for monitoring their application beyond project design. There is also no single institution responsible for leading recovery operations in the housing sector, and improved communication between stakeholders is needed to strengthen the capacity of sector agencies to plan for long-term resilience and recovery interventions. Gender and disability inclusion have been mainstreamed into development and DRM processes, with the National Sustainable Development Plan 2020-2035 and the upcoming MSDHCE National Multi-Hazard Disaster Emergency Management Plan assigning functions to ensure inclusion of these marginalized groups. This is a positive action, which leaves Grenada comparatively better placed vs. many Caribbean neighbors.

Competencies

When it comes to competencies, the housing sector in Grenada faces significant gaps in capacity and knowledge areas of disaster risk management (DRM) and recovery, which hinder the country's ability to prepare for, respond to, and recover from disasters. The limited number of staff and weak Project Cycle Management (PCM) skills across government agencies contribute to weak project preparation and implementation. Specific areas for capacity building include damage assessment, GIS, PDNA, and resilient infrastructure. The lack of DRM, gender, and disability inclusion knowledge in public recruitment protocols limits the likelihood of improving competencies required for recovery in a sustained manner. Additionally, Grenada lacks a training or mentoring program on the BBB approach necessary for resilience building after disasters. Building capacity in planning and implementing BBB interventions is necessary for homeowners and national businesses that play a significant role in housing construction, retrofitting, and reconstruction. Overall, there is a critical need to invest in building capacity and improving knowledge in DRM and recovery within the housing sector in Grenada.

Resources and tools

Finally, Grenada faces several challenges regarding the resources and tools used in managing natural hazards and risks in the housing sector. While some risk-mapping exercises have been completed, they are mostly outdated and incomplete, and the in-country collection and management of hazard and risk data is not systematic. There is a need for a national data repository with online and public access and an associated knowledge management system that screens for data quality. Housing is the sector most affected by high-impact disasters, and investments are urgently needed to retrofit sub-standard housing units and climate-proof critical infrastructure. Building codes exist but are weakly enforced, particularly in informal private projects. Grenada has made major efforts to improve its financial resilience to disasters through its National Disaster Risk Financing Strategy. In addition, the coverage provided by the layered system adopted by Grenada offers room for improvement. The integration and offer of private property insurance options need to be strengthened, so low-income homeowners can access insurance through the Livelihood Protection Policy. The MSDHCE faces challenges in accessing recovery funding and implementing large-scale reconstruction after a major hazard event, and access to up-to-date hardware and software is often a limitation for staff. To address these challenges, there is a need for greater coordination between agencies involved in the housing sector and PDNA processes, and for donors to provide capacity support to specific projects to increase efficiency. Finally, the GoG staff need to be trained to systematically use hazard-related information and mapping while making economic decisions.

This assessment calls for investments in resilient infrastructure to reduce disaster risks in Grenada's housing sector in the face of increasingly frequent extreme events and the impacts of climate change, including rising sea levels. It is expected that the results and recommendations made in this report will be taken into consideration and implemented by national and international agencies supporting Grenada's efforts to build resilience.

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Annex 1.

Specific recommendations to strengthen the capacity of Grenada's Housing sector for resilient and inclusive recovery

GOVERNANCE: Recommendations and potential actions to strengthen the policy and regulatory framework for resilient and inclusive recovery.

Recommendations	Actions
Strengthen the enabling national and sectoral policy and regulatory environment for recovery	» Facilitate the integration of climate resilience and gender- and disability-inclusive recovery considerations into the national and sectoral policy framework. Specifically: » Finalize and approve the MSDHCE's National Multi-Hazard Disaster Emergency Management Plan as well as through the elaboration of the sub-sectoral multi-hazard emergency management plans and SOPs it mandates (including for housing). » Accelerate the approval of the Draft National Land Policy and the Disaster Management Bill. » Elaborate a National policy for urban development that is risk-informed and builds resilience to natural hazards and climate change.
	Establish mechanisms that support the operationalization of recovery enabling policies. Specifically: » Revise and update the National Disaster Plan of 2005, including clear considerations for the entire recovery phase of the disaster management cycle, and for recovery in the housing sector, indicating roles and responsibilities for each of the agencies involved in housing development. » Establish clear communication channels for the sharing of PDNA findings and lessons learned between the agencies involved in PDNA preparation and those in charge of housing.

COMPETENCIES: Recommendations and potential actions to build the required competencies (knowledge and skills) required for resilient and inclusive recovery.

Recommendations	Actions
Raise awareness, at the strategic and operational levels, of the added value of acquiring and sustaining DRM and recovery capacity for the sector's development	» Develop awareness-raising campaigns that are gender- and disability-informed, including events and materials to highlight the risks associated with climate change on the housing sector and provide recommendations for impact reduction. To ensure inclusion, the campaigns should be developed in consultation/partnership with PwD and facilitated to support their active participation. » Organize events for public officers on the importance of gender- and disability-inclusive recovery as a mechanism to strengthen resilient development efforts, placing specific focus on the need to integrate recovery considerations in policies, strategies, plans, programs, and projects to reduce losses and damages from disaster events. Actively involve PwD or their representatives in these events.
Build and sustain the required knowledge and skills for the implementation of resilient and inclusive recovery projects in the sector	» Institutionalize and implement training of sectoral staff in DRM, disaster cycle management and recovery and gender analysis and integration, to ensure requisite knowledge and skills are developed and sustained. » Create a recruitment plan to provide the agencies in charge of housing and NADMA with sufficient personnel to run their operations effectively. » Recruit skilled staff specialized in areas specific to DRM, specifically, disaster cycle management and recovery and disability inclusion, to cover urgent gaps. » Include in public recruitment protocols specific requirements to ensure new staff can systematically and sustainably cover the limitations in knowledge and skills that affect the planning and execution of recovery projects. These should include basic experience on the use of DRM tools and methodologies and gender and disability analysis. » Create alliances with donor agencies and programs to cover urgent capacity gaps through direct technical assistance to the MSDHCE and NADMA, as well as to fund training programs for sectoral staff in the areas required and to support the institutionalization of DRM capacity building in the public sector. Donor funding could largely contribute to strengthening the capacity of the MSDHCE to facilitate the building of DRM capacity across private and public stakeholders involved in housing. » Create a facilitated, formal, and regular capacity building training program, on DRM and resilient recovery with the participation of housing sector stakeholders. » Train public and private staff working in the sector in requisite tasks for the implementation of resilient recovery projects. This includes training in: > GIS and remote sensing. > Hazard mapping. > Disaster preparedness, response, and recovery > BBB approaches, building codes, and other resilience norms. > Disability inclusion. > Gender analysis and integration. > Project Cycle Management (including M&E). > DRM and recovery communication and awareness raising skills. » Articulate existing capacity-building opportunities with sectoral needs by creating and/or tailoring academic programs and other training opportunities to the sector. This may include: > Creating and tailoring resilient infrastructure and BBB trainings for local contractors working in housing construction in the Certified Skills training centers that will be established as part of the NSDP implementation.

Recommendations	Actions
	> Integrating DRM, gender, disability inclusion, and climate resilience into all of NTA's programs. > Creating BBB approach implementation guidelines to be used and taught at the Construction and Engineering training delivered by NTA. » Encourage donors to support provision of technical experts to cover knowledge gaps and constrained workforce and to offer both technical and financial assistance for capacity building programs. » Establish credentials for DRM, including recovery skills, and offer or mandate training of all public sector officials, and of all private sector contractors and staff working on contract. » Support the creation of the and operationalization of the Sustainable Development Institute (SDI) of Grenada and its role as facilitator of capacity building across GoG agencies on issues to strengthen national institutional performance, including PCM (and M&E). » Include and re-evaluate the implementation of capacity-building interventions on PCM, DRM, climate resilience, and gender and disability inclusion mainstreaming for all government agencies in each of the NSDP's Medium-Term Action Plans (MTAPs)

RESOURCES AND TOOLS: Recommendations and potential actions to ensure the sector has the resources and tools required to undertake resilient and inclusive recovery projects.

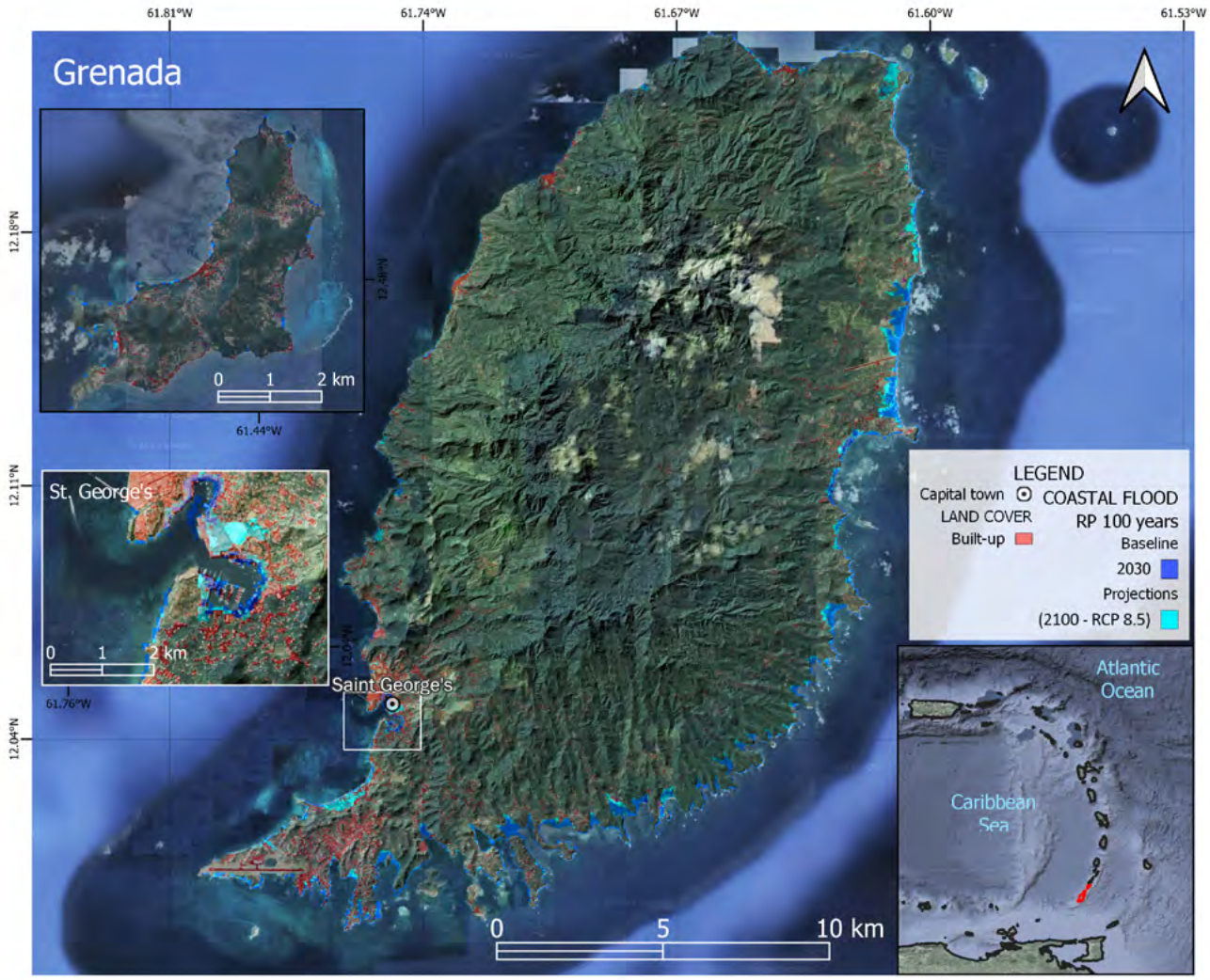
Recommendations	Actions
Strengthen the generation, management and use of risk and recovery-relevant data	» Establish a clearinghouse and data management unit, and a national data repository with online and public access, and promote the generation and use of risk and hazard data and information in decision-making across government institutions. This includes the generation of: > A hazardous events registry, including low intensity events. > updated hazard maps > Multi-hazard maps > National topographic maps > Soil maps » Create a natural resources inventory, a national public assets inventory and a geographic registry and an updated georeferenced, digital, and accessible cadastre. » Develop flood models for coastal areas under SLR scenarios to strengthen coastal zone management planning and decision-making, including risk-management decisions and actions for housing and infrastructure in coastal areas.
Invest in protecting infrastructure from shocks	» Conduct the necessary studies to ensure that all critical infrastructure projects in the national infrastructure projects pipeline are climate-resilient and ready to finance. » Create an overall asset management and maintenance process to ensure the long-term sustainability of infrastructure investments. » Identify sub-standard properties and properties at high risk of climate change and other hazards and encourage homeowners to retrofit assets by creating a technical assistance plan on a range of risk reduction interventions, including resilient roofing and foundations, improved guttering or drainage, and increasing septic tank volumes to compensate for flooding.

Recommendations	Actions
Ensure the necessary equipment and tools are available for recovery project management	» Create and finance a plan for hardware purchase and software updating and maintenance at the MSDHCE and NADMA.
Strengthen sectoral budgets for DRM and recovery	» Accelerate the operationalization of the DRFS and estimate and include a contingent annual recovery allocation in the MSDHCE's budget.
Enhance resilience and recovery funding instruments for housing	» Review insurance premiums for property insurance in Grenada to enhance access and coverage. » Create a database of international recovery funding opportunities for the housing sector.

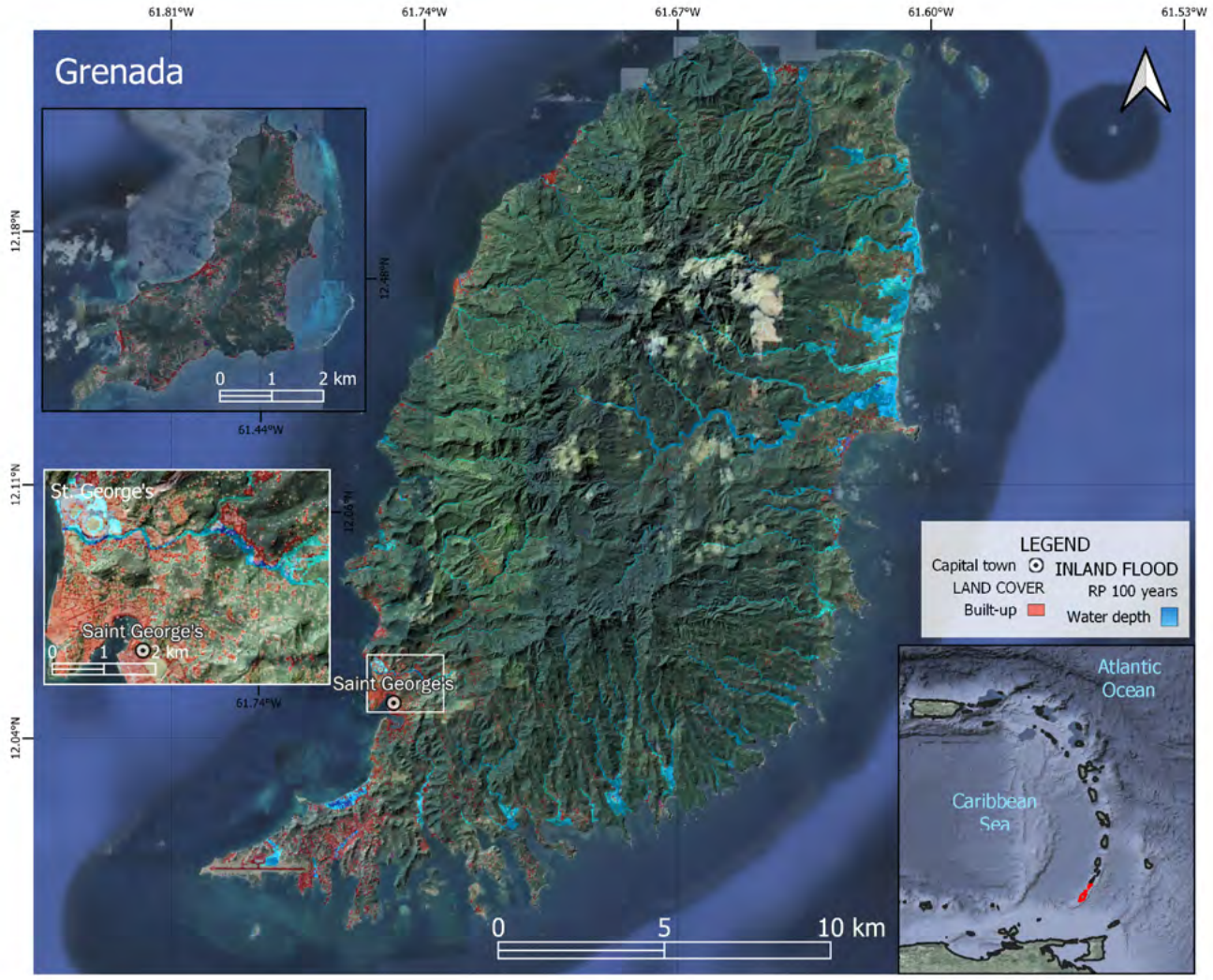
Annex 2.

Inundation scenario maps for Grenada

a. Coastal flooding scenarios for a 100-year return period and for a high-level climate change scenario (RCP 8.5) by 2100



b. Inland flooding for a 100-year return period



Annex 3.
Sectoral Recovery Capacity Assessment Questionnaire

COMPONENT 1: GOVERNANCE			
Key elements	**Sub elements**	**Questions**	
1.1 Policies and Legal Framework	**1.1.1 Policies**	1	Is there a National Disaster Risk Management (DRM) policy?
		2	Are institutional mandates clearly defined in the existing DRM policy?
		3	Does the main sectoral development policy integrate recovery considerations when addressing DRM and CCA?
		4	Is there an effective process to update recovery considerations into national/sectoral policies?
	1.1.2 Legal framework	5	Is there a national disaster risk management (DRM) legal framework?
		6	Is there an effective institutionalized process to deliver timely updated legal frameworks?
		7	Are institutional mandates clearly defined in the existing DRM legal framework?
		8	Are recovery considerations integrated in the main sectoral laws and regulations that address DRM and CCA?
	1.1.3 Foundations for recovery	9	Do the national DRM policies and legal framework include preparedness (risk management ex ante) and Recovery (disaster management ex post) considerations?
		10	Does the government have a clear vision for recovery? (for example, national/centralized; sectoral/decentralized, focused on a specific sector, focused on building back better)?
		11	Does any policy, law, regulation, program or project at the national or sectoral level addresses the possibility of dealing with the impacts of more than one hazard at a time (e.g., COVID-19 and hurricane season)

COMPONENT 1: GOVERNANCE			
Key elements	**Sub elements**	**Questions**	
1.1 Policies and Legal Framework (cont.)	**1.1.4 Mainstreaming DRM&CCA**	12	Is climate resilience considered in the National disaster risk management policies and legal framework?
		13	Does the sector participate in the elaboration of DRM or recovery policies and legal framework?
		14	Do all, the private sector, academia, NGOs, local communities, and parastatal organizations, participate in the elaboration of DRM policies or legal frameworks?
		15	Do the DRM policies and legal frameworks require sectoral ministries to formulate and implement sectoral resilient recovery plans?
		16	Have DRM protocols been adapted to integrate pandemic-related (e.g., COVID-19) considerations in recovery operations?
	1.1.5 Gender and disability inclusion	17	Do the recovery policies take into account gender (men and women, and boys and girls) capacities and their different recovery needs?
		18	Do the recovery laws and regulations take into account gender (men and women, and boys and girls) capacities and their different recovery needs?
		19	Do the recovery laws and regulations take into account the needs of persons with disabilities?
		20	Are there laws mandating that recovery efforts benefit men and women, and boys and girls equitably?
	1.1.6 Building codes and regulations	21	Do most of the sector's constructions conform with building codes regulations?
		22	Does the government have a review and evaluation process for its building codes regulations which includes climate change considerations?
		23	Are mechanisms for regulating compliance with building codes in place?
Recommendations: What would you recommend to improve the integration of recovery factors into sectoral policies and legal frameworks.			

COMPONENT 1: GOVERNANCE			
Key elements	**Sub elements**	**Questions**	
1.2 Strategies and Plans	**1.2.1 Strategies and plans**	24	Does the sector have a recovery strategy?
		25	Has the sector developed recovery plans?
		26	Are the sectoral recovery strategies and plans aligned with national development objectives?
		27	Is there an effective institutionalized process to deliver timely updated recovery strategies and/or plans at the sector level?
		28	Are there financing mechanisms for recovery in place (e.g., recovery funds)?
	1.2.2 Building back better (BBB)	29	Do the recovery strategies and plans include provisions for integrating measures that build resilience?
	1.2.3 Gender and disability inclusion	30	Are the outputs of the recovery strategies and plans affordable and inclusive for the sector beneficiaries?
		31	Do the recovery plans take into account gender (men and women, and boys and girls) capacities and gender-differentiated recovery needs?
Recommendations: What would you recommend to improve issues related to recovery strategies and plans?			

COMPONENT 1: GOVERNANCE			
Key elements	**Sub elements**	**Questions**	
1.3 Institutions and Coordination	**1.3.1 Institutions**	32	Is the development of recovery plans at the sector level led by one or more institutions with authority and autonomy?
		33	Are the roles and responsibilities to implement the recovery plans clearly defined within the sector?
	1.3.2 Coordination	34	Is there a coordination mechanism (formal or informal) between sectors to implement the national recovery plan?
		35	Does the sector coordinate recovery activities with the National Disaster Management Office?
		36	Are concrete activities being coordinated between the sector and the National Disaster Management agency?
		37	Is there any coordination between the sector and CDEMA during the recovery process?
	1.3.3 Building codes and regulations	38	Are there, within the legal framework of the country, stakeholders who are responsible, accountable, and liable for assuring compliance with building-related legislation?
		39	Is there a sufficient budget approved for enforcing building codes?
	1.3.4 Gender and disability inclusion	40	Are there mechanisms in place for the coordination of recovery between the DRM agencies, gender agencies and women's networks?
Recommendations: What would you recommend to improve institutional coordination issues?			

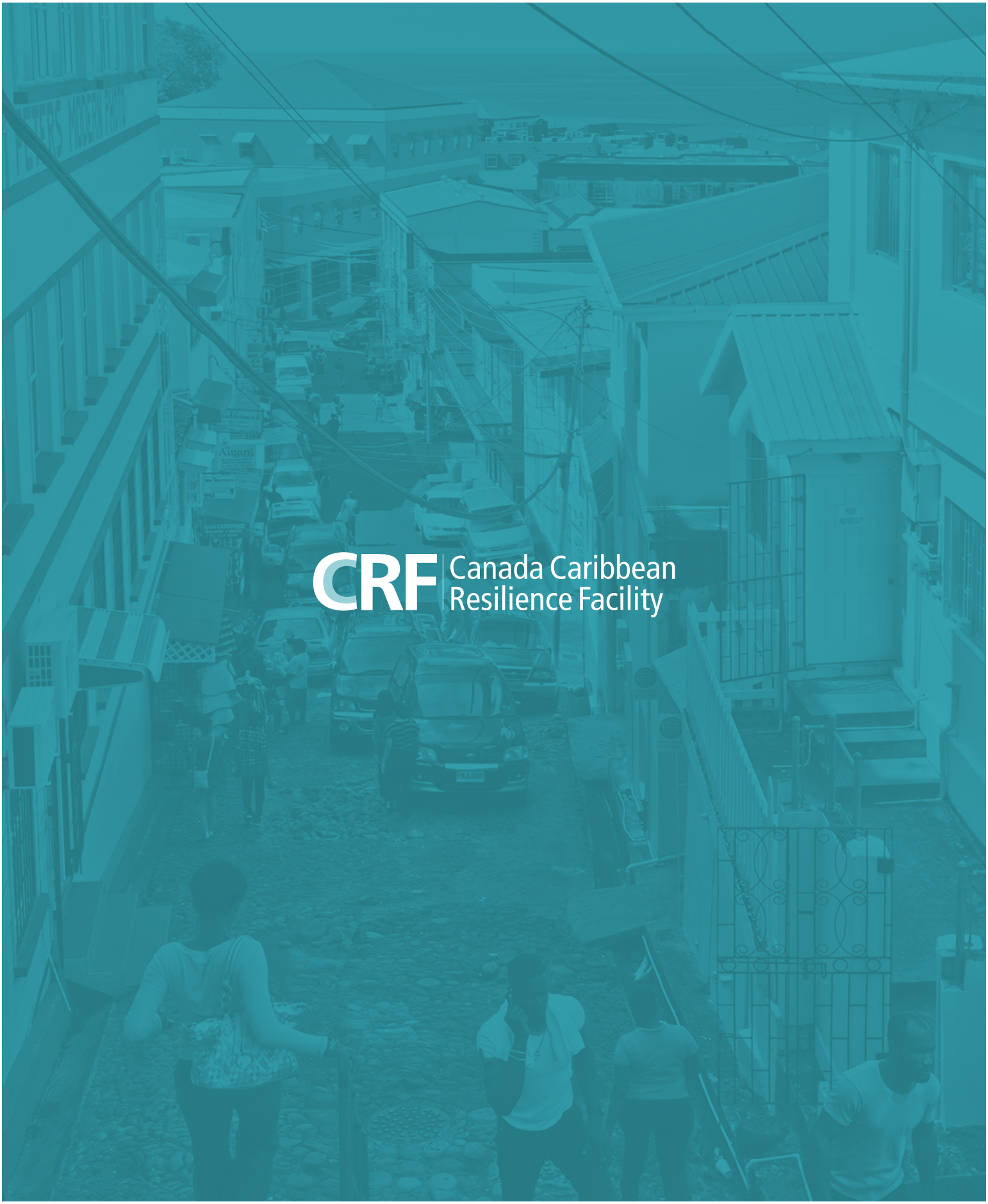
COMPONENT 2: COMPETENCIES			
Key elements	**Sub elements**	**Questions**	
2.1 Workforce	**2.1.1 Workforce**	41	Are there sufficient technical persons working in the sector?
		42	Are there sufficient DRM specialists for the needs of the sector?
		43	Are all projects being implemented in the sector overseen by at least one DRM specialist?
		44	Is there sufficient staff to implement the sector's current portfolio?
		45	Do technical teams have the necessary working conditions to fulfil their tasks (e.g., connectivity, equipment, software)?
	2.1.2 Gender	46	Is there a sufficient number of gender specialists to fill the needs of the sector?
	2.1.3 Private sector	47	Does the sector have an adequate number of qualified implementing contractors based in the country?
		48	Are international contractors in charge of implementing only a minimum proportion of the recovery projects in the sector each year?
Recommendations: What would you recommend to improve institutions and coordination issues?			
2.2 Capacity (knowledge and skills)	**2.2.1 Skills**	49	Are there sufficient national professionals to fill all the sector's demands?
		50	Are there sufficient professionals in the sector with expertise to implement resilient recovery projects?
		51	Are there sufficient national experts in the sector with knowledge of DRM methods and tools such as integrating hazard risks, geo-referenced information management systems (GIS, remote sensing)?

COMPONENT 2: COMPETENCIES			
Key elements	**Sub elements**	**Questions**	
2.2 Capacity (knowledge and skills) (cont.)	**2.2.2 Training activities**	52	Are there frequent opportunities to enhance the technical skills that ensure resilient reconstruction of infrastructure/buildings?
		53	Do all genders have the same opportunities for DRM training?
		54	Are technical persons trained on gender responsiveness and disability inclusion?
		55	Is there a mentoring and advising program/process for building back better?
		56	Are there sufficient people with the technical capacity to implement PCM activities, with a climate resilience focus, in the sector? **NOTE:** PCM includes, at least the following activities: management of sector portfolio; execution of PFM procedures; project management; M&E; mainstreaming climate and disaster resilience into projects; coordinating recovery activities with other relevant sectors; performing quality control projects and inspections of building codes compliance during and after design and construction of buildings and infrastructure.
	2.2.3 Proven capacity	57	Do technical persons in the sector have the capacity to translate PDNA results into actionable projects?
		58	Do technical persons in the sector understand the basics of DRM and are able to use hazard maps?
		59	Can technical persons in the sector produce recovery plans that are aligned with the existing legislation, policies, and strategies?
		60	Do the technical persons have the knowledge and necessary training to formulate quality ToRs for projects implementation?
Recommendations: What would you recommend to improve capacity (skills, training opportunities)?			
2.3 Human Resources (HR), Profile Suitability	**2.3.1 Human resources (HR), profile suitability**	61	Is there an HR recruitment plan that includes recovery activities?
		62	Does the sectoral hiring process follow the recruitment plan?
		63	Are there ToRs for recovery-related positions?
		64	Is there an employee induction process?
Recommendations: What would you recommend to improve human resources, profile suitability?			

COMPONENT 3: RESOURCES AND TOOLS			
Key elements	**Sub elements**	**Questions**	
3.1 Natural hazard Data and Risk Information	**3.1.1 Data collection and management**	65	Are there mechanisms in place for the collection and management of natural hazard data and risk information?
		66	Is there a national and sectoral online repository for risk data and information?
		67	Is the existing risk data and information accessible to technical people in the sector?
	3.1.2 Use of risk information	68	Does the sector use multihazard risk maps?
		69	Are hazard maps regularly updated?
		70	Does the sector share multihazard risk maps?
		71	Is a participatory approach used in the development and preparation of hazard maps?
3.2 PDNA and Project Portfolio Planning	**3.2.1 PDNA mechanisms**	72	Is there a PDNA including specific methodologies and plans for recovery in the sector?
		73	Is there an efficient and effective PDNA coordination mechanism?
		74	Are there focal points with clear roles and responsibilities assigned within the sector to carry out a PDNA?
		75	Have "lessons learned" from postdisaster assessments and DANAs been integrated into PDNA planning or used to adjust the methodology after previous disasters?
	3.2.2 Planning of recovery priorities	76	Have the results of the PDNA been used for recovery purposes and development across institutions and sectors?
		77	Does the government have criteria to define the priority sectors for recovery support?
		78	Has the government used the results of PDNA to prioritize recovery projects?
	3.2.3 Gender and disability inclusion	79	Does the PDNA methodology require the collection of gender, age, and disability disaggregated data?
Recommendations: What would you recommend to improve PDNA and Project portfolio planning?			

COMPONENT 3: RESOURCES AND TOOLS			
Key elements	**Sub elements**	**Questions**	
3.3 Resilient Recovery Project Design	**3.3.1 Availability of BBB tools**	80	Does the sector have the necessary tools (e.g., best practice, software, check lists, cost benefit analysis for resilience measures available to ensure project designs incorporate the Build Back Better approach?
	3.3.2 Use of risk information	81	Do the sectors use risk information to design resilient recovery projects?
		82	Is risk information available and accessible, at the required resolution and geographic coverage for sectoral project planning and implementation?
	3.3.3 Building codes and regulations	83	Are building codes and land use planning guidelines integrated into project design?
	3.3.4 Gender and disability inclusion	84	Do project designs take into account gender-based needs?
		85	Do project designs take into account the basic needs for the conditions of persons with disabilities?
Recommendations: What would you recommend to improve Resilient design of project?			
3.4 Financing	**3.4.1 Availability of funding sources**	86	Are there identified and accessible funding sources for recovery interventions in the sector (e.g., National MDB, bilateral, others)?
		87	Are the mechanisms for accessing funding for recovery actions clear and widely known to people working in the sector?
		88	Has the government used international funding for recovery in the past?
	3.4.2 Access to recovery funding	89	Is it easy to access to recovery funding?
		90	Do the eligibility criteria for recovery funding reflect the PDNA results for the most affected sectors?
		91	Is the disbursement of international funding for recovery rapid?
		92	Is the recovery funding process fast (from application by the government to disbursement)?
	3.4.3 Budget for recovery	93	Does the sector's budget have a line item earmarked for recovery?
		94	Does the sector have a sufficient actual or estimated annual budget for recovery?
Recommendations: What would you recommend to improve access to financial mechanisms for recovery?			

COMPONENT 3: RESOURCES AND TOOLS			
Key elements	**Sub elements**	**Questions**	
3.5 Project Implementation	3.5.1 Resources	95	Does the sector have an inventory of qualified implementing contractors relevant for the sector's operations?
		96	Is there sufficient material for construction available to implement recovery projects?
		97	Does the sector or the government have the necessary equipment to implement large recovery projects?
	3.5.2 Project management	98	Does the sector (or reconstruction projects) have access to and use project management tools?
		99	In general, does the expenditures of project activities in the sector follow the original planning?
	3.5.3 Building codes	100	Do the construction materials used in recovery projects meet accreditation standards (e.g., strength, testing, quality)?
		101	Does the sector have the resources and tools to comply with building codes?
		102	Does the regulatory body have the resources and tools to enforce compliance with building codes?
	3.5.4 M&E at project level	103	Does the sector have in place and actively use a monitoring and evaluation (M&E) system for projects?
		104	Have the most common M&E recommendations been used to improve project planning and implementation across the sector?
Recommendations: What would you recommend to improve project implementation?			



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