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# GUYANA RESILIENCE PROFILE

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The Eastern and Southern Caribbean (ESC) region is highly vulnerable to natural hazards. In recent years, extreme hurricanes have devastated communities and infrastructure in the region and left thousands of people without shelter, livelihoods, and services. Caribbean countries incurred an estimated \$27 billion in losses and damages from natural hazards between 2000 and 2017 (Friar, 2019), and averaged as much as 5.7 percent loss of GDP annually due to such disasters (Acevedo, 2016). The economic impact is staggering, making resilience an imperative for the region.

The United States Agency for International Development (USAID) Eastern and Southern Caribbean Mission (USAID/ESC) partners with regional and national institutions to support long-term resilience to natural hazards. In 2020, USAID/ESC conducted a [Resilience Assessment for the ESC region](#) to better understand the interplay of the region’s socioeconomic, environmental, and institutional context, the natural hazard and human-induced stressors that impact its communities and development sectors, and the spectrum of resilience capacities already in place, as shown here (Hellmuth et al. 2020).

The [ESC Resilience Assessment](#) finds USAID/ESC can invest in strengthening the region’s resilience ecosystem most effectively by:

- Taking systems- and sector-level approaches
- Focusing on core capabilities and sustainable programming
- Supporting and strengthening coordination at all levels
- Balancing regional and country-specific programming



The assessment includes country resilience profiles for Antigua and Barbuda, Barbados, Grenada, Saint Lucia, Trinidad and Tobago, and this one for Guyana.

## GUYANA

Although often considered a Caribbean country, Guyana lies on the South American mainland. While rich in natural resources, the high cost of energy can prohibit commercial development, although this may change with the start of offshore oil development in 2020. Guyana's United Nations Human Development Index score has improved recently, although gender inequality remains a pervasive challenge. The country experiences coastal flooding, flooding due to excessive rainfall, drought, and wildfires. While Guyana has several pieces of legislation aimed at building resilience, it has yet to put them into full force.

### COUNTRY CONTEXT

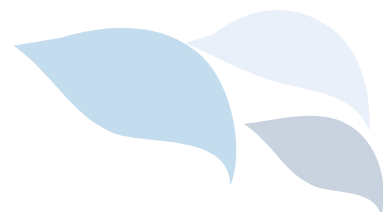
#### ENVIRONMENTAL, SOCIAL, AND ECONOMIC CONTEXT

<b>Environmental</b>	<p>Guyana is a tropical, low-lying country located in northeastern South America with an Atlantic Ocean coastline. The geography and natural landscape of the country is varied, with coastal, hilly, sandy, highland, forested, and savannah regions. Approximately 85 percent of the country's total land area is forested.</p> <p>Rainfall in Guyana is highly variable, and the country can be divided into climatic regions ranging from dry (annual rainfall less than 1788 mm) to extremely wet (annual rainfall greater than 4100 mm). Guyana has two rainy seasons, the first from April to July and the second from November to January. Across the country, the historical (1901–2016) mean annual temperature is 25.7°C and precipitation is 2375.5 mm. Projections indicate that mean annual temperature will rise by 1.9°C (1.3°C to 3°C) and annual precipitation will decrease by 36.8 mm (-330.1 mm to 362.1 mm) by 2040–2059.<sup>1</sup> Average sea level is expected to rise one to three meters by the end of the century (UNEP 2020, UNDP 2020b, Government of Guyana 2020a; World Bank 2020e).</p>
<b>Social</b>	<p>Guyana has a diverse population: 35 percent of African descent, 35 percent of East Indian Descent, 20 percent mixed, and 10 percent other. Ninety percent of the population of Guyana, and the country's main urban centers, are located in the coastal strip bordering the Atlantic Ocean. Just over a quarter of the country's population lives near or below the poverty line. Guyana's UNDP Human Development Index ranks in the middle tier of countries and has been increasing in recent years due to improvements in life expectancy, mean years of schooling, and gross national income. However, gender inequality persists in Guyana; for example, the female mortality rate is high compared to other similar countries.</p>
<b>Economic</b>	<p>Agriculture and mining are the most significant contributors to Guyana's Gross Domestic Product (GDP). Guyana is a net food exporter but faces challenges processing goods in-country due to high energy costs. The economy of Guyana grew by approximately 4.5 percent in 2019 and 4.1 percent in 2018. Real GDP expanded in 2019, primarily due to increased timber and gold production. Commercial oil production began in the country in 2020, resulting in significant economic growth and an expected increase in GDP of 53 percent (CDB 2020; IMF 2020).</p>

#### INSTITUTIONAL CONTEXT AND LEGAL FRAMEWORK AFFECTING RESILIENCE

Disaster preparedness and management in Guyana is overseen by the Guyana Civil Defense Commission (CDC). The CDC plans and implements national-level disaster management measures, promotes the

<sup>1</sup> Projections represent the model ensemble median under the high emissions scenario (RCP 8.5) and the range of values in parentheses represent the 10<sup>th</sup> to 90<sup>th</sup> percentile.



adoption of disaster loss reduction and mitigation policies, promotes and develops voluntary service groups to respond in the event of a disaster, provides disaster management training and education, and maintains a permanent staff to enhance the national capacity for disaster management services. The CDC embarked on a comprehensive disaster management program aligned with the Caribbean Disaster Emergency Management Agency (CDEMA) framework and centered around four phases: mitigation, preparedness, response, and recovery (Government of Guyana 2016a). The CDC also recently undertook an effort to draft disaster management legislation for the country. The CDC works in close collaboration with Guyana's Office of the President, Ministry of Agriculture, Environmental Protection Agency, Red Cross, Ministry of Health, and Defense Force.

Guyana also recently developed a National Climate Change Policy and Action Plan. Policy objectives include the establishment of climate resilient infrastructure and physical development, responsible management and utilization of natural resources, promotion of equitable participation, and decision-making based on leading scientific evidence. A strategic action plan and roadmap have been developed to implement the National Climate Change Policy and Action Plan.

## **RISK AND RESILIENCE ASSESSMENT**

### **RISK AND RESILIENCE PROFILE**

#### **Priority Risks**

Key risks in Guyana include coastal flooding and sea level rise, flooding due to excessive rainfall, drought, and wildfires (Government of Guyana 2016b). Due to its location, size and environmental characteristics, Guyana does not face the same risks as the island nations of the Caribbean. Guyana is not highly exposed to hurricanes, volcanoes, or earthquakes; while it is less vulnerable to these risks than its island neighbors, it is still an active member of CDEMA.

With 90 percent of the population living in the low-lying coastal region, Guyana is at risk from sea level rise and coastal flooding. Rates of sea level rise in Guyana exceed 10 mm per year, while the global average is 2 to 4 mm per year (Velasco 2014). Subsidence due to groundwater extraction, soil compaction, and the wetlands drainage exacerbates sea level rise (UCS 2011). Sea level rise poses a threat not only to the built environment and urban centers located along the coast, but also to agriculture and the natural environment such as mangrove ecosystems. Rising sea levels also threaten freshwater resources; saltwater intrusion was already observed in the two main aquifers providing water to coastal residents.

Guyana experiences frequent flooding during the rainy seasons, affecting both the inland regions and the coast. In January 2005, heavy rainfall coupled with drainage blockages and pump malfunctions caused severe flooding in several regions. These floods affected 274,774 individuals and resulted in economic losses of \$465 million. In January 2006, severe flooding occurred once again and resulted in \$30 million in damages (Velasco 2014).

Guyana is also at risk from drought and is expected to see an increase in consecutive dry days due to climate change. Recent droughts in 1998 and 2009 to 2010 resulted in water rationing and extensive crop and livestock losses. Climate change will threaten agriculture production through increased competition for water resources, loss of agricultural lands due to flooding, heat stress, and increased incidence of pests and disease (Government of Guyana 2010).

Wildfires primarily occur along the coast and affect both rural and urban areas. Information on this hazard in Guyana has not been extensively analyzed.

## Resilience Capacity

### *Institutional capacity:*

- **Strengths:** Several frameworks and systems are in place, such as the National Multi-Hazard Early Warning System (MHEWS) Framework (2013), regional disaster risk management systems, and community-based disaster risk management.
- **Weaknesses:** Guyana struggles with limited institutional capacity to enact disaster risk management activities and limited monitoring and enforcement (Velasco 2014). There is high duplication of initiatives and a lack of integration or harmonization across activities. The country's Regional Democratic Councils and Neighborhood Democratic Councils have limited authority and resources to implement initiatives and plans at a sub-national level. Furthermore, there is a need for policy, legislation, and coordination across institutions to manage land and water resources at a landscape scale. Finally, transportation and communication challenges result in limited outreach to the public and reduced monitoring and enforcement of ongoing activities, particularly in the Hinterland regions (Stakeholder consultations 2020).

### *Human and community capacity:*

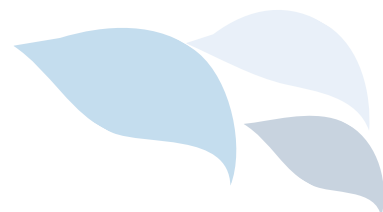
- **Strengths:** Guyana has considerably improved its capacity in the areas of youth crime and violence prevention through participation in multiple efforts aimed at building social resilience, including the Community, Family and Youth Resilience Program and several activities funded by the U.S. Government.
- **Weaknesses:** There is a need for greater stakeholder involvement in disaster management and climate adaptation decision-making implementation, including increased access to climate-related information by indigenous groups, and increased participation of women in decision-making (Government of Guyana 2020b).

### *Knowledge and technical capacity:*

- **Strengths:** Technical forecasting capacity in Guyana is improving and services are well utilized. For example, the country's hydrometeorological services allow farmers to plan for planting and harvesting, avoiding crop losses (Stakeholder consultations 2020).
- **Weaknesses:** The amount of information often exceeds the capacities of personnel to compile and analyze the data to guide planning. Guyana also struggles from high staff turnover in many key institutions and a lack of organization and historical knowledge. There is a need to improve training to overcome these barriers and promote action and implementation. A lack of local information and data is a weak link in weather forecasting efforts in Guyana.

### *Financial capacity:*

- **Strengths:** Funding commitment to address extreme rainfall and coastal flooding can be seen in the national budget, where irrigation and drainage projects were allocated \$2 billion, and 'sea protection' projects \$3 billion in the 2019 budget (Government of Guyana 2019; Stakeholder consultations 2020). Additionally, the country's economic profile changed in recent years and is expected to continue to change due to the emergence of an oil and gas industry. New revenues from that industry may increase the government's opportunity to fund resilience initiatives, but that is not yet evidenced.
- **Weaknesses:** Guyana struggles from limited financial resources and high reliance on external funding and aid, with little capacity for implementation.





## CURRENT STATUS OF THE COUNTRY'S RESILIENCE MEASURES

The table provides a snapshot of illustrative ongoing resilience measures in the country and is not meant to be comprehensive.

Program Name	Entity	Status: Year(s) and Size (\$)	Description
Climate Resilience Support for the Adequate Housing and Urban Accessibility Program in Georgetown, Guyana	Inter-American Development Bank (IDB)	Approved for implementation in 2017 \$500,000	Technical cooperation designed to support the Government of Guyana with the integration of climate adaptation and resiliency aspects into the Adequate Housing and Urban Accessibility Program, ranging from site selection to buildings construction.
Real-time flooding forecast	Implementer: Caribbean Institute for Meteorology and Hydrology (CIMH) Funder: Caribbean Community (CARICOM)/Japan Friendship Fund	Not available	This project couples a physically based numerical hydrological model capable of capturing changes in some watershed characteristics to a numerical weather prediction model. The coupled modeling framework will be applied to selected catchments in Guyana.

## SOURCES FOR ADDITIONAL INFORMATION

- [Progress and Challenges in Disaster Risk Management in Guyana.](#)
- [Guyana Second National Communication to the UNFCCC.](#)
- [National Integrated Disaster Risk Management Plan and Implementation Strategy for Guyana.](#)
- [RE-ACT \(Resilient Action Guyana\): Increasing climate resilience of vulnerable ecosystems and rural communities in Guyana's coastal areas.](#)



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