

Sectoral Recovery Capacity Assessment Report for Guyana's Agriculture Sector



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Sectoral Recovery
Capacity Assessment
Report for Guyana's
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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.

This report has benefited from discussions with government officials, development partners, and members of the community, and the team would like to thank key informants and participants in the focus-group discussions and semi-structured interviews. The team collected data with assistance from CDEMA, GFDRR and governmental staff.

Executive summary

Guyana is one of the most exposed countries to natural hazards and the impacts of sea level rise in the Latin America and Caribbean region due to its low-lying terrain. The rise in sea level and intensified storm surges expose 100 percent of the country's coastal agriculture and 66.4 percent of the coastal urban areas with potential losses of coastal gross domestic product (GDP) projected to exceed 46.4 percent (Giardino et al. 2020; Dasgupta et. al. 2009). Guyana has been coping with the COVID-19 pandemic and a devastating flooding event that has caused major damages to and losses of homes, farming land, infrastructure, and livelihoods nationwide in June 2021. With more frequent and intense extreme weather events expected owing to climate change in the coming decades, 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 implement 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 Guyana to assess the capacity of the country's agriculture sector to plan, design, implement, monitor, and evaluate climate resilient, gender responsive and disability inclusive recovery projects. The agriculture sector has been selected as a priority by the Government of Guyana due to its high vulnerability to flooding and sea level rise. The report has been produced as part of a partnership between the Caribbean Disaster Emergency Management Agency (CDEMA) and the Canada-Caribbean Resilience Facility (CRF), hosted by the Global Facility for Disaster Reduction

and Recovery (GFDRR) at the World Bank Group and following a consultative process facilitated in Guyana by the Ministry of Agriculture and the Civil Defence Commission (CDC).

The SRCA assessed in detail the existing capacity for resilient recovery in the tourism 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 Guyana. Figure 1 presents the results of the SRCA for each of the assessed issues.

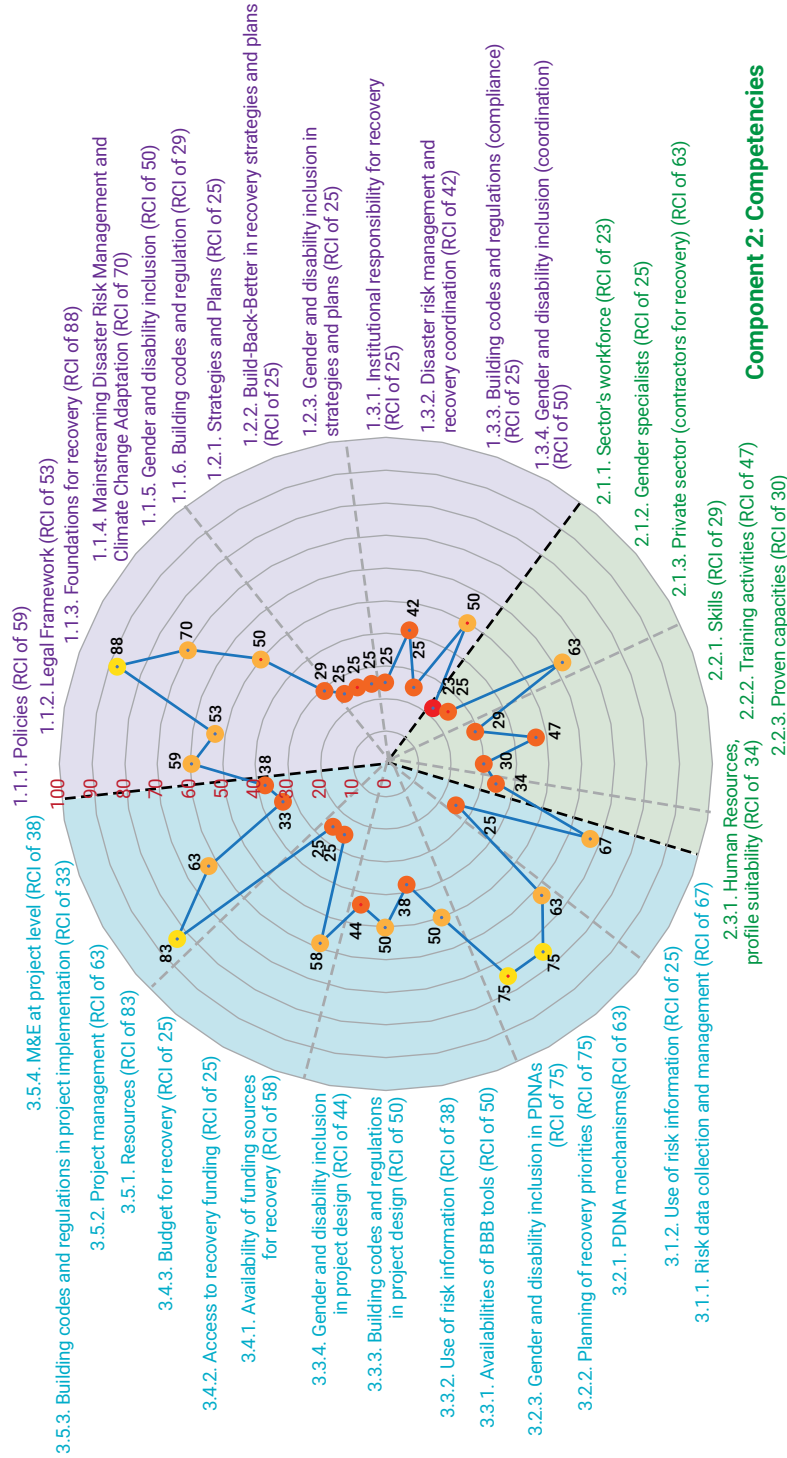
At a high and strategic level, the assessment determined that the capacity of Guyana's agriculture sector to implement resilient and inclusive recovery projects in a timely, efficient, and effective manner is incipient. However, key results of a more detailed analysis indicate that although the resources and tools available enable, to a certain extent, the development of recovery projects, the existing level of knowledge and skills within the sector are still insufficient for planning and implementing a recovery portfolio. To date, recovery operations and processes have been mainly led by international organizations supporting the Government of Guyana in the aftermath of disasters,

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.

Component 3: Resources and tools



but a sustained effort is lacking to build national and sectoral capacity to operationalize and continue strengthening the enabling policy and implementation environment. The SRCA identified the following as crucial to build recovery capacity in the agriculture sector:

- » **Develop and operationalize recovery enabling policies, strategies, and plans.** Specifically: (i) elaborate a national recovery strategy that integrates resilience building measures as well as gender and disability considerations; (ii) establish tools and mechanisms, or institutional mandates, for sectoral authorities at different levels to coordinate the implementation of recovery strategies and plans, and (iii) enhance the enforcement of legislation relevant to DRM and recovery, particularly building codes, and gender and disability inclusion.
- » **Create and sustain within the government and the Ministry of Agriculture the operative competencies required for DRM and recovery that are unavailable.** These include knowledge and skills in the use of DRM methods and tools in: (i) the application of the Build Back Better (BBB) approach; (ii) the integration of gender and disability inclusion in project planning and implementation; and (iii) various areas of the project management cycle, including monitoring and evaluation (M&E). To develop adequate human resources, the government should recruit specialized staff, institutionalize training, and include in public recruitment protocols basic knowledge in these areas to support their mainstreaming and operationalization.
- » **Strengthen the availability and quality of critical DRM and project management resources and tools.** This includes: (i) functional and useful information to plan, design and implement risk

informed projects and resilient recovery interventions; (ii) improved data and information on natural hazards and risk that is disaggregated by gender and disability and at a meaningful scale for decision making in agriculture; (iii) tools for the systematic integration of resilience into the sector's operational procedures; and (iv) standard project management and M&E tools.

- » **Reduce agricultural losses caused by flooding due to extreme weather events and sea level rise by investing in coastal protection and flood mitigation infrastructure.** This includes retrofitting seawalls and other hard coastal defense infrastructure, conserving healthy mangrove ecosystems, and strengthening drainage and irrigation systems. Prioritized interventions should be included in updated resilient infrastructure investment portfolios.
- » **Improve access mechanisms to finance recovery:** Specifically, accelerate the approval of the DRM Bill to enable the establishment of the DRM Fund and conduct a needs assessment of the sector's budget, including the need for a contingent annual recovery allocation.

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 recovery strategies and plans that will follow the response phase of the existing flooding disaster as well as into medium and longer term comprehensive disaster management (CDM) and development efforts in the sector.

Acronyms

BBB	Build Back Better
CAP	Conservancy Adaptation Project
CDC	Civil Defence Commission
CDEMA	Caribbean Disaster Emergency Management Agency
CDM	Comprehensive Disaster Management
CRF	Canada-Caribbean Resilience Facility
DANA	National Damage Assessment and Needs Analysis
DDIA	Declared Drainage and Irrigation Areas
DRM	Disaster Risk Management
ECLAC	Economic Commission for Latin America and the Caribbean
EnGenDER	Enabling Gender-Responsive Disaster Recovery, Climate and Environmental Resilience in the Caribbean
ENSO	El Niño-Southern Oscillation
EDWC	East Demerara Water Conservancy
FAO	Food and Agriculture Organization of the United Nations
GDP	Gross Domestic Product
GFDRR	Global Facility for Disaster Reduction and Recovery
GHG	Greenhouse Gas
GSDS	Green State Development Strategy
GuySuCo	Guyana Sugar Company
IICA	Inter-American Institute for Cooperation on Agriculture
JICA	Japan International Cooperation Agency
LCDS	Low Carbon Development Strategy
M&E	Monitoring and Evaluation
NEMS	National Emergency Management System
4NEOC	National Emergency Operations Centre
PAHO	Pan American Organization
PDNA	Post-Disaster Needs Assessment
PLWDs	Persons Living with Disabilities

RCI	Recovery Capacity Index
RCP	Representative Concentration Pathway
SRCA	Sectoral Recovery Capacity Assessment
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change
USD	United States Dollars

Glossary of key terminology¹

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.

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 “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



1.1 Need for timely, inclusive, and resilient recovery in the Caribbean Region

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.² 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 (Ötoker 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.

2.2 Assessing Sectoral Recovery Capacity in the Caribbean Region

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)

² Marginalized groups and individuals that do not have equal access to societal and economic resources are disproportionately represented among the poor. This often includes women, girls and the gender diverse; people living with disabilities; those that are geographically isolated; and ethnic and religious minorities.

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).

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 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 Guyana has selected agriculture 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 sea level rise, floods and droughts.

1.3 Specific objectives of the Recovery Capacity Assessment for the agriculture sector in Guyana

The objectives of the SRCA are to:

- » Improve the understanding of the existing capacity of the Government of Guyana, its Ministry of Agriculture and other key stakeholders in the agriculture sector to take the necessary actions to prepare for and undertake fast 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 Guyana's agriculture sector.
- » Identify opportunities for investments to support Guyana's agriculture sector and institutions in overcoming recovery capacity gaps, weaknesses and limitations (e.g. 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.

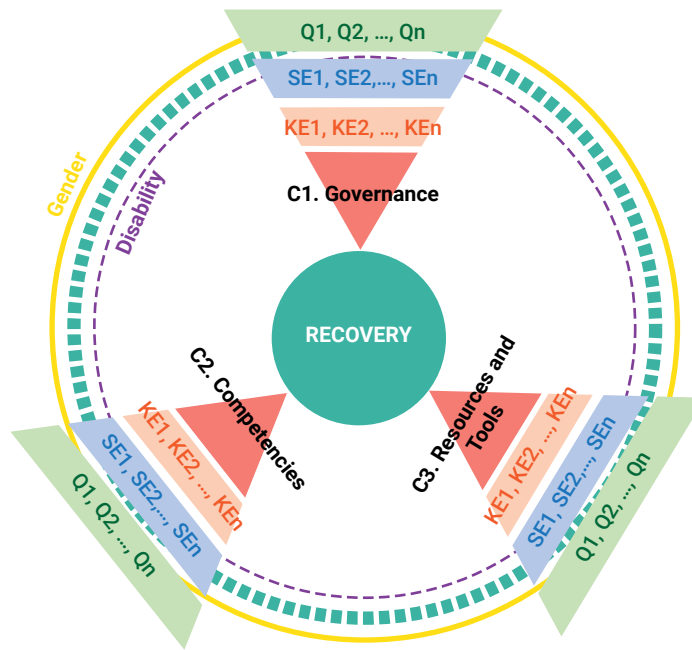


TABLE 1

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 agriculture sector in Guyana



Agriculture contributes 17.6 percent of gross domestic product (GDP), and accounts for 15.4 per cent of employment in Guyana (World Bank 2019). With around 85 percent of Guyana's land area covered by forests, only approximately eight percent of the nation's total land is agricultural. Most of the country's agricultural output is derived from a thin stretch of nonforested fertile land along the Guyana coast. These coastal plains—where 90 percent of the population of around 760,000 live—are crucial to the economy of the country, and support the nation's capital city, Georgetown, alongside agricultural areas. However, some of these lands are reclaimed and mostly lie below sea level at high tide. Of the agricultural area, 32 percent is irrigated. Irrigation areas are concentrated in the main agricultural zone between the mouth of the Pomeroon river and the Corentyne river (see figure 4). Therefore, along the Guyana coast, agricultural development on land that was originally swamp, depends on irrigation, drainage, and solutions to control seawater intrusion. All areas with fully developed drainage and irrigation facilities are classified as declared drainage and irrigation areas (DDIA) (FAO 2015).

The agriculture sector comprises five principal sub-sectors, including traditional agricultural commodities of rice and sugar industries and nontraditional agricultural commodities such as fruits, vegetables, seasoning and other products; livestock production consisting mainly of poultry, cattle, pigs, sheep, and goats; and fisheries (Ministry of Agriculture 2013). Rice and sugar production occupy most of the agricultural and irrigated land and, together constitute about 70 percent of the total value of agricultural production (IDB 2017). Within the less populated and more remote hinterland, cattle ranching takes place in some areas of the savannah—approximately 6 percent of Guyana—with some experimental farms, along with subsistence farming for the local Amerindian communities. The country is almost self-sufficient in poultry, meat and eggs, and the livestock agricultural sector has been identified as having potential for large-scale export (ECLAC 2011).

Guyana's rice production is the highest per capita in the world, with over 80,000 hectares double cropped

in 2017 (USDA 2018). Rice is mainly grown in the coastal plains, in the irrigated fields of the Pomeroon, Demerara, and Berbice regions and is the largest user of agricultural land and a major employer. Rice production and exports rapidly increased at the beginning of last decade—from 50,000 tons of rice exported in 1991 to 500,000 tons in 2014—but has declined owing to factors such as the loss of the Venezuelan market and drought. In 2017, 16,000 rice farming households operated in Guyana, of which 93 percent were small scale farmers with holdings of 30 hectares or less. Rice production and processing is privately owned and operated (IDB 2017).

The production of sugar is dominated by the state-owned Guyana Sugar Corporation (GuySuCo), which produces most of the sugar cane and holds exclusive rights to import and export of nonrefined sugar. GuySuCo had more than 17,000 staff in 2017 and was the largest employer in the country. However, sugar production is in decline, with yields dropping since 2010 because of the removal of sugar from European Union preferences, management deficiencies, and industrial unrest contributing to a decline in the agricultural sector contribution to GDP from 30 percent in 2001 to 21 percent in 2011 (FAO 2015; IDB 2017).

2.1 Disasters and their impact on agriculture

Guyana ranks fourth in the Latin American and Caribbean (LAC) region in exposure to natural disasters (Garlati 2013). This is primarily due to its high exposure to floods and droughts, which are heavily influenced by the cold and warm phases of the El Niño southern oscillation (ENSO). Although the country has a very low risk of volcanic activity and earthquakes and lies outside of the Caribbean hurricane belt, it occasionally experiences storms and high winds.

Guyana was affected by major floods throughout the country during May and June 2021 and during the COVID-19 pandemic, which, at the time of this report, have affected 51,582 households and caused the loss of livestock and crops, as floodwaters have covered

FIGURE 4

Approximate location of main agricultural areas along Guyana's coast.



Source: Map Design Unit, World Bank.

Climate change projections for Guyana*

- » Higher mean annual temperatures (increase by 0.9 to 3.3°C by 2060's, and 1.4 to 5.0 degrees by 2090's).
- » More frequent hot days and hot nights and less frequent cold days and cold nights than at present. In particular, cold nights will become exceedingly rare, possibly disappearing by 2090.
- » More rapid rate of warming in the southern, interior regions of the country than in the northern, coastal regions
- » Lower mean annual rainfall by 2060, although rainfall intensity could increase in the southern parts of the country.

* Representative concentration pathway (RCP) 8.5 ensemble.

Source: CCKP, 2021a.

entire farming areas (CDEMA 2021). A complete overview of losses and damages from this episode will be available after immediate disaster response needs are met. However, this situation is not unique. Devastating flood events occurred nearly every year between 2005 and 2015 (UNDP 2018). Guyana's vulnerability to pluvial flooding is highlighted by the catastrophic floods of January 2005, which severely affected 37 percent of the population, moderately affected 48 percent, and resulted in losses totaling approximately 60 percent of GDP (Government of Guyana 2012). Continuous heavy rainfall in the hinterland in 2011 resulted in the worst flooding since 1973 (UNDP 2018).

Droughts have also been devastating and recurrent, particularly in the hinterland—which has one dry season and one wet season, compared with two wet seasons in the coast—with events recorded in 1997–98, 2009–2010 and 2014–15. The 1997–98 drought was declared a state of emergency following rainfall 75 percent below normal levels. This led to an economic loss of USD 29 million with water rationing, reduced

food supplies and crop failures, with salt water from the sea penetrating into inland waterways. The 2009–2010 drought affected the entire Caribbean region. Although weather forecasts allowed precautionary measures to be taken to reduce impacts on agriculture, livestock died, and rice and sugar production were highly affected. Similarly, the 2014–2015 drought affected agriculture production, created water shortages, increased bush fires, dust pollutant levels, and disease outbreaks amongst livestock and humans (UNDP 2018).

Major investments have been made to reduce coastal flood risk, including 500 kilometers of main irrigation canals, 1,100 kilometers of secondary canals, 500 kilometers of main drainage channels, and 1,500 kilometers of secondary drainage channels supported by kokers and sluices. However, additional investments in drainage and irrigation are needed and likely to increase production costs (Government of Guyana 2019).

Ethnicity, migration, poverty levels, and geographic location are other factors affecting the vulnerability of Guyanese communities to climate change and disasters, with communities in the hinterland, particularly Amerindian communities being highly vulnerable to floods and drought.

Guyana's hinterland holds only around 11 percent of the population, but this population is among its most vulnerable from a socioeconomic perspective, with 74 percent poverty in rural areas—contrasting 19 percent poverty in urban areas. The Indigenous population—forming 9.2 percent of the total population—mostly live in the hinterland and experience the highest poverty incidence in the country of about 78 percent and include one-third of the extremely poor. The hinterland population is increasing due to economic migration from other regions in Guyana supporting mining and logging activities, and with the arrival of economic migrants from nearby Brazil and recently from Venezuela—particularly in Region 1 to the northwest.

2.2 Climate change impacts on agriculture

Climate change will worsen extreme events and bring additional threats to agriculture production. The agriculture sector in the Caribbean is vulnerable to a range of climate change impacts, from lower wet season rainfall to higher temperatures, sea level rise, and an increase in hurricane intensity and frequency (Knutson et al. 2020).

Climate change is anticipated to have a large impact on agriculture, as traditional agricultural practices are climate dependent. Climate change threatens Guyana's agriculture through its direct effects on crop production and animal viability. The agricultural sector already suffers regularly from severe hurricane and drought damage and, as temperatures continue to rise, several crops will experience heat stress, and lack the ideal climate conditions for maximizing yields (Piñeiro et al. 2020).

Increasingly higher temperatures will affect crop growth and nutritional value, as well as the number and types of pests, disease, and weeds. Changing rainfall intensity, duration, and occurrence will alter the growing season, and affect water availability, with increasing storm intensities leading to increased flood risk during heavy rains as well as increased soil erosion. Changing rainfall patterns and rising temperatures will also lead to more severe drought episodes causing water stress. Water quality may also be reduced due to seasonal lack of water availability and salt-water intrusion due to excessive groundwater extraction, especially along the coast.

However, the largest threat to the population, economy and agricultural production in Guyana comes from coastal flooding caused by sea level rise, as the country's coastal plains, which in some areas are two meters below sea level, are home to the vast majority of the population, three quarters of the economic activities, and almost all agricultural production. The global mean sea level is projected to rise between 0.28 to 0.55 meters by 2100, under a very low greenhouse gas (GHG) emissions scenario, and 0.63 to 1.01

meters under a very high GHG emissions scenario, relative to the 1995–2014 level (IPCC 2021).

The annual damages caused by coastal flooding owing to sea level rise could increase from 3.11 percent of Guyana's GDP in 2010 to up to 6.94 percent of GDP by 2100 under a low emissions scenario of RCP 4.5, or 10.25 percent under a high emissions scenario of RCP 8.5 (Giardino et. al. 2020). Research shows that out of the LAC countries, the impact of sea level rise and intensified storm surges would be highest in Guyana, exposing 100 percent of the country's coastal agriculture and 66.4 percent of the coastal urban areas with potential losses of coastal GDP projected to exceed 46.4 percent (Dasgupta et. al. 2009).

Sea level rise, and to an extent storm surges, will also exacerbate current coastal erosion processes and lead to the inundation of coastal areas, saline intrusion into the estuaries used for irrigation and ground water sources, and overtopping of existing sea defenses with catastrophic consequences for food production (CCKP 2021b).

Figure 5 shows the areas affected by SLR under a high climate change scenario (RCP 8.5). Other inundation scenario maps for Guyana are presented in Annex 2.

2.3 Flood and drought defense infrastructure along the coast

Flooding along the coastal plain is due to several factors. Pluvial flooding derives from the high rainfall intensities combined with the lack of gradient of the low-lying land meaning that floodwaters are not able to drain away quickly enough, particularly as large parts of the coastal area are below sea level, especially at high tides. Drainage along the coast is a complex and poorly maintained gravity based drainage system, with polders, canals, and sluices originally constructed for agricultural purposes on an ad hoc basis over a hundred years ago. Gravity drainage is only possible at low tides and therefore the drainage system is largely supported by fixed and mobile pumping stations along the coast (ECLAC 2011a). The natural drainage window

FIGURE 5

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



is shrinking however, due to increasing sea levels, increasing the reliance on mechanical pumps. Fast growing vegetation, sedimentation, and indiscriminate disposal of solid waste into the drainage system also reduce the system's drainage capacity both in urban and agricultural areas. Maintenance of the system is a constant drain on Guyana's economic resources.

To combat water shortages, a series of freshwater conservancies or shallow reservoirs were constructed inland of the coastal agricultural areas. They serve as water storage areas for agricultural irrigation waters and drinking water supply, and as flood control, holding back inland flood waters from urban and agricultural areas. During the 2009–10 drought, the East

Demerara Water Conservancy (EDWC) had insufficient water storage with water levels falling below the designated safe level for irrigation, which also caused an increased incidence of diarrhea attributable to the use of unsafe drinking water.

The reclaimed lands are supported by a coastal flood defense system that prevents water from the Atlantic Ocean from inundating the land. At present, about 25 percent of the coast is protected by a 280-kilometer-long concrete sea wall, rock riprap, and earthen embankments. In addition, 60 percent of the coast is protected by mangrove forests; however, degradation and loss of mangroves have resulted in increased coastal flooding, saltwater inundation, and loss of agricultural land. The remaining 15 percent is protected by natural sandbanks.

Major investments have been made to reduce coastal flood risk, including 500 kilometers of main irrigation canals, 1,100 kilometers of secondary canals, 500 kilometers of main drainage channels, and 1,500 kilometers of secondary drainage channels supported by kokers and sluices. The 2010 Low Carbon Development Strategy (Office of the President 2010) costed the upgrading of: existing drainage and irrigation infrastructure at USD 225 million; conservancies at USD 410 million; seawall outside of priority regions at USD 15–60 million; and expanding the drainage and irrigation network at USD 119 million—a total of USD 814 million. Additionally, under the 2030 Low Carbon Development Strategy USD 7 million is being invested for the upgrade of smart healthcare facilities and existing disposal facilities, the upgrade of greenhouses as well as of drainage and irrigation systems across the capital, the incorporation of safeguards against climate events, and other major public and private sector investments in new building stock (Office of the President 2022). The existing World Bank projects support these infrastructure initiatives in Region 4. The World Bank Conservancy Adaptation Project (CAP) (2008–2013) of USD 3.8 million was prepared following the catastrophic 2005 floods. It financed the development of the technical foundation for a masterplan of future investments within the EDWC and low-land drainage system in Region 4. The project identified

USD 123 million in required investments including: (i) upgrading of the EDWC dam; (ii) improving the drainage and operation of the EDWC; and (iii) improving drainage in the coastal area. Following the recommendations from the CAP, the flood risk management project (P147250) of USD 11.9 million between 2014–2020 and additional financing of USD 26 million are financing the rehabilitation of critical infrastructure to reduce the risk of flooding in the low lying areas of the East Demerara area. The funding covers rehabilitation of part of the EDWC dam. As part of Guyana's Low Carbon Development Strategy 2010, adaptation initiatives financed by the Global Risk Financing Facility, a complementary Cunha Canal Rehabilitation Project (P132408) of USD 3 million contributed to improving drainage in the EDWC. Nevertheless, more financing is required, particularly to support the reconstruction of the remainder of the EDWC dam most at risk of breaching, and additional investments in drainage and irrigation are needed to increase agricultural production but are likely to increase production costs (Government of Guyana 2019).

Continued investment is required to maintain and strengthen the existing drainage and irrigation infrastructure, including continued investment in natural mangrove and seawall infrastructure defenses. Constructing and maintaining coastal defense infrastructure and mangroves, and beach restoration and retreat have been proposed as strategies for coping with coastal erosion and the damage caused by floods associated with sea level rise to critical infrastructure, housing, and agriculture. The Economic Commission for Latin America and the Caribbean (ECLAC) assessed that existing hard structures such as sea walls and mud embankments may need to be strengthened and elevated repeatedly over the next 100 years (ECLAC 2011b).

2.4 Gender, agriculture, climate change and disasters

The International Labour Organization reports that nine percent of Guyanese women are employed in agriculture, compared to more than 22 percent of



Rice field in Guyana's coastal plains. Credit: Tracey Dos Santos, Wikimedia Commons

men (ILO 2018). Men dominate the agriculture sector in land and farming ownership and more physically intense work in agriculture, whereas women engage as vendors, processors, and small scale cultivators for livelihood. Women are often unpaid family workers who are also involved in housework and care work, thus experiencing greater vulnerability, less access to resources, and lower productivity than their male counterparts. Women may also face a disadvantage in knowledge, skills, and relevant information to thrive in the agriculture sector (UNDP 2021). “Sexual harassment and gender-based violence against women remain an issue, along with forced marriages, particularly in remote rural and Indigenous communities dependent on agriculture” (Walters and Viteri 2018).

Gender differentiated roles and constraints affect the shape of activities in the agricultural sector and the impacts of disasters. Women can be significantly affected by disasters, due to their social roles and occupation as well as their limited access to assets, finance, and services (UNDP 2021). Women involved in agriculture-based livelihoods tend to have limited

access to insurance or loss protection, if they do not own the land or do not have formal documentation of income or losses (UNDP 2021). However, men tend to face the greatest direct economic impact of disasters in Guyana due to their higher participation levels and dominance in the agriculture sector (UNDP 2020). For men, disasters can lead to livelihood displacement, loss of incomes, and other socioeconomic impacts such as debt, which in turn might lead to psychosocial issues such as anxiety and depression (UNDP, 2020). Male farmers enjoy better access to financial services—including loans and insurance—owing to land ownership and better income levels than female farmers, vendors, and processors. Male farmers therefore, may be more resilient to the increasing impacts of climate change. In addition, in their role as primary caregivers, responsible for feeding the household, women are likely to be more affected than men by shortages of water, waterborne diseases, and spikes in food prices. In the past, this has resulted in women spending a greater portion of their income and time to secure food and water for the household in addition to their other responsibilities (UNDP 2021).

03

The Sectoral Recovery Capacity Assessment implementation process in Guyana

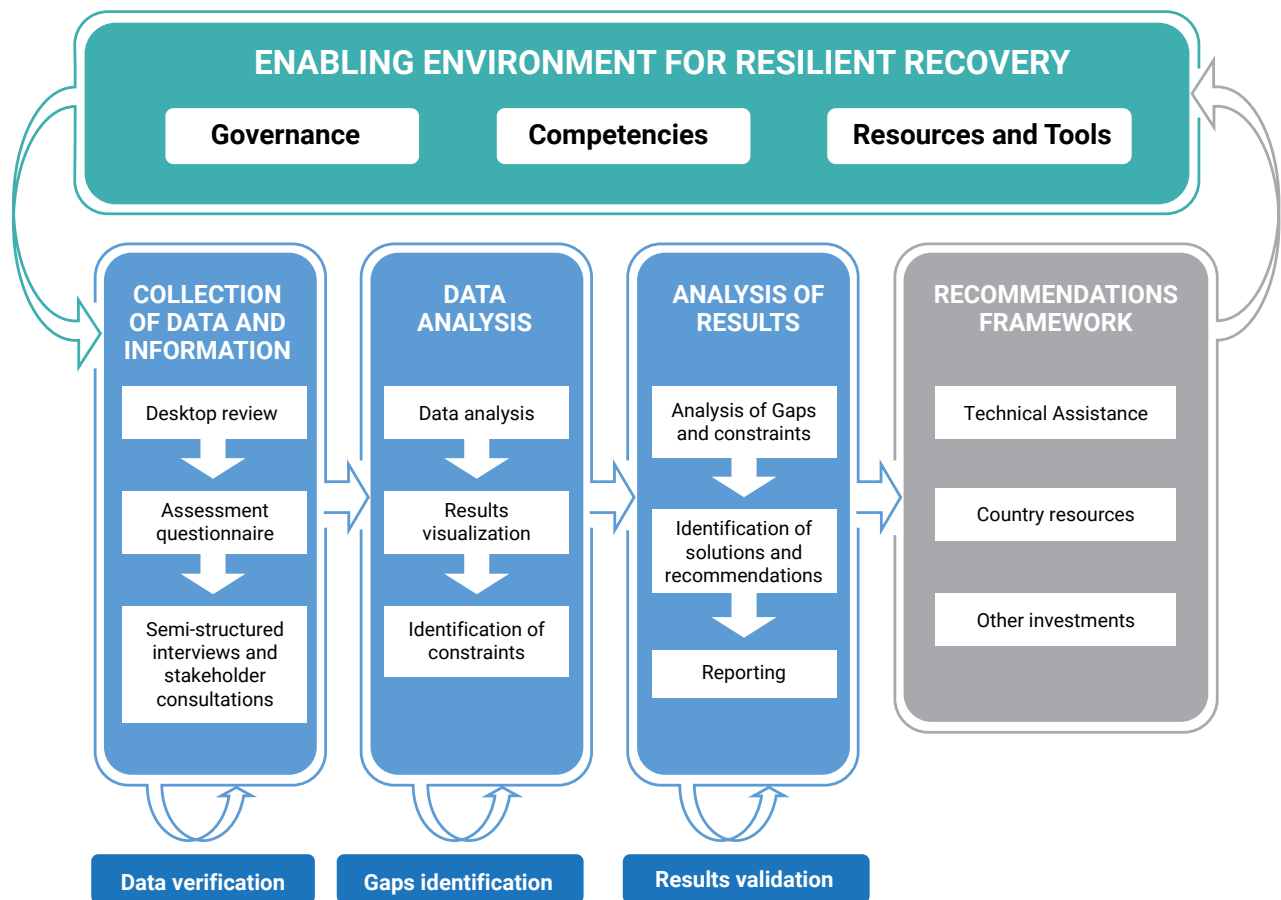


In Guyana, the Civil Defence Commission (CDC) bears the institutional responsibility for disaster management. The CDC works closely with and supports the work of ministries, line agencies and other actors in risk management at the national and sectoral level. This The Sectoral Recovery Capacity Assessment has been implemented in Guyana under the leadership of the Ministry of Agriculture and the CDC. The

implementation followed the process presented in Figure 6. The process started with a briefing to the CDC on the methodology and a desktop review. The Ministry of Agriculture completed the assessment questionnaire and coordinated a consultation, involving both private and public sector stakeholders, to confirm, complement and discuss the responses provided in the questionnaire.

FIGURE 6

Diagrammatic representation of the assessment process



04

Results overview



Ministry of Agriculture building in Georgetown, Guyana. Photo: mtcurado | iStock.com

4.1 General findings

The analyses assessed the capacity of Guyana's agriculture sector to implement gender- and disability-inclusive, resilient recovery projects in a timely, efficient and effective manner as incipient, with a sector-level RCI of 45 (figure 7). Sectoral recovery is enabled, to a certain extent, by the resources and tools available (RCI of 50). However, weaknesses in Governance (RCI of 47) and, particularly, in the knowledge and skills available within the sector (RCI of 34) limit the planning and implementation of resilient recovery projects.

The above findings are supported by the analysis of results at the key element level (figure 8). However, it should be noted that while this more in-depth analysis suggests that a moderate capacity exists within the sector for planning and implementation of recovery project portfolio activities, which obtained RCI values of 69 and 55 respectively, these have been guided by international organizations supporting the Government of Guyana. Investments are therefore necessary to build national and sectoral capacity to operationalize the enabling policy environment, ensuring that tools and resources are available and that a strong coordination mechanism for recovery

established. Knowledge and skills for the implementation of resilient agriculture recovery projects also need to be created and sustained.

In general, capacity building interventions are required to:

- » Establish mechanisms or institutional mandates for sectoral authorities to develop and coordinate the implementation of recovery strategies and plans.
- » Increase general DRM knowledge and basic DRM implementation capacity, with a focus on gender and disability inclusive recovery frameworks, across key actors in the agriculture sector. This can facilitate recovery planning before a catastrophic event and enable better communication on the topic within the sector and across government agencies.
- » Strengthen and streamline strategic and planning processes for recovery in the agriculture sector; including ex ante definition of institutional arrangements for the development, coordination, and implementation of inclusive recovery strategies and plans.
- » Strengthen the generation and management of hazard data and risk information and its use in the design of resilient and inclusive recovery projects.

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.

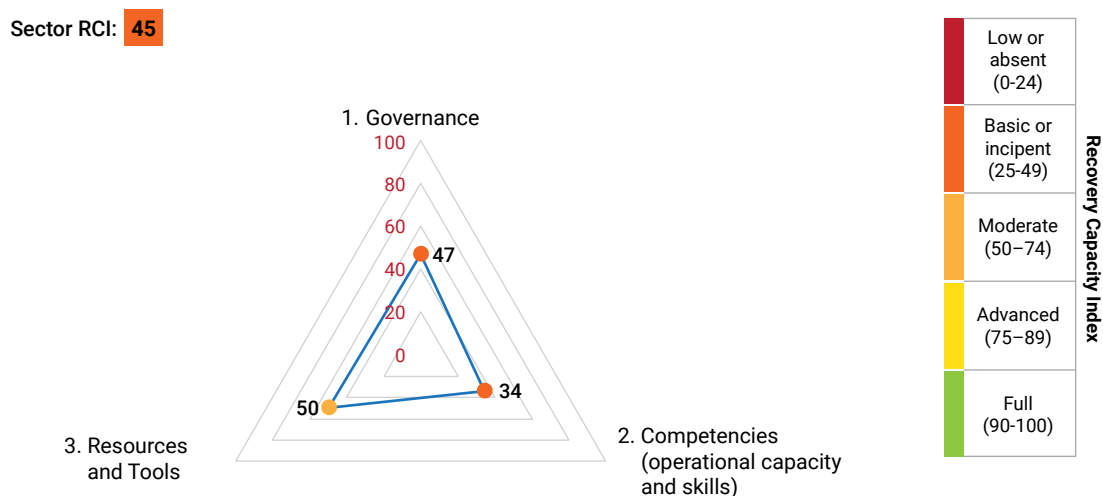
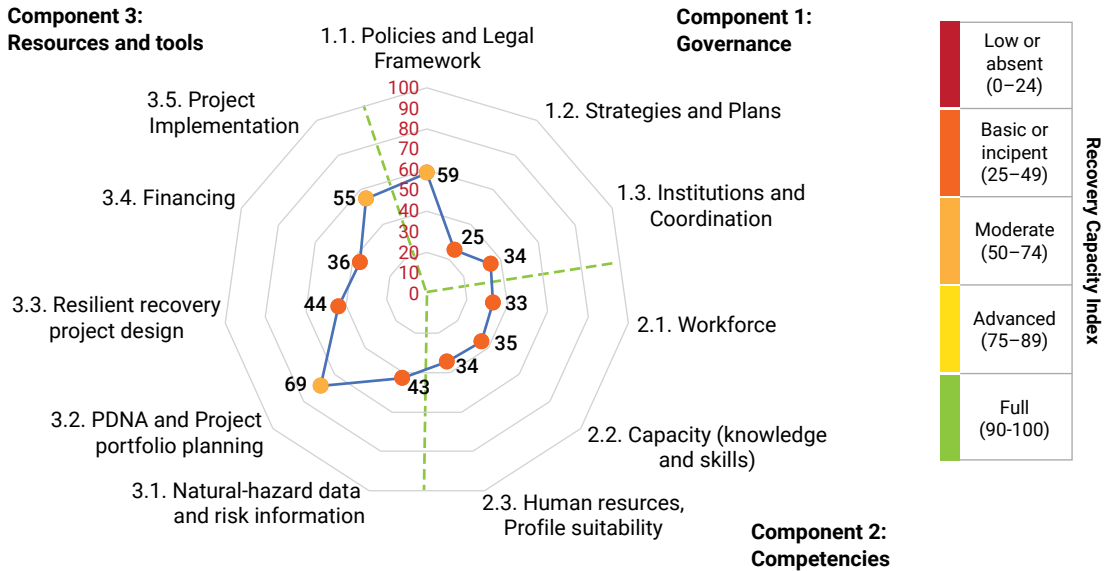


FIGURE 8

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.



- » Improve and more widely disseminate information on funding sources, opportunities, and access mechanisms for recovery in the sector.
- » Strengthen gender and disability inclusive DRM and climate change integration in project design and implementation.

The following sections offer a more detailed analysis of the results obtained for each of the components assessed. Section 5 provides key recommendations and Annex 2 offers more detailed recommendations, including capacity building interventions.

4.2 Findings for Governance

The capacity and enabling factors for recovery at the Governance level of the agriculture sector in Guyana is assessed as basic, with an RCI of 47 (figure 9). Although the national policy and legal framework enables the implementation of gender-inclusive recovery projects

(RCI of 59), its operationalization through actionable strategies and plans for the sector is incipient (RCI of 25), as there are no tools, mechanisms or institutional mandates for sectoral authorities to develop and coordinate the implementation of recovery strategies and plans and, to date, DRM and recovery activities for the sector are coordinated between sectoral agencies and the CDC to a limited extent only (RCI of 34). At the sub element level (figure 10), the assessment highlights that the enforcement of legislation relevant for DRM and recovery is still incipient, particularly in terms of building codes and gender integration. (figure 6). Building codes exist and include essential accessibility provisions for persons with disabilities, but there is no effective application or mechanisms for regulating or promoting their enforcement beyond public buildings (RCI of 29), which reduces their perceived relevance for stakeholders in the sector.

Important findings from the policy and legal framework enabling resilient recovery:

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.

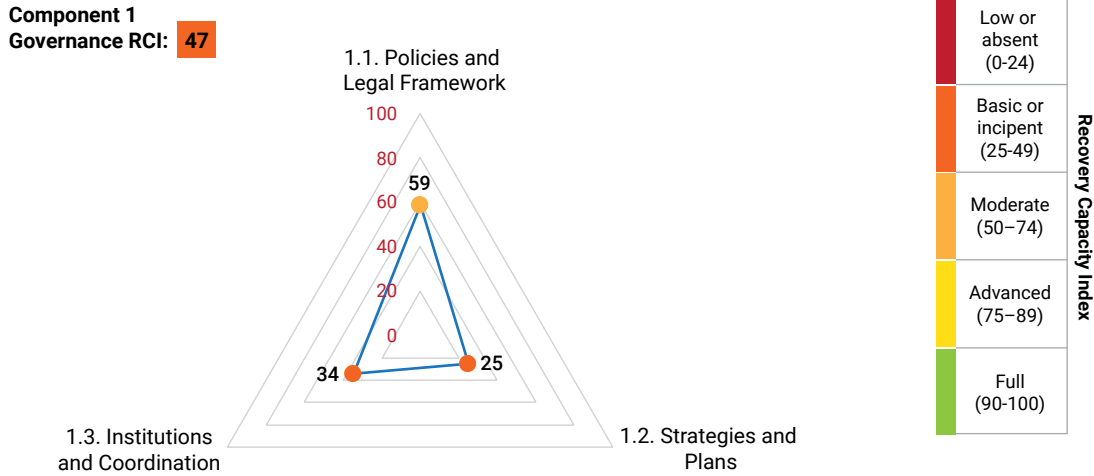
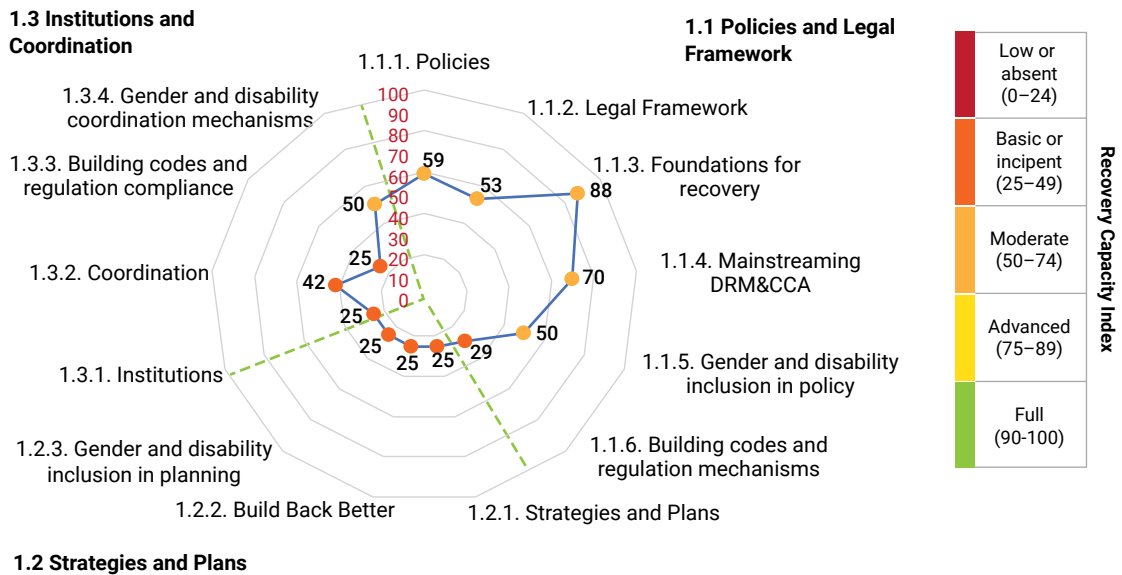


FIGURE 10

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.



- » The DRM Policy was issued in 2013 and clearly defines institutional mandates for DRM in Guyana. It designates the National DRM Platform as the main multisectoral institutional mechanism to lead all phases of DRM. It includes recovery and identifies the national public and private agencies involved in DRM. The policy takes a human rights approach, which mainstreams elements of equality, disability, and gender issues. Moreover, the policy states the need for improved coordination of the responsibilities and roles of each institution with respect to DRM and gender within the institutional system. The DRM Policy includes, “Undertaking post disaster recovery and reconstruction as an opportunity to build back better,” as a strategic objective and contemplates the elaboration of an integrated DRM agriculture or environment plan, inclusive of recovery.
- » The draft DRM Bill (DRM Act 2020) provides a comprehensive framework for DRM, designed to provide legal authority to Guyana’s national DRM system, which under the authority of CDC, consists of national level systems, such as the national early warning system, as well as regional and local level systems whereby each regional democratic council establishes for its region a regional DRM committee and develops regional DRM plans. The draft DRM Bill also provides guidance on the declaration of emergencies, the designation of vulnerable areas, and the establishment of a national DRM fund to support the adoption of comprehensive risk management in Guyana, and serve as a contingency fund for disasters, emergencies and recovery. However, the Bill provides little prescriptive guidance on defining and managing vulnerable sectors within the population, although it includes the establishment of the natural resources and environment cabinet subcommittee to advise and recommend the cabinet on gender issues related to DRM and climate change. It provides for the education and training of government personnel, financial institutions, and local government in emergency response and preparedness, with a strong focus on gender responsiveness. It also includes a code of conduct for volunteers to treat

everyone with courtesy regardless of gender and sexual orientation.

- » The Green State Development Strategy (GSDS): Vision 2040 (Government of Guyana 2019) and the Low Carbon Development Strategy (LCDS) (Office of the President 2022 and 2010). These documents guide Guyana’s medium term development and integrate climate change and DRM considerations, although they do not specifically address recovery and gender issues adequately. They introduce resilient infrastructure across sectors as a priority for future development and for achieving economic resilience. The GSDS discusses the need for reinforcing and improving first line sea defenses as a priority for development, and the LCDS proposes strategic public and private investments on drainage, irrigation, road construction, and off-grid power infrastructure for supporting the growth of high potential low carbon agricultural production for export in locations distant from vulnerable coastal areas and without adding pressure on forests.

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

- » Establishment of an effective process or mechanism for updating national and sectoral policies, to integrate both gender and disability inclusive recovery considerations and elements for their operationalization and coordination at the sectoral level. This mechanism is lacking.
- » Use of mechanisms—including ongoing and planned policy, strategic and planning processes—to enable the operationalization of gender responsive and disability inclusive recovery enabling policies.
- » Formulation of a recovery strategy for the agriculture sector to guide and facilitate the elaboration of sector specific recovery plans that are gender and disability inclusive in their design and the development and implementation of resilient recovery investments, following a BBB approach.
- » Strengthening and enforcing building codes at the sector level to reduce vulnerability, in particular, for persons living with disabilities (PWDs).

- » Integration of elements to operationalize the BBB approach in sectoral recovery policy, strategic, and programmatic processes.

4.3 Findings for Competencies

The capacity and skills existing in Guyana's agriculture sector are basic and insufficient to design and implement gender-sensitive and disability-inclusive resilient recovery projects. This is indicated by the RCI of 34 obtained for the Competencies component (figure 11) and reflects that institutional limitations affect the effective consideration and integration of DRM and recovery in relevant sectoral processes. These limitations take place at the level of the existing workforce (RCI of 33), their knowledge and skills (RCI of 35), and the recruitment of staff with required profiles, that prevents public agencies in the agriculture sector from acquiring and maintaining the capacity needed (RCI of 34).

The results obtained at the sub-element level (figure 12) clarify these findings and indicate that: , there is a shortage of professionals in public positions within the sector who have knowledge, skills and experience

in the use of DRM methods and tools, and on the application of the BBB approach. Gender and disability inclusion are generally poorly integrated in project planning and implementation. There are also knowledge and skill gaps in various areas of the project cycle management (PCM), including monitoring and evaluation. Training and public recruitment in these areas is urgently required, along with mechanisms to ensure long-term DRM and recovery knowledge transfer.

The assessment of competencies indicates the following:

- » There is a general shortage of government and other professional staff working in the agriculture sector. The working conditions for existing teams, in terms of connectivity, equipment, software, etc. are inadequate, with some exceptions (e.g. the Hydromet service).
- » Building capacity of government agencies on DRM and recovery has not been part of the sector development agenda. At present, public recruitment protocols, such as ToRs, do not include a minimum DRM or gender integration knowledge in their criteria. This, and other factors, such as work opportunities abroad that attract national qualified

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.

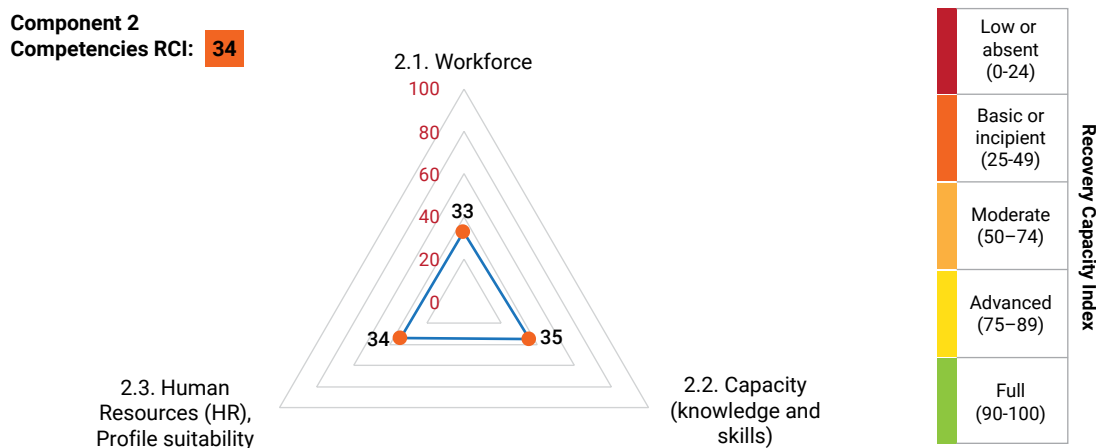
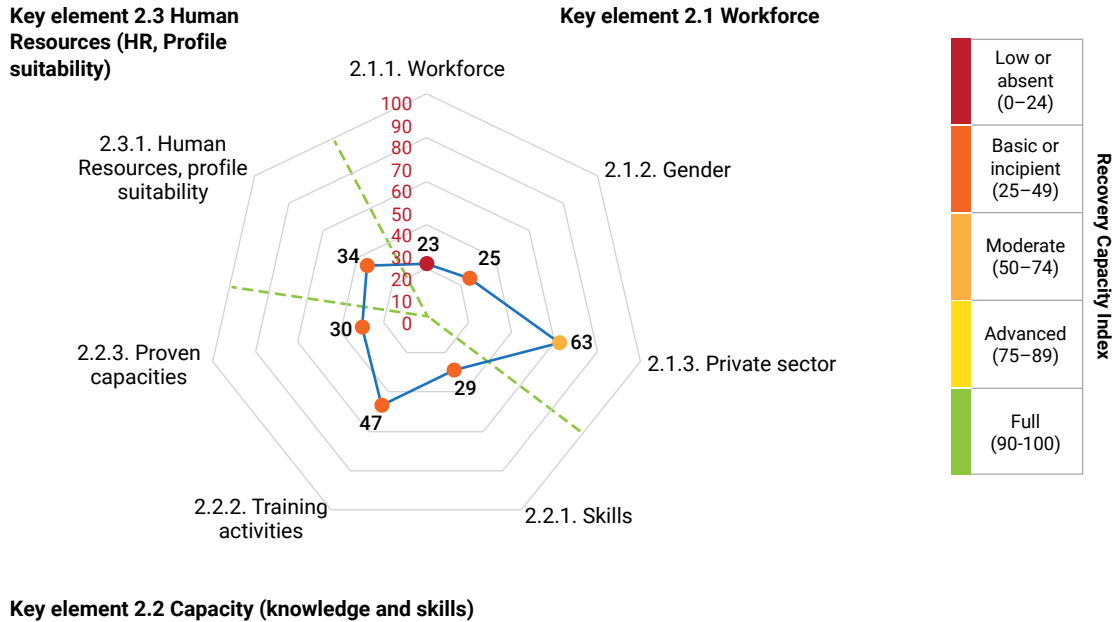


FIGURE 12

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.



individuals, limits the possibility of strengthening recovery competencies in a sustained manner.

- » At present, to fill capacity limitations, the sector relies on an adequate number of qualified external private contractors and technical assistance by international agencies, including the Food and Agriculture Organization of the United Nations (FAO), the Inter-American Institute for Cooperation on Agriculture (IICA) and the Pan American Organization (PAHO), among others. Limitations are recognized and include:
 - > Lack of gender specialists to fill the needs of the sector and absence of technical staff trained on gender responsiveness and disability inclusion.
 - > Low number of professionals in public agencies involved in agriculture with the knowledge and experience required to identify, plan, design, implement and oversee recovery projects.
 - > Lack of staff with the necessary expertise and knowledge of DRM methods and tools, such as disaster risk assessments and the use of

geo-referenced information systems. Although technical persons working in the sector understand the basics of DRM and can use hazard maps to a certain extent, they lack the capacity to undertake the elaboration of PDNAs and translate their results into actionable projects. This is currently achieved with international technical support. There are also limitations in the inclusion of resilience measures into investment projects.

- > Low level of training and skills on project management cycle-related issues across the sector, which constraints the design and implementation of resilient recovery projects.
- > Lack of knowledge and technical capacity on the BBB and lack of mentoring or advisory services on this subject, applicable to the sector.
- > Absence of agreements on knowledge transfer between the private sector and government agencies involved in agriculture to strengthen sectoral initiatives and investments.

The need for building and strengthening competencies for resilient and inclusive recovery within the sector is recognized. Opportunities to build the necessary knowledge and skills within public sectoral agencies include the following:

- » Tailor existing DRM and project management trainings for post-graduate students, and for public servants to the needs of the agriculture sector. For example, a government partnership with the Japan International Cooperation Agency (JICA) for the provision of valuable training in areas related to DRM and infrastructure has been established, but the local capacity built has not reached the agriculture sector directly.
- » Encourage international partners to contribute to closing major capacity gaps in countries with constraint workforce, including Guyana, by providing technical experts to work hand-in-hand with national and sectoral public institutions and by creating more frequent opportunities for knowledge sharing and technology transfer, including through the institutionalization of a capacity building component within each support intervention. The private sector can also be encouraged to strengthen

its DRM capacity, for example in BBB approaches, and to enable resilient and inclusive recovery through actions such as imports of improved crop varieties and developing insurance and microinsurance programs suitable to Guyana's agricultural context.

- » Include, in the recruitment protocols of public agencies involved in the agriculture sector, 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 social inclusive methodologies.

4.4 Findings for Resources and Tools

The resources and tools available for resilient recovery in Guyana's agriculture sector are assessed as moderate with an RCI of 50 (figure 13). Three main factors influence this index value. The first factor relates to limitations in the availability, generation and use of natural hazard and risk information (RCI of 43), specifically of functional and useful information to plan, design and

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.

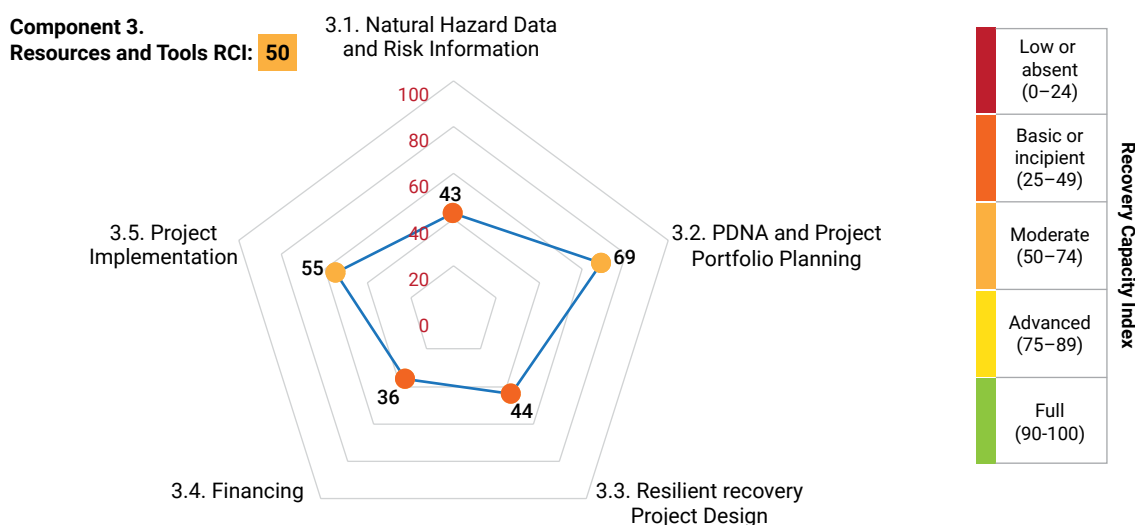
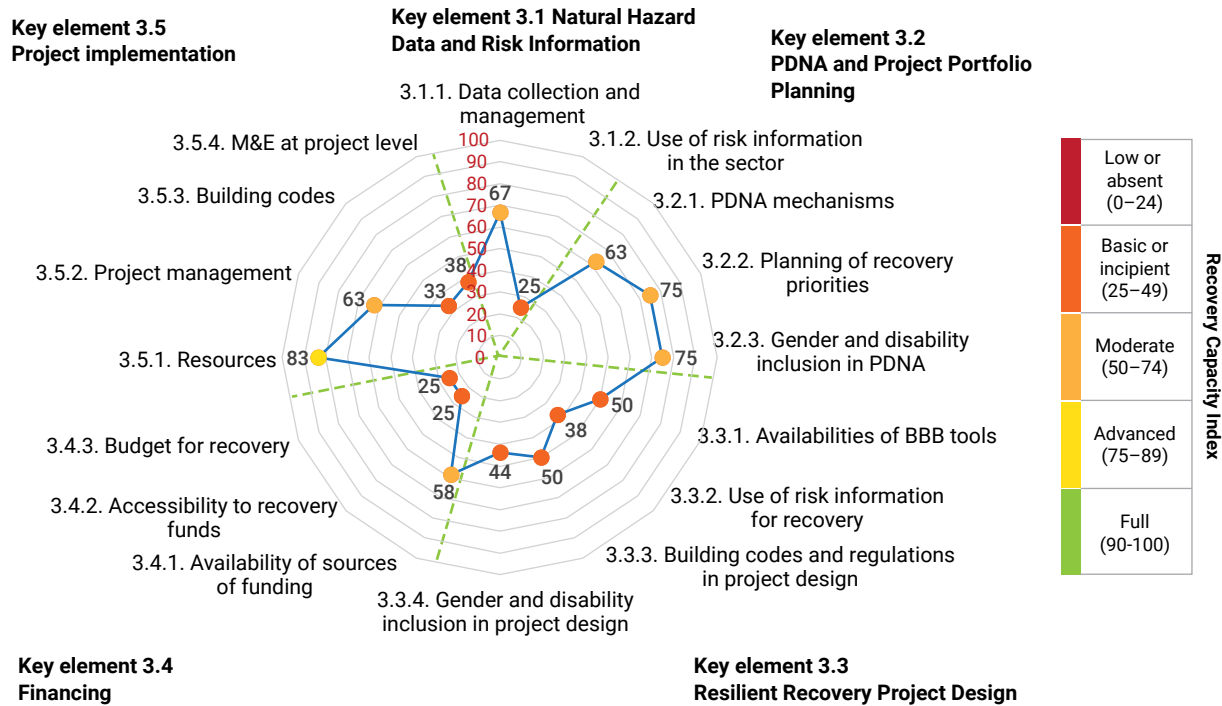


FIGURE 14

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.



implement risk-based projects and resilient recovery interventions in the sector. 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 agricultural investments and projects, including gender and disability disaggregated data. The second factor relates to the incipient level of adoption and use of resources and tools tailored for the systematic and effective integration of resilience into the sector’s day-to-day procedures and operations, including project design and implementation (RCI of 44). The third factor is the basic level of information about and access to recovery financing opportunities at the sector level (RCI of 36). Procedures for institutionalizing resources for recovery into the sector’s annual budgets and for facilitating direct access by the sector to recovery funding after emergencies

are practically missing. The results of the assessment at the sub-element level (figure 14) support these findings and additionally highlight the need of M&E tools for improving project implementation (RCI of 38) and the importance of strengthening the enforcement of building codes and extending their use to agricultural investments, as a tool for resilience building.

Detailed findings of the assessment include the following:

- » National mechanisms are in place for the collection and management of natural-hazard data and risk information. These include the National Emergency Management System (NEMS) and established processes for risk assessments at the community and regional levels. However, data quality

and consistency control systems are missing and existing data management systems, including databases, require strengthening. A cross-sectoral agreement on the desired tools and systems to be used for risk data management is also needed. This is particularly important as the policy for National Early Warning Systems will soon be implemented following a human rights-based approach, with works underway to develop a shared database platform. National-level risk data and information are readily available for use but information sharing between agencies is poor.

- » No sectoral multi-hazard maps exist for the sector, and although hazard maps have been elaborated for Guyana, they are outdated and at a scale that is not useful for agricultural purposes. There is no sector-specific risk data and information repository and, most projects taking place in the sector are not risk-based.
- » The lack of flood modelling in coastal areas is recognized as a major limitation for DRM, and thus recovery, in the country and sector. However, undertaking this modelling requires technical skills and knowledge unavailable in Guyana.
- » Due to low national and sectoral capacity, PDNAs are elaborated by international agencies, following international protocols that include the collection of gender-, age- and disability-disaggregated data. PDNAs are coordinated through the National Emergency Operations Centre (NEOC) mechanism, with roles and responsibilities clearly defined in the National Damage Assessment and Needs Analysis (DANA) Framework.
- » Recovery project portfolios and, to some extent, development projects, use the recommendations provided by PDNAs but fail to systematically integrate risk considerations in their design.
- » The sector lacks the necessary tools to ensure that project designs take in consideration the needs of persons with disabilities, women, men, girls and boys systematically. Currently only some specific projects have gender specialists.
- » There are no tools or processes in place to incorporate the BBB approach into national and sectoral projects. At present some standards are applied to ensure resilience is integrated into project designs.

This takes place mostly in donor-driven initiatives but has not led to the establishment of protocols for the sector to be used in governmental day-to-day operations.

- » Building codes for construction exist and are integrated into public building designs. However, there is no monitoring body in place for their enforcement and it is uncertain whether they are sufficiently enforced in private projects. Building codes for agricultural infrastructure that integrate risk reduction, resilience measures and support agricultural project planning and design are needed.
- » The Ministry of Agriculture does not have a budget line earmarked for recovery. Sectoral stakeholders are aware that international funding sources for recovery interventions are available when required. However, it is unclear to them how to access these funds directly and they perceive that fund disbursement is a difficult and lengthy process.
- » The National Procurement Act allows for emergency procurement. The agriculture sector has an inventory of qualified implementing contractors, updated yearly by individual sub-sector agencies. There are established relationships with providers, which allows for fast-tracking the purchase of material for construction when required. However, construction materials used in recovery projects often do not meet accreditation standards.

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

- » The inclusion of risk data collection as a key element of the planned Agriculture Census to be led by FAO (delayed due to COVID-19). This census will collect information on the location and type of farms existing in the country as well as the gender distribution of farming communities and farmers.
- » The inclusion of hazard and risk data required by investment projects in agriculture, at an appropriate scale and usable formats, in Early Warning Systems and other relevant data, information and knowledge management initiatives currently being planned or under development at the national level.

- » To 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.
- » To embed elements of the DRM approach (hazards, risk assessments and measures) in all project cycle management protocols used in the sector. This is a major opportunity, in view of the current high demand of resilient projects and investments.
- » To include sectoral DRM allocations in the budget construction and planning processes of the country and donors.
- » To increase the visibility and awareness of recovery financing options for the sector and build requisite capacity on access protocols and criteria.
- » To improve access of agricultural smallholders (including fisheries and forestry) to insurance in order to enhance their resilience to future shocks and stresses.
- » Strengthening and updating building codes to follow the BBB approach and include specific DRM and recovery components. The updated building codes should be applicable to a wide range of sectors and enforced, from the design phase, in all national and sectoral development projects and investments.
- » Integrate the BBB approach as a requirement in the planning and design of national and sectoral strategies, plans and budgets, particularly those related to recovery.
- » Compliance with updated building codes should be integrated as a requisite for the design and implementation of development projects and other sectoral investments.
- » Create M&E systems that are complementary to donor M&E requirements by upgrading and strengthening the tools currently used for this purpose (e.g. Excel formats) and integrating DRM, recovery and resilience indicators.
- » Use post-disaster project and investment planning as the best scenario to generate and use M&E systems to track the efficiency and effectiveness of projects along their entire cycle.

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 persons with disabilities have been included directly and indirectly in the DRM policy and legal framework, as shown by the RCI of 43 and 63, respectively (figure 15). However, the sector's agencies lack the expertise required on a permanent basis for mainstreaming of gender and disability inclusion into the agencies' operations, including into strategic planning and project implementation processes (RCI of 42 and 25 respectively). 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).

Gender equality, though an increasing priority, is still largely an abstract concept in Guyana's agricultural sector. As documented in a recent United Nations (UN) Report on Guyana's gender-based climate resilience, there is a lack of understanding of how to operationalize gender-responsive processes and a lack of financing to support this, and many processes and interventions remain gender-blind (UNDP, 2021).

Despite the advances made in creating an enabling policy environment for gender mainstreaming in the priority sector and beyond, there remain significant areas for improvement for effective and inclusive climate change adaptation and resilience building.

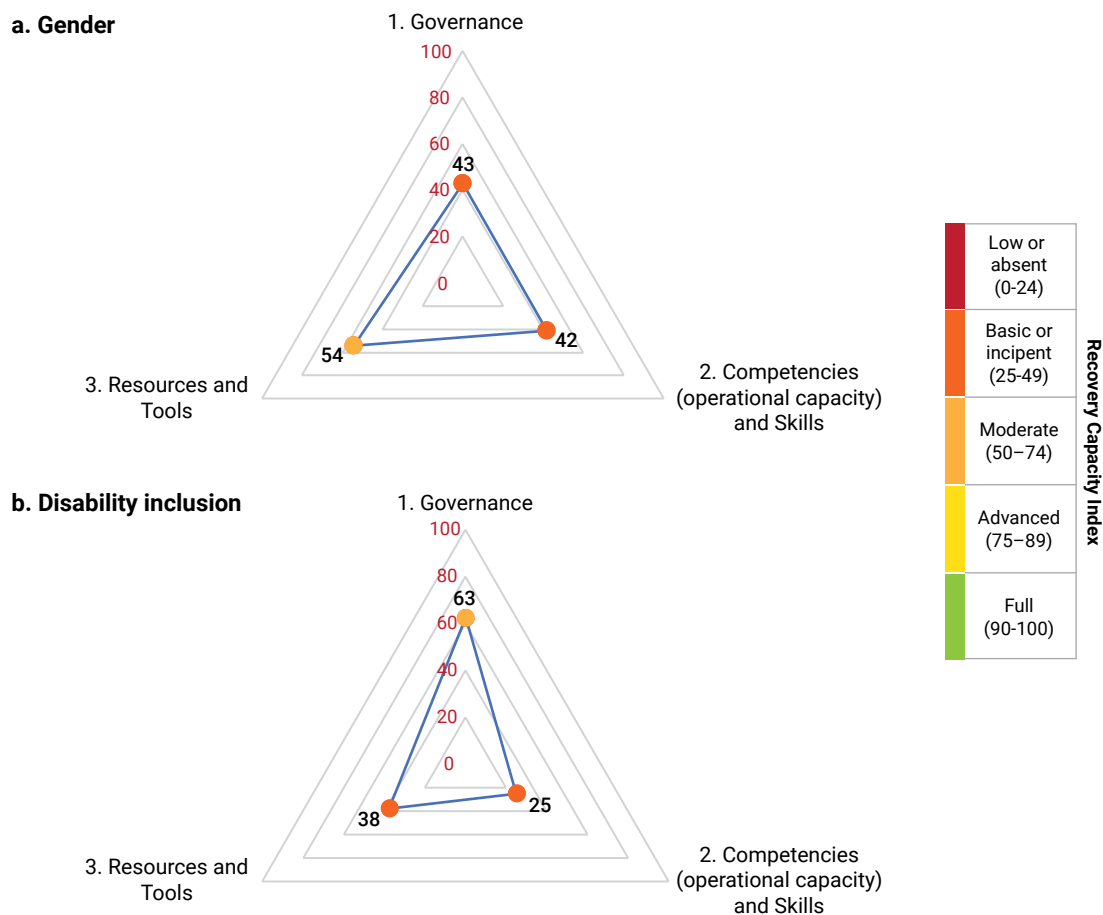
Policies, legal frameworks, strategies and plans for DRM governance, on the national level, mention gender equality and the social inclusion of the indigenous groups as goals, but there are no gender-specific actions, budget, institutional capacity, or M&E for implementation.

The Agricultural DRM Plan 2013-2020, which is the strategy for mainstreaming DRM in the agricultural

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.



sector mentions creating opportunities for women and youth but no specific actions.

There is currently limited data and understanding of gender-specific actions outlined in national and sectoral plans and policies.

There are nonetheless several positive achievements:

- » The Draft DRM Bill emphasizes equality and non-discrimination on a gender- and disability-basis and includes vulnerable populations, including Persons Living with Disabilities (PLWDs), as a theme.
- » Gender agencies, women's networks and youth groups are involved in DRM activities led and

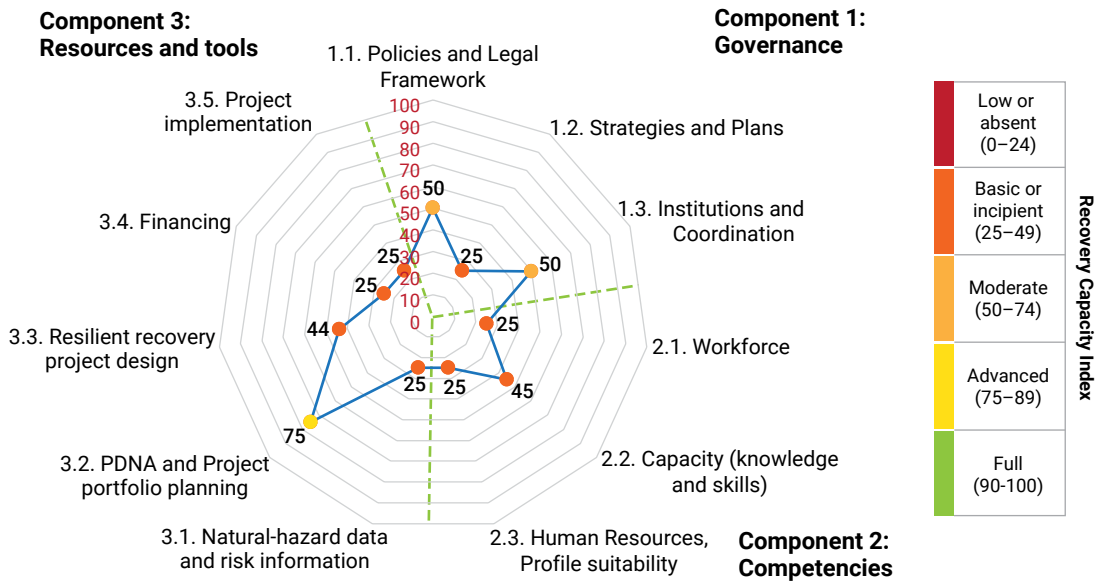
coordinated by the National DRM Coordination Platform.

- » Gender and disability data and information have been collected by international agencies as part of PDNA processes following the ECLAC methodology. The upcoming FAO agricultural census will update information on the gender distribution of communities and farmers and, currently, the Guyana Council of Organisations for Persons with Disabilities is developing a national register of persons with disabilities with information collected and confirmed through house-to-house surveying. These data collection efforts need to be sustained over time and with support from the Ministry of Agriculture, to ensure gender responsiveness and

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.



disability inclusion are well-targeted and monitored in its projects and programs.

However, as outlined above, there are major shortcomings, including that currently:

- » Gender needs are not consistently integrated in the design of projects in the sector.
- » Gender integration takes place mainly as a response to funding opportunities and donor requirements.
- » The basic needs of persons with disabilities are only partly integrated in project design and under specific project requirements, with the corresponding activities undertaken by expert international consultants, without developing local capacity.

Recommended ways forward include:

- » Recruiting dedicated staff and adjusting HR processes in order to build and retain in-house capacity on gender and disability inclusion. At present, minimum knowledge of these issues is not included as requisite in public recruitment processes.
- » Integrate gender and disability inclusion in the enabling policy and legal framework for recovery.
- » Review data needs in greater depth to inform efforts to build sustainable capacity for data collection and analysis to allow meaningful understanding and tracking of progress on gender and disability.

05

Recommendations



The following points summarize the recommendations of this assessment, which are detailed in Annex 2. They are made with the objective of building and strengthening the capacity of Guyana's agriculture sector to prepare for the implementation of resilient and inclusive recovery projects, well before disasters strike. These recommendations respond to the capacity needs for recovery identified in this assessment, existing opportunities and recommendations made by the consulted stakeholders, as well as by sectoral experts, and gender and disability inclusion specialists. These recommendations principally target central government ministries, the Ministry of Agriculture, CDC, CDEMA, and donor agencies involved in DRM and resilience building processes in the country.

Policy and strategic recommendations:

- » Strengthen the enabling national and sectoral policy and regulatory environment for recovery through the development of the National Recovery Policy, the National Recovery Strategy and regulations that integrate resilient and inclusive recovery for each of the agriculture sub-sectors.
- » Establish mechanisms or institutional mandates for sectoral authorities to develop and coordinate the implementation of recovery strategies and plans.
- » Establish mechanisms for the operationalization of recovery-related policies by elaborating an updated integrated DRM Agriculture/Environment Plan, completing the Caribbean Regional Efficiency Building Code upgrading and developing recovery guidelines for the implementation of the Country Work Program for Comprehensive Disaster Management 2021-2025.

Physical investments:

a) Infrastructure

- » Upgrade and retrofit coastal and river flood defense infrastructure, and strengthen drainage and irrigation systems to reduce the risk of flooding due to extreme weather events and sea level rise on food production systems. Progress in these areas

requires a survey to identify and prioritize the coastal defense infrastructure to reconstruct and rehabilitate and interventions to separate urban and agricultural drainage in high-risk areas. Based on the findings of the survey, elaborate an updated project portfolio of priority resilient infrastructure investments.

b) Equipment, systems and financial resources:

- » Invest in key data collection efforts, including agricultural censuses and periodic household surveys to develop a baseline that enables rapid damage assessment in the event of hazard impacts and supports the design and targeting of recovery operations.
- » Strengthen the generation, management and use of recovery-relevant data by creating a data and information portal for sectoral stakeholders to access hazard, risk, and other data and information relevant to disaster management and recovery, developing flood models for coastal areas under SLR and integrating gender and disability-inclusive DRM considerations in the upcoming agriculture census, among other measures. Internet connectivity challenges need to be addressed for the portal to be of maximum value.
- » Ensure the necessary equipment and tools are available for large-scale recovery interventions through a capacity assessment of the adequacy of existing equipment across parastatal agencies.
- » Strengthen sectoral budgets for DRM and recovery by accelerating Cabinet approval of the DRM Bill that will enable the establishment of the DRM Fund and, conducting a needs assessment of the sector's budget, including the need for a contingent annual recovery allocation.
- » Ensure legislation and procedures enable the rapid reallocation of annual budgets to support recovery efforts in the aftermath of both, major disasters and chronic small events which add burden to smallholder farmers overtime.
- » Establish mechanisms to improve access to insurance and microinsurance for agricultural smallholders (including fisheries and forestry), and actors associated to agriculture value chains and

operating in the informal sector, to enhance their resilience to future shocks and stresses.

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 sector's development. 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 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

Conclusions



Pile of purple sweet potatoes in market. Photo: Irina274 | Dreamstime.com

The analyses conducted in this assessment determined that the capacity of Guyana's agriculture sector to implement gender- and disability- inclusive, resilient recovery projects in a timely, efficient, and effective manner as incipient, with a sector-level RCI of 45. The resources and tools available (RCI of 50) enable to a certain extent sectoral recovery. However, weaknesses in Governance (RCI of 47) and, particularly, in the knowledge and skills available within the sector (RCI of 34), limit the planning and implementation of resilient recovery projects.

This assessment sought to identify gaps and opportunities as well as to provide recommendations for strengthening national and sectoral capacity to navigate and implement climate resilient and inclusive recovery projects. The results complement existing reports, including the Second National Communication to the United Nations Framework Convention on Climate Change (Government of Guyana, 2012), the Analysis of Agricultural Policies in Guyana (IDB 2017), the draft Climate Resilience Strategy and Action Plan for Guyana (Ministry of the Presidency, 2015), and the National Drought Mitigation and Adaptation Plan (Guyana Lands and Surveys Commission, 2020).

Governance

In terms of governance, the findings underscore that Guyana has made significant progress in institutionalizing disaster risk management (DRM) by issuing a DRM policy in 2013, which designates the National DRM Platform as the main multi-sectoral institutional mechanism to lead all phases of DRM, including recovery. However, there is a need for improved coordination of responsibilities and roles of each institution with respect to DRM and gender within the institutional system. The Draft DRM Bill (DRM Act 2020) provides a comprehensive framework for DRM, designed to provide legal authority to Guyana's national DRM system. It establishes national, regional, and local level systems, provides guidance on emergency declaration and designation of vulnerable areas, and establishes

a National DRM Fund. However, it provides little prescriptive guidance on defining and managing vulnerable sectors within the population. The Green State Development Strategy (GSDS): Vision 2040 and the Low Carbon Development Strategy (LCDS) integrate climate change and DRM considerations and prioritize resilient infrastructure across sectors and propose strategic public and private investments in drainage, irrigation, road construction, and off-grid power infrastructure for supporting the growth of high-potential low-carbon agricultural production for export in locations distant from vulnerable coastal areas and without adding pressure on forests, but fail to adequately address recovery and gender issues. Overall, while Guyana has taken significant steps towards institutionalizing DRM, there is still a need to address recovery and gender issues and provide prescriptive guidance on managing vulnerable sectors within the population. The focus on resilient infrastructure and strategic public and private investments is commendable and aligns with international best practices.

Competencies

When it comes to competencies, the agriculture sector in Guyana is facing a shortage of professional staff, with inadequate working conditions for existing teams. Building capacity on DRM and recovery has not been a priority in the sector's development agenda, and public recruitment protocols do not include minimum criteria for DRM or gender integration knowledge. To address capacity limitations, the sector relies on external private contractors and technical assistance from international agencies, but there are limitations in terms of gender specialists, professionals with knowledge of DRM methods and tools, and training on project management cycle-related issues. There is also a lack of knowledge and technical capacity on BBB and no agreements on knowledge transfer between the private sector and government agencies involved in agriculture. These limitations need to be addressed to ensure the development of resilient recovery projects and strengthen sectoral initiatives and investments.

Resources and tools

Finally, regarding resources and tools for natural hazard data collection and management, while Guyana has national mechanisms in place there is a lack of consistency and quality control systems for data management. The absence of sector-specific risk data and information repository and outdated hazard maps hinder risk-based planning and recovery. PDNAs are elaborated by international agencies due to low national and sectoral capacity, but recommendations are not systematically integrated into project designs. There is a need to incorporate gender and disability considerations into project designs and to develop tools and processes to incorporate the BBB approach into national and sectoral projects. While building codes exist for construction, they are not sufficiently enforced in private projects, and building codes for

agricultural infrastructure that integrate risk reduction and resilience measures are needed. The Ministry of Agriculture does not have a budget line earmarked for recovery, and stakeholders perceive accessing international funding sources to be a difficult and lengthy process. Finally, while emergency procurement is allowed, construction materials used in recovery projects often do not meet accreditation standards.

This assessment calls for investments in resilient infrastructure to reduce disaster risks in Guyana's agriculture 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 Guyana's efforts to build resilience.

References

- Caribbean Disaster Emergency Management Agency (CDEMA). 2021. *Flooding in Guyana, Situation Report No. 3*. Available online at: https://reliefweb.int/sites/reliefweb.int/files/resources/CDEMA_Situation_Report_3_GuyanaFlood_28_June_2021.pdf
- Dasgupta, S., Laplante, B., Murray, S. and Wheeler, D. 2009. *Sea-Level and Storm Surges: A Comparative Analysis of Impacts in Developing Countries*. Policy Research Working Paper No. 4901. The World Bank. Available online at: <https://documents1.worldbank.org/curated/en/657521468157195342/pdf/WPS4901.pdf>
- Economic Commission for Latin America and the Caribbean (ECLAC). 2011a. *An Assessment of the Economic Impact of Climate Change on the Agriculture Sector in Guyana*. Available online at: https://repositorio.cepal.org/bitstream/handle/11362/38586/1/LCCARL323_en.pdf
- Economic Commission for Latin America and the Caribbean. 2011b. *An Assessment of the Economic Impact of Climate Change on the Coastal and Human Settlements Sector of Guyana*. Available online at: https://www.cepal.org/sites/default/files/publication/files/38582/LCCARL327_en.pdf
- Federal Office for Civil Protection (FOCP) (2020) : National risk analysis report. Disasters and Emergencies in Switzerland 2020. FOCP, Bern.
- Food and Agriculture Organization of the United Nations (FAO). 2015. *AQUASTAT Country Profile – Guyana*. Available online at: <http://www.fao.org/3/ca0428en/CA0428EN.pdf>
- Garlati, A. 2013. *Climate Change and Extreme Weather Events in Latin America: An Exposure Index*. Inter-American Development Bank Department of Research and Chief Economist Technical Note No. IDB-TN-490. Available online at: <https://publications.iadb.org/publications/english/document/Climate-Change-and-Extreme-Weather-Events-in-Latin-America-An-Exposure-Index.pdf>
- Giardino, A. et al. (2020). *Assessing the Impact of Sea Level Rise and Resilience Potential in the Caribbean: 360° Resilience Background Paper*. World Bank, Washington, DC. Available online at: <https://openknowledge.worldbank.org/handle/10986/36417>
- Global Facility for Disaster Reduction and Recovery (GFDRR). 2020. *Disaster Recovery Framework Guide*. Revised Version March 2020. Available online at: <https://www.gfdr.org/sites/default/files/publication/DRF%20Guide.pdf>
- Government of Guyana. 2012. *Second National Communication to the United Nations Framework Convention on Climate Change*. Available online at: <https://unfccc.int/documents/106991>
- Government of Guyana. 2019. *Green State Development Strategy: Vision 2040. Volume I: Policy recommendations, financial mechanism & implementation*. Available online at: <https://doe.gov.gy/published/document/5d12163ee571586f465b1b23>
- Guyana Lands and Surveys Commission (2020). *Guyana's National Drought Mitigation and Adaptation Plan United Nations Convention to Combat Desertification (UNCCD) Drought Initiative*. <http://extwprlegs1.fao.org/docs/pdf/guy202549.pdf>
- Inter-American Development Bank (IDB). 2017. *Analysis of Agricultural Policies in Guyana*. <https://publications.iadb.org/publications/english/document/Analysis-of-Agricultural-Policies-in-Guyana.pdf>
- Intergovernmental Panel on Climate Change (IPCC). 2021. *Summary for Policymakers. In: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental*

- Panel on Climate Change*. Masson-Delmotte, V. et al. (eds.). Cambridge University Press. In Press. Available online at: https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Full_Report.pdf
- International Labor Organization (ILO). 2018. *Gender at Work in the Caribbean: Country Report for Guyana*. Available online at: https://www.ilo.org/caribbean/information-resources/publications/WCMS_651947/lang-en/index.htm
- Ministry of Agriculture of Guyana (2013). *A National Strategy for Agriculture in Guyana*. <http://extwpr-legs1.fao.org/docs/pdf/guy165953.pdf>
- Ministry of the Presidency. 2015. *Climate Resilience Strategy and Action Plan for Guyana*. Draft for consultation. Available online at: <https://climatechange.gov.gy/en/index.php/resources/documents/124-climate-resilience-strategy-and-action-plan>
- Office of the President, Republic of Guyana. 2022. *Guyana's Low Carbon Development Strategy 2030*. Available online at: <https://lcds.gov.gy/wp-content/uploads/2022/08/Guyanas-Low-Carbon-Development-Strategy-2030.pdf>
- Office of the President, Republic of Guyana. 2010. *A Low Carbon Development Strategy. Transforming Guyana's Economy while Combating Climate Change*. Available online at: http://www.caribbeanelections.com/eDocs/strategy/gy_strategy/gy_Low_Carbon_Development_Strategy_May_2010.pdf
- Ötker, I. and Srinivasan, K. 2018. *Bracing for the Storm: For the Caribbean, Building Resilience is a Matter of Survival*. Finance and Development 55 (1): 49-51. Available online at: <https://www.imf.org/external/pubs/ft/fandd/2018/03/pdf/otker.pdf>
- Piñeiro, V. et al. 2020. *Drivers and disruptors shaping the future of agriculture and the food system in LAC: Climate change and trade tensions*. IFPRI Discussion Paper 1967. International Food Policy Research Institute (IFPRI). Available online at: <https://ebrary.ifpri.org/digital/collection/p15738coll2/id/134084>
- United Nations Development Programme (2018). *National Adaptation Plan Guyana: Inception Report*. Japan-Caribbean Climate Change Partnership (J-CCCP). Available online at: https://procurement-notice.undp.org/view_file.cfm?doc_id=131467
- United Nations Development Programme (2020). *Gender, Age, Inequality and Differential Impacts of Disasters and the Cost of Inaction in Guyana*.
- United Nations Development Programme (UNDP). 2021. *Report on the Gender-based Climate Resilience Analysis for the Co-operative Republic of Guyana*. *ENGENDER Project report*. <https://docs.google.com/document/d/1laPMS4B08Ss6GaF7oVz6Xt8KEASJGtki/edit>
- United State Department of Agriculture (USDA). 2018. 2017/18 *Guyana Rice Production Higher than Expected*. Commodity Intelligence Report. USDA, Foreign Agricultural Service. Available online at: <https://ipad.fas.usda.gov/highlights/2018/02/guyana/index.pdf>
- Walters, C. and Viteri, A., 2018. *National Gender Equality and Social Inclusion (GESI) Policy for Guyana*, Georgetown, Guyana: Government of the Co-operative Republic of Guyana, Ministry of Social Inclusion.
- World Bank. 2019. World Development Indicators: Guyana. Available online at: <https://data.worldbank.org/country/GY>
- World Bank. 2021. Global Economic Prospects. Available online at: <https://www.worldbank.org/en/publication/global-economicprospects>.
- World Bank Climate Knowledge Portal (CCKP). 2021a. *Climate Data Projections for Guyana*. Online resource available at: <https://climateknowledgeportal.worldbank.org/country/guyana/climate-data-projections> Accessed on April, 21, 2021.
- World Bank Climate Knowledge Portal (CCKP). 2021b. *Guyana Vulnerability*. Online resource available at: <https://climateknowledgeportal.worldbank.org/country/guyana/vulnerability> Accessed on April 21, 2021.

Annex 1.

Specific recommendations to strengthen the capacity of Guyana's agriculture for resilient and inclusive recovery

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

Recommendations	Actions
Strengthen the enabling national and sectoral policy and regulatory environment for recovery	<ul style="list-style-type: none"> » Facilitate the integration of resilient and inclusive recovery considerations into the national and sectoral policy framework. Specifically: » Develop the national recovery policy including specific guidance for implementation at the sectoral level (CDC in collaboration with the Office of Climate Change). » Establish mechanisms or institutional mandates for sectoral authorities to develop and coordinate the implementation of recovery strategies and plans.
	<p>Establish mechanisms that enable the operationalization of recovery-enabling policies. Specifically:</p> <ul style="list-style-type: none"> » Develop a national recovery strategy that integrates measures that build resilience, gender and disability considerations and guidance for the implementation of the BBB approach and ensure that strategic outputs are affordable and inclusive for the sector beneficiaries. » Elaborate an updated Integrated DRM agriculture or environment plan, as instructed by the DRM Policy. » Elaborate recovery guidelines, including on gender integration to facilitate and strengthen the implementation of the Country Work Program for Comprehensive Disaster Management 2021–2025 being finalized, which identifies priority sectors for DRM. » Develop regulations that integrate gender, disability, and recovery considerations for each of the agriculture sub-sectors. » Complete the Caribbean Regional Efficiency Building Code upgrades, to include climate change, gender, disability inclusion, and recovery considerations and of an implementation strategy and plan. » Integrate gender and disability inclusive recovery considerations in the Agricultural Strategy (2021–2030). That is being drafted and includes a section on environment and DRM.

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

Recommendations	Actions
<p>Raise awareness, at the strategic and operational levels, of the added value of creating and sustaining DRM and recovery capacity for the sector's development</p>	<ul style="list-style-type: none"> » Organize events for public officers on the importance of preparing for 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. » Develop awareness raising campaigns that are gender and disability informed, including events and materials, to highlight the risks associated with climate change on the agriculture sector and provide recommendations for impact reduction.
<p>Build and sustain the required knowledge and skills for the implementation of gender responsive and disability inclusive climate resilient recovery projects in the sector</p>	<ul style="list-style-type: none"> » Recruit skilled staff specialized in areas specific to DRM, specifically, disaster cycle management and recovery and gender analysis and integration, to cover urgent gaps. » 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. » 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, such as CRF and FAO to cover urgent capacity gaps through direct technical assistance to government agencies, as well as to fund training programs for sectoral staff in the areas required and strengthen knowledge sharing and technology transfer. » Train sectoral staff in requisite tasks for the implementation of resilient recovery projects. This includes training in: <ul style="list-style-type: none"> > Project cycle management (including M&E) > PDNA, to enhance the translation of PDNA results into actionable projects > GIS and remote sensing > Hazard risk management > BBB approaches > Disability inclusion > Gender analysis and integration » Articulate existing capacity building opportunities with sectoral needs by creating or tailoring academic programs and other training opportunities to the sector. This may include: <ul style="list-style-type: none"> > Establishing a collaboration agreement with the University of Guyana to tailor and deliver their current project management course (MSc) to the government agencies involved in agriculture. > Establishing a collaboration agreement with the Guyana School of Agriculture to provide a mentoring and advising program or process for BBB. > Establishing, in the framework of recovery mainstreaming, a collaboration agreement with the Guyana School of Agriculture to provide ongoing support for an agri-ability program of activities that builds capacity in persons living with disabilities to recover from hazard impacts and improve their wellbeing and livelihoods through hands-on experience with farming, and agri-related processing and methods. > Establishing a collaboration agreement with the University of the West Indies to tailor and deliver their existing gender responsive DRM certificate course program for government agencies involved in agriculture » Create alliances with the Guyana Council of Organisations for Persons with Disabilities and the National Commission on Disability to build a capacity for direct engagement with persons with disabilities in the sector and across DRM.

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 recovery relevant data	<ul style="list-style-type: none"> » Invest in key data collection efforts, including agricultural censuses and periodic household surveys to develop a baseline that enables rapid damage assessment in the event of hazard impacts and supports the design and targeting of recovery operations. » Integrate key DRM considerations specific to recovery (and that are gender and disability inclusive), into the agriculture census planned by FAO. » Undertake a study and a consultative cross-sectoral process to reach an agreement on the simplest and most efficient tools and systems to be used for risk data collection and management relevant for the agriculture sector. » Create a data and information portal for sectoral stakeholders to access hazard, risk, and other data and information relevant to disaster management and recovery that is developed and managed with internationally agreed interoperable data management standards and protocols, to support the improvement of datasets, avoid redundancies and facilitate project design and monitoring. This is contemplated in the National Geospatial Policy that is being developed. The Ministry of Agriculture recognizes the creation of data infrastructure as a priority for sectoral development. » Develop a system of collection and management of sea level rise data that can be used for land use planning and decision making on flood mitigation infrastructure. » Develop flood models for coastal areas under sea level rise scenarios as a step to enable the protection of its coastal plains and their agricultural fields from inundation.
Invest in protecting sectoral production and infrastructure from shocks	<ul style="list-style-type: none"> » Reduce agricultural losses caused by flooding due to extreme weather events and sea level rise by investing in coastal protection and flood mitigation infrastructure as specified in the Green State Development Strategy Vision 2040. Specifically: <ul style="list-style-type: none"> > Undertake a survey to identify and prioritize the specific sea and river defense reconstruction, rehabilitation and maintenance works required³ and their material needs. Consider complementary defense techniques, including offshore breakwater, wave attenuators and groynes. > Protect and restore mangrove areas > Separate urban and agricultural drainage in high pressure areas, procure new pumps and construct new outlets and canals;⁴ > Improve mechanical drainage by increasing the pump capacity on the East Coast of Demerara.³
Ensure the necessary equipment and tools are available for large-scale recovery interventions	<ul style="list-style-type: none"> » Undertake a capacity assessment of the adequacy of existing equipment (heavy machinery) across parastatal agencies for the implementation of large recovery projects.

³ In the "Guyana's sea defence enhancement and maintenance" concept note included in the Climate Resilience Strategy and Action Plan for Guyana (2015), relevant coastal protection infrastructure investments are presented and costed.

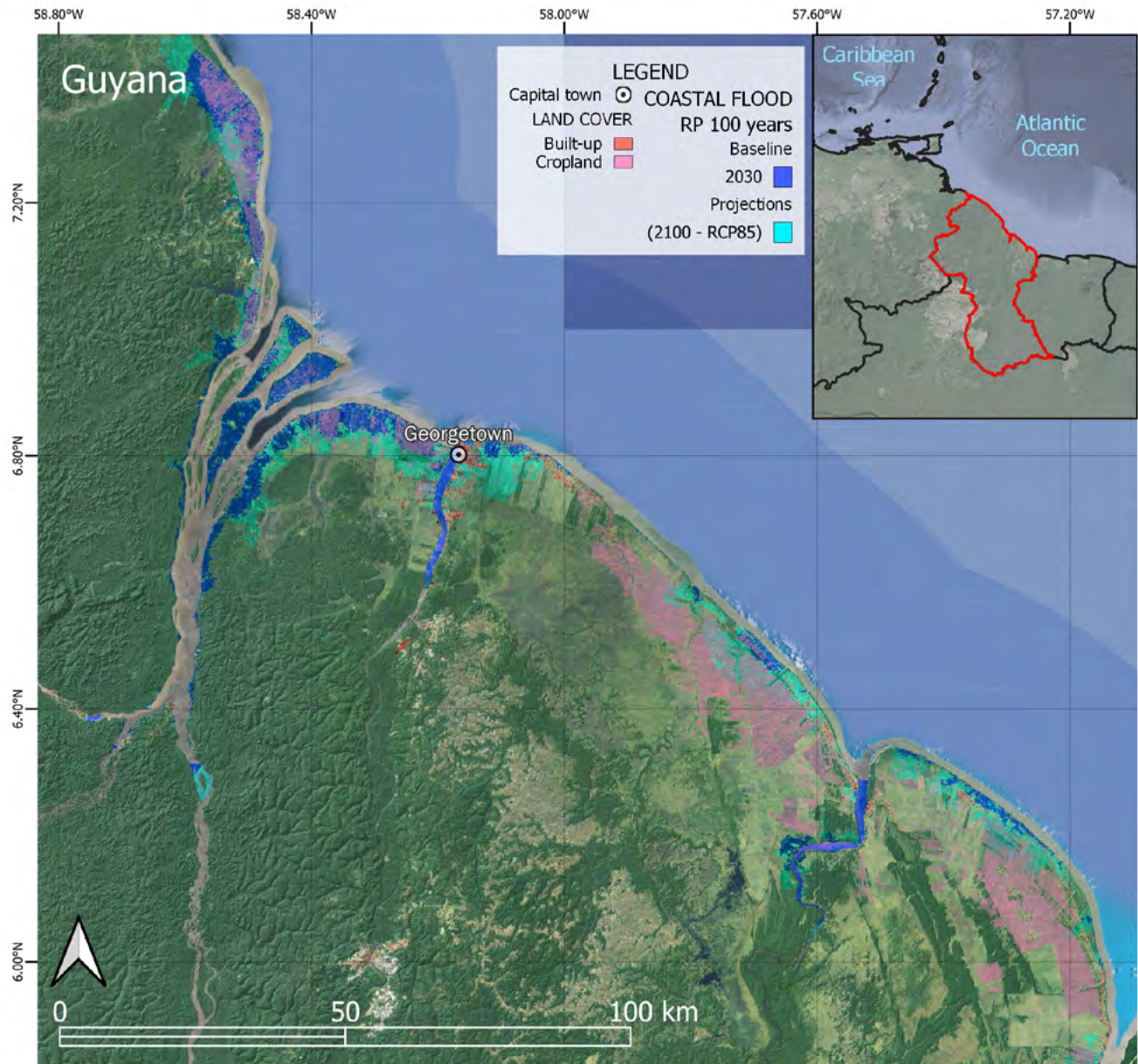
⁴ The "Strengthening drainage and irrigation systems" concept note included in the Climate Resilience Strategy and Action Plan for Guyana (2015) presents and costs relevant drainage and infrastructure investments.

Recommendations	Actions
Strengthen sectoral budgets for DRM and recovery	<ul style="list-style-type: none"> » Conduct a needs assessment of the sector's budget, including the need for recovery budget allocation. » Accelerate Cabinet approval of the DRM Bill to enable the establishment of the DRM Fund, inclusive of recovery funding. » Ensure legislation and procedures enable the rapid reallocation of annual budgets to support recovery efforts in the aftermath of both, major disasters and chronic small events which add burden to smallholder farmers overtime.
» Facilitate access to and adoption of agricultural insurance	» Establish mechanisms to improve access of agricultural smallholders (including fisheries and forestry) to insurance in order to enhance their resilience to future shocks and stresses.

Annex 2.

Inundation scenario maps for Guyana

- 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)
	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?

COMPONENT 1: GOVERNANCE			
Key elements	Sub elements	Questions	
1.1 Policies and Legal Framework (cont.)	1.1.4 Mainstreaming DRM&CCA (cont.)	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?			
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?

COMPONENT 1: GOVERNANCE			
Key elements	Sub elements	Questions	
	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?			

COMPONENT 2: COMPETENCIES			
Key elements	Sub elements	Questions	
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)?
	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)?		

COMPONENT 2: COMPETENCIES			
Key elements	Sub elements	Questions	
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?

COMPONENT 3: RESOURCES AND TOOLS			
Key elements	Sub elements	Questions	
3.2 PDNA and Project Portfolio Planning (cont.)	3.2.3 Gender and disability inclusion	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?
		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?			
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
	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)?

COMPONENT 3: RESOURCES AND TOOLS			
Key elements	Sub elements	Questions	
3.4 Financing (cont.)	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?			
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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