



BARBADOS



Policy Brief

# Gender Inequality and Climate Change and Disaster Risk in Barbados

July 2023





## BACKGROUND

The United Nations (UN) Joint Programme, entitled “Building Effective Resilience for Human Security in the Caribbean Countries: The Imperative of Gender Equality and Women Empowerment in a Strengthened Agriculture (and related Agri/Fisheries Small Business) Sector,” is funded by the UN Trust Fund for Human Security (UNTFHS). The Joint Programme is being led by the United Nations Entity for Gender Equality and the Empowerment of Women (UN Women) and jointly implemented with the Food and Agriculture Organization (FAO) of the UN, United Nations Development Programme (UNDP) and International Labour Organization (ILO) in the

beneficiary countries of Antigua and Barbuda, Barbados, Dominica, Grenada and Saint Lucia. The Joint

Programme is built on the premise that there can be no improvement in human security in the Caribbean without addressing the issue of ‘lost opportunities’ and ‘foregone achievements’ that result from deep gender

inequalities and insufficient progress in the economic empowerment of women and marginalized youth. The Joint Programme focuses specifically on the agricultural sector (including fisheries) because of the significant role agriculture plays in Caribbean GDPs and food security. In addition, the agricultural sector is extremely vulnerable to disasters and the impacts of climate change, and is a sector where gender inequality is deeply entrenched. Through a combination of policy reform advocacy, technical support and services, the Joint Programme aims to contribute to human security for farmers and small agro- and fisheries business entrepreneurs, many of whom are women.<sup>1</sup>

To gain greater clarity on the dynamics of these risks and the potential impacts of disasters and the impact of climate change on human security, UN Women undertook a gender and age inequalities analysis in the context of Barbados. This gender and age inequalities analysis is comparable to similar analysis undertaken in other Caribbean countries under the aegis of the Enabling Gender-Responsive Disaster Recovery, Climate and Environmental Resilience in the Caribbean (EnGenDER) Project, which is funded by Global Affairs Canada and the United Kingdom Foreign, Commonwealth and Development Office, and led by UNDP, and jointly implemented by UN Women, World Food Programme (WFP) and the Caribbean Disaster Emergency Management Agency (CDEMA). The

<sup>1</sup> Building Effective Resilience for Human Security in the Caribbean. Retrieved on 12 September 2023 from: [Building Effective Resilience for Human Security in the Caribbean | United Nations Development Programme \(undp.org\)](https://undp.org/publications/building-effective-resilience-for-human-security-in-the-caribbean)

aim of the EnGenDER project is to identify and address any gaps to ensure equal access to disaster risk resilience, climate change and environment solutions for women, men, boys and girls in nine beneficiary Caribbean countries.

Barbados was not included in these initial assessments, although it was important to ensure that such an analysis was completed in Barbados, as countries in the region routinely work together to develop policies and mitigation strategies in relation to including disaster recovery, climate and environmental resilience. Thus, it is important to ensure that Barbados has a comparable analysis that can serve to inform planning, policy formulation and implementation of actions. The **four priority sectors** selected by the National Decision-Making Mechanism for Barbados for this assessment were **tourism, agriculture, infrastructure** and **housing**.

In April 2023, the UN Women Multi-Country Office (MCO) Caribbean completed a comprehensive review of the Gender and Age Inequalities of Disaster and Climate Risks in Barbados, which was supported under the UNTFHS programme. This study focused on the gender-responsiveness of climate change policies and strategies and incorporated an analysis of: gender- and age-related vulnerabilities and risks in disasters; gender- and age-inequality and differential impacts of disasters on women, men, children and youth, both in preparing for, withstanding/surviving and recovering from disasters; and gender-differentiated coping and adaptive capacities of key vulnerable groups and key sectors. The study also analysed the cost of inaction to climate change adaptation, and offered evidence-based recommendations for gender- and age-responsive risk reduction strategies.

UN Women MCO Caribbean, through collaboration with the International Institute for Sustainable Development (IISD), also completed a gender-responsive resilience-building knowledge, attitudes, practices and behaviours (KAPB) study in July 2021. This study provided a better understanding of institutional gender biases that are not captured in policy documents, but can influence the ways in which gender is mainstreamed in their work. Results from both studies confirm that natural hazards and climate change impact women and men differently for a host of factors, which include their different roles and individual and family responsibilities, and policy development and service delivery by mandating bodies.



## VULNERABILITY: A GENDER LENS

Barbados, like most Caribbean countries, has a high risk of vulnerability. The majority of the population is concentrated within an urban corridor that lies within 2 km of the shore and below 25 metres in elevation. The areas of high population density, critical infrastructure and supporting industries are particularly at-risk and vulnerable to storm surges and sea level rise. The most vulnerable are low-income families who have fewer choices in the housing market and are more likely to live in environmental danger zones.

In Barbados, vulnerable groups impacted by climate and disaster risks are:



Working class men and women



Youth



Single mothers



Adolescent mothers



Elderly



Persons with disabilities





Among the vulnerable groups, **75%** of all vulnerable families are female-headed households. In Barbados, the proportion of female-headed households is high at **44%**; such households tend to be less able to confront climate change as they are more likely to be poor households. Poor rural households are also most affected by climate-related risks and spend much more of their total household expenditures on risk reduction than other households.

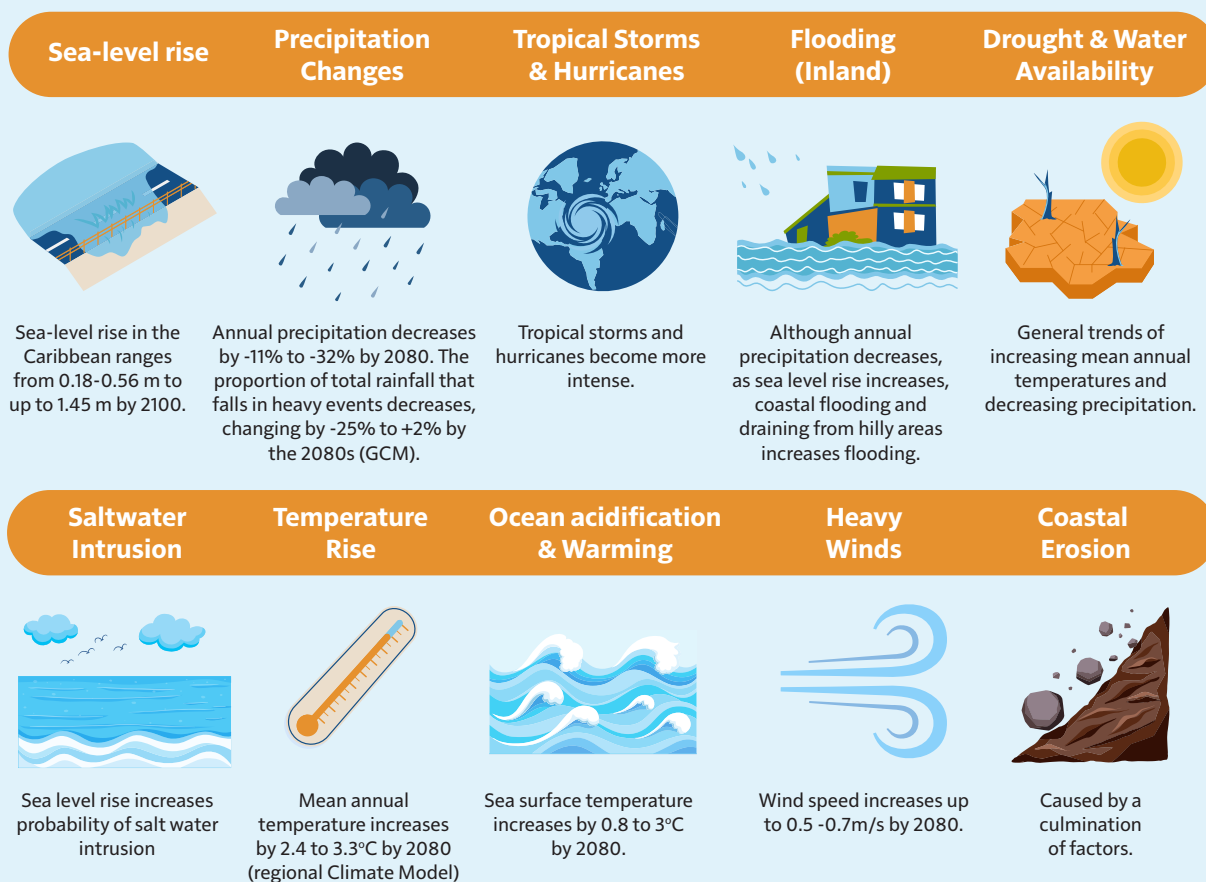
In regard to youth, in 2016, youth (aged 15-24) made up **13.5%** of Barbados' population. That same year, **26%** of youth were unemployed and **29%** were not in education, employment or training (NEET). Male youth had a higher NEET rate at **32%** than females (**26%**). In 2022, the youth unemployment rate was estimated to be **24.5%**, with higher rates of unemployment among male youth (**27.7%**) than female youth (**20.8%**).



Given the fact that different segments of the country's population are vulnerable to climate and disaster risks, it is important to understand how gender and age intersect to shape vulnerability. It is also important to understand how climate and disaster risks affect different sectors – tourism, agriculture, infrastructure and housing sectors – that women, men, girls and boys participate in and rely upon, which can have compounding effects on one's vulnerabilities to climate hazards.



## The main hazard risks for Barbados are:



## GENDER INEQUALITY ISSUES - CLIMATE AND DISASTER RISK

Women, men, girls and boys, and persons with disabilities (PWDs) experience differential impacts related to climate-related hazards, and they participate in and rely upon sectors that are impacted by climate and disaster risks. Understanding the differentiated impacts of hazards on each of these population subgroups and sectors – tourism, agriculture, infrastructure and housing – is important to understanding the costs of inaction and potential impacts.

### Tourism Sector

Over the past 50 years, tourism has seen a significant increase, with major tourism operations occurring along the west and south coasts. In recent years, the Tourism Master Plan for Barbados (2014-2023) has defined the growth of the tourism industry. Today, Barbados's economy is driven by the tourism industry.



Driving Barbados' tourism are the very things under threat – a stable and predictable climate and its coastal features, including coral reefs and infrastructure.

These resources are sensitive to climate variability and are slow to recover from change, which increases the tourism sector's risks. Factors that are exacerbated by climate, such as higher temperatures, water scarcity and increases in diseases, expose Barbados to becoming a less attractive tourist destination, unless addressed.



The Ministry of Tourism and International Transport (MTI) realises the need for further development to manage loss and damage caused by natural disasters. For example, institutions, such as the Barbados Hotel and Tourism Association (BHTA) and the Barbados Tourism Product Authority (BTPA), are some of the key management bodies governing the tourism industry. There have also been initiatives to develop niche markets (e.g., sports-, agro- and eco-tourism, and health and wellness tourism) that are at-risk from climate change.



### Agricultural Sector

Barbados' agricultural sector, once the major economic driver of the island, has decreased substantially as an industry. Still, however, the agricultural industry exists and the main products include sugar, rum, cotton, fruits and vegetables, poultry, pigs, mutton and milk.

Sugar had long been the major contributor to Barbados' economy, but after a decline in production in the 1980s, the introduction of sugarcane biomass energy and agricultural produce for domestic markets changed the industry's export-heavy economic plan to one that supported a more diverse and sustainable sector. This diversification has not increased agricultural activities, but increases in population and demand for residential and commercial real estate, has led to reductions in agricultural land from 44% in the 1980s to 23% in 2020.

Barbados is classified as a 'water scarce' country, and with agricultural activities reliant on water availability for irrigation, smallholder farmers suffer long dry periods and drought. Thus, it is increasingly difficult for smallholder farmers to manage crop planting cycles, pests and diseases. For livestock farmers, increased air temperature and high humidity are often causes cited for depletion of livestock. Tropical storms and rising sea levels are also damaging crops and property.



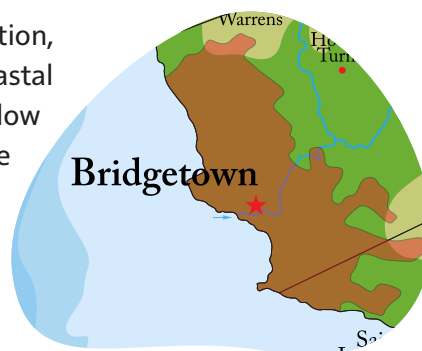


### Infrastructure Sector



In Barbados, the Senior Minister in the Prime Minister's Office has responsibility for infrastructure and town planning matters, and the Ministry of Transport, Works and Water Resources (MTWW) is responsible for road network services, maintenance of government building and vehicles, effective drainage solutions, electrical services and public transport. Governing planning, design and implementation processes is the Physical Development Plan (PDP), which is based on the Planning and Development Act of 2019, which is currently under review. The PDP addresses critical impacts of climate change on Barbados.

Investments in coastal resilience, particularly shoreline stabilisation, benefits both residents and tourists. With the two major coastal highways—Highway 1 and Highway 7—running along the low coastal elevation zone, transport networks are highly vulnerable to coastal erosion, flooding and sea level rise. Bridgetown – Barbados's capital and main commercial hub – is exposed to significant risks given the presence of the major harbour, the government and key national and international institutions.



### Housing Sector



Barbados has experienced population growth and increased urbanisation, particularly along the coast where approximately 25% of the population resides. This has contributed to an increase in policy challenges to ensure measures to address the need for resilient housing are met. If the pace of rapid urbanisation occurs faster than the pace of responsive and resilient urban planning, there will be an increase in the number of persons at-risk of increased vulnerabilities to climate change impacts and disaster-induced homelessness.

In general, Barbados' housing infrastructure is divided into traditional and low-income wooden homes, and more recently constructed concrete dwellings. Wooden low-income homes are considered highly vulnerable to hurricanes and extreme weather events. Barbados's Ministry of Housing, Lands and Maintenance (MHLM) has embarked upon a major rebuilding programme to rectify the poor housing infrastructure. Leading the initiative are the Urban Development Commission (UDC), Rural Development Commission (RDC) and National Housing Corporation (NHC).





Table 1: Gender and Age Differential Impacts by Hazards

Hazards	Climate Impacts & Risks	Sector	Gender and Age Inequality Impacts							Cost of Inaction/ Potential Impacts
			Women (15-64)	Men (15-64)	Girls (0-14)	Boys (0-14)	Women +65	Men +65	PWDs	
Inland Flooding	Prolonged rainfall events lead to flash floods	Agriculture Housing	Single female-headed households suffer most due to poor housing and insufficient resources to build back better Damage and loss of crops and livestock	Damage and loss to crops and livestock Loss in income	Health risks	Health risks	Loss in kitchen garden for women +65 and PWDs	Health risks for women +65 and PWDs	Vulnerable communities driven further into poverty	
	Herds and livestock become stranded or drown	Agriculture	Women do not have access to financial means and are least likely to have insurance to protect their assets	Young men have less opportunity for financial recovery			Men 65+ more likely to suffer from loss of livestock	Men 65+ more likely to suffer from loss of livestock	Reduction in communities looking towards agriculture Details on gender roles around livestock-rearing are needed to understand who is most affected when herds are impacted	
	Increased landslides [Water siltation and contamination will affect all community members] Use of unsafe waters from springs due to inaccessibility to dams	Agriculture Housing Tourism Infrastructure	Damage and loss of farm lands and livestock. Tourism activities halted	Loss of farmlands and livestock Siltation exposes loss of aquaculture farmed-fish and shrimp, and sea moss farms Tourism activities halted	Health risk Loss of life for men +65	Health risk Loss of life for men +65	Loss of life People with chronic ailment greatly at risk	Loss of life People with chronic ailment greatly at risk	Increased damage to aquaculture ponds Increased incidents of land slippage cause further spending around relocation and rehabilitation Increased exposure to severe injury and deaths Increased disruption to infrastructure (water and power)	

Hazards	Climate Impacts & Risks	Sector	Gender and Age Inequality Impacts						Cost of Inaction/ Potential Impacts
			Women (15-64)	Men (15-64)	Girls (0-14)	Boys (0-14)	Women +65	Men +65	
Inland Flooding	Excessive soil erosion	Tourism Housing Infrastructure Agriculture	Loss in quality arable soil resulting in low yields and poor quality of produce			Loss of garden crops	Men 65+ with farms unable to respond to soil degradation as easy as younger farmers		Impacts access to road networks Further stress on limited land for agriculture activities
	Water sources contaminated by exacerbation of already poor waste management practices	Housing Tourism	Waste, sewage, pesticides, fertilisers and rubbish expose women working in agricultural fields to health risks and can contaminate marine areas, exposing operators and tourists to health risk; this is particularly the case for aquaculture farmers, whose farms risk exposure			Exposure to diseases		Exacerbated health risks Increased pressure on the health system	
Hurricanes/Tropical Storms	Increased water-borne diseases	Agriculture Tourism Housing Infrastructure	At risk of not participating in wider economic development of the country	Health risks	Increased incidents of dengue and other water-borne diseases		Exposure to diseases Risk of infectious diseases	Pressure on health care to address increases in illnesses	
	Increased frequency and intensity of tropical storms leading to greater storm surges, wind damage and coastal zone flooding	Tourism Housing Infrastructure Agriculture	Female-headed households are impacted the most due to their limited access to resources and insurance for hazard-proofing their properties	Instability in hazard-proofing fishing equipment for unregistered fishers Young men are particularly vulnerable due to lack of financial windows that assist them in recovery Most at risk for loss of life and higher death rates during hurricanes and tropical storms	Lack of potable water increases health risks and can disrupt education	Loss of kitchen garden Widows living alone unable to recover Health risks due to lack of potable water	Unable to respond due to lack of resources and capabilities to hazard-proof equipment Health risks	Cost of damage Significant increases in losses	

Hazards	Climate Impacts & Risks	Sector	Gender and Age Inequality Impacts							Cost of Inaction/ Potential Impacts
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Hurricanes/Tropical Storms	Loss of market access due to damage to infrastructure (e.g., access roads)	Tourism Agriculture	Women, who make up the majority of market vendors are unable to generate income	Unable to bring yields to market Loss in income	Girls (0-14)	Boys (0-14)	Elderly market vendors unable to supplement income Food insecurity	Unable to bring yields to market Loss in income		Fiscal impacts on economy Socio-economic impacts at household level Unable to purchase goods
	Damage to water intakes, dams and reservoirs	Agriculture Infrastructure Housing	Reduced economic activity where smallholders have limited access to water, particularly for those with home gardens Increased spending on drinking water	Longer hours spent repairing systems Invest more in water capturing equipment	Lack of potable water increases health risks Lack of access to education		Lack of potable water increases health risks Lack of access to health care			Reduced water supply and decreased water quality. Loss in small gardens, particularly during droughts, when watering gardens is not permissible Increase in spending to repair infrastructure, if not built back better or rehabilitated to meet climate resilience needs
	Increase in storm related damage and recovery costs	Housing Infrastructure	Limited access to finance, with the exception of microfinance opportunities Lack of insurance for women's businesses which see little recovery and asset safeguarding	Inability to pay back loans used to offset damages Lack of insurance among young men equates to little recovery and asset safeguarding Loss/reduced livelihoods			Lack of resources for pensioners. Difficulty in recovery due to little/no financial safeguarding or grants given to PWDs			Primary economic infrastructures, such as sea ports, roadways and domestic infrastructure (housing and storage facilities) Risk communities' exposure to significant financial downturn, and disruption to livelihoods
	High winds and storm surges reduce/damage mangroves	Agriculture Housing	Female-headed households experience more damage caused by flooding and erosion, and unable to build back.	Damage and flooding to housing.	Disruption to education		Damage and flooding to housing may not recover quickly or at all, particularly those living on the coast			Future damage to mangroves will show significant impact to shoreline and to amount of biodiversity



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Precipitation Change	Extreme rainfall leading to flooding of key transport corridors	Agriculture Housing Infrastructure	Hindering movement of people, commodities and resources Movement of crops and livestock to market hindered		Access to education hindered				Isolation from economic markets can create greater disparities between communities that have good infrastructure to handle shocks
	Increasing variability in precipitation and intensity of events requiring a shift in water use and management strategies	Agriculture Housing Infrastructure	Greater pressure on meeting water demands of households Loss of crops	Male entrepreneurs in water sector mostly affected due to inability to meet water supply demands Loss of crops	Decline in hygiene Girls menstrual hygiene needs are unmet More time spent collecting water		Decline in hygiene	Water insecurity	
	Water treatment plants not capable of handling high turbidity levels								
	Increase in vector-borne diseases	Tourism	Women's roles as carers increase due to tending to ailing children and elderly dependents	Greater risk of exposure to vector-borne diseases due to more frequent risk exposure	Susceptible to illness, particularly children under five Children absent from school or early school dropout		Susceptible to illness	Health care capabilities to meet increased demand	
	Intense rainfall events can cause landslides	Housing Agriculture Infrastructure	Loss of homes, farm lands and livestock Lack of access to key economic generating activities due to inaccessibility	Loss of homes Impact on education Food insecurity Health risks	Health risks Loss of life		Loss of life	Increased pressure on fiscal regime to fix infrastructure, relocate families, compensate communities and restock	

Hazards	Climate Impacts & Risks	Sector	Gender and Age Inequality Impacts						Potential Impacts
			Women (15-64)	Men (15-64)	Girls (0-14)	Boys (0-14)	Women +65	Men +65	
Sargassum	Erosion and damage to beach	Tourism	Loss of employment Less market activity	Loss of employment Impact on boat operators	Health risks				Reduced hotel occupancy Unable to access impacted beaches Exposure to respiratory issues due to hydrogen sulphide from decomposing sargassum and skin irritation
	Air and water quality	Tourism			Risks of respiratory and topical infections.				With the impact of COVID-19 on the health system still present, further exposure to health risks puts further stress on the health system
Coastal Erosion	Beach Erosion	Housing Tourism	Women tend to do more activities on beaches nearer to home. Loss of nearby beaches will increase spending to reach more viable beaches with more tourists Houses near/on beaches will have to relocate	Boat operators and taxis might see increase in sales due to tourists need to reach more viable beaches Men operating at beach markets will have to travel to more viable and lucrative areas		Loss in micro-enterprise as market vendor or food producer		Loss or reduction in income	Lack of community-based land management that does not include men, women, youth and adolescents will further drive poor management and greater loss of coastline
	Increased siltation and salination impacts to waterways and shoreline areas	Agriculture Infrastructure Housing	Damage and loss of farmlands and livestock Siltation exposes losses of aquaculture farmed fish and shrimp, and sea moss farms	Loss of farmlands and livestock Siltation exposes losses of aquaculture farmed fish and shrimp, and sea moss farms	Health Risk Contaminated Fish Less fish in diet				Greater deficit of resources pushing more communities to relocate, and experience varying levels of poverty

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Droughts & Water Availability	Water rationing	Agriculture Housing	Increase burden on women, particularly female-headed households, to meet needs of household with limited access to water Not enough water for irrigation of farms	Male entrepreneurs in water sector mostly affected due to inability to meet water supply demands. Loss of crops	Decline in hygiene Girls menstrual hygiene needs not met More time spent collecting water	Decline in hygiene		Understanding how droughts affect girls and boys in Barbados is needed Need for a comprehensive study to identify climate drivers and return periods (e.g., paleo studies)	
	Reduced access to river water for irrigation, coupled with farmers' use of water curbed by government-imposed restrictions	Agriculture	Women farmers at-risk of not having access to enough water for irrigation, and less likely to have abstraction license which allows for use of river water for farming Loss in income and crops	Not enough water for irrigation Men's time for collecting, harvesting and carrying water is greater than for women. Loss of crops Loss in income	More time spent assisting with farming activities and collecting of water Reduction in access to local foods/nutrition	Loss in small garden crops Reduction in access to local foods	Loss in income Reduction in access to local foods	Further reliance on food imports. Food insecurity caused by price increase of goods	
	Reduced water production from water treatment facilities	Housing Tourism	Less time for personal, household and productive activities due to more time spent collecting, harvesting and carrying water	Men in water sector experience lost income due to possible government wage suspension and reduction actions	Increased risk of poor water supply with increased exposure to diseases (risks greater for under-five)	Increased risk of poor water supply	Increased exposure to diseases, especially among those with severe chronic illnesses	Tourism sector greatly impacted. Lost in economic generation	
	Crop yield and agricultural productivity reduced	Agriculture	Women who tend to have smaller plots of land and smaller income from farming are at increased risk of acute losses.	Reduction in income Diversification of work	Reduced nutrition value.	Reduced nutrition value. Loss of income for elderly	Impact of drought on crop exports		

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Increased Temperatures on land and in the sea	Soil damage when high temperatures meet drought conditions	Agriculture Infrastructure	Destruction of farmlands and loss in income for farmers, with economic greater loss for male farm owners who have more/larger acreage		Food insecurity and exposure to malnourishment Increased stunting		Exposure to malnourishment Loss of income, particularly for men		Investment in upgrades to existing infrastructure or new and needed technologies, such as rainwater harvesting, drip irrigation systems and low water flow devices	
	Negative impacts on types and varieties of crops sensitive to warmer temperatures and variable rainfall	Agriculture	Lower yields Loss in livestock		Lack of diversified diet			Food insecurity and greater levels of poverty		
	Susceptibility to pests and diseases	Agriculture	Loss in crops, livestock and apiculture stock		Food insecurity and exposure to malnourishment					
	Increasing risk of certain vector diseases associated with warmer climatic conditions	Agriculture Tourism	Less productivity days due to ailments Women's exposure to risks during menstruation	Absence from school Risk of water-borne diseases, particularly for children under-five Girls' exposure to risks during menstruation	Risk of illness Unable to participate in micro-enterprises Loss of income	Risk of illness		Health risks increase, putting more pressure on the health care system, in light of the already strained health system due to COVID-19		
	Water Availability	Agriculture Tourism	Lack of WASH, including menstruation Longer hours sourcing water for agriculture activities	Longer hours sourcing water for agriculture activities Not enough water to supply to customers	Lack of WASH, including menstruation	More time spent sourcing water for crops and livestock	Limited supply of water resources poses significant health risks	Increased exposure to food insecurity Increased exposure to health risks Safe water is less available for residents and visitors		
	Decline in coral reef ecosystem	Tourism	Decline in reef fish densities and nursery areas impacting fisherfolk, and higher costs in sourcing fish Longer hours spent finding viable reefs for tourism, particularly for men who are tour guides		Food insecurity		Food insecurity Decrease in economic activity for elderly men	Increased damage to coral reef		



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 <b>Rising Sea Levels</b>	Saltwater intrusion into coastal aquifers leads to saline impacts on water quality	Agriculture Housing	Health implications Lack of WASH Great health risks to elderly	Collection of water for agricultural activities increased	Health implications, with children and young people at the highest levels of risk	Health risk	Comprehensive saltwater intrusion risk and mitigation assessment needed to map impacts on community and determine measures that must be taken to mitigate risks by gender, age, location, economic activities, etc. Further impacts could see greater health impacts on those with least access to safe water			
	Sea level rise leading to saltwater intrusion on productive lands	Agriculture	Female farmers with limited resources to relocate/travel to work on arable lands risk missing out on continuing this livelihood and experience greater pressures in reproductive roles Single female-headed households risk food insecurity and income loss Increased stress	Increased stress. Men are more likely to travel longer distances than women to seek employment Risks to hinder their access to productive lands away from areas where saltwater intrusion is prevalent	Risk dropping out of school to support family with reproductive roles for girls, and productive roles for boys, particularly older boys	Food insecurity Loss of micro enterprise for older women producers and vendors	Food insecurity Loss of livelihood	Water treatment facilities and irrigation systems put under greater pressure to meet needs of households and farms		
	Loss of/disruption to critical low-lying infrastructure, such as coastal roads	Agriculture Tourism Infrastructure	Women experience reduced access to economic activity sites, such as farmlands and markets.	Farms and ports are inaccessible Missing out on key times in which to work	Lack of access to schools and disruptions to education Boys perform worse on CSEC exams	Inaccessibility to medical and mental health/well-being services	Slow-down in economy Loss of tourists			

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Other Risks	Insufficient Early Warning Systems		Not enough time to safeguard resources					Exclusion from decision-making and planning	Disparities in who is able to respond to disasters in time
	Limited cross-ministerial coordination of adaptation efforts and understanding of how to integrate gender considerations		Projects and actions may be repeated due to lack of coordination, with the same groups of people engaged, and others left out					Inefficient spending	Inefficient appropriation of funds and limited reach due to repetition of projects Stakeholder fatigue
	Under-utilised gender data		Policies and strategies for integrating gender considerations within each sector has shown limited acknowledgedgement of gendered impacts and mitigation and adaptation strategies to circumnavigate them.						Lack of understanding of who is affected and how, and the gendered impacts of climate and disaster risks will be
	Increased violence		Exacerbation of gender-based violence against women	Increase in males use of violence on women and children	Increased risk of exposure to violence	Increased risk of exposure to violence		Increased risk of exposure to violence	GBV pandemic due to hardship
	Increased insecurity due to lack of employment		Increased burden to supplement lack of employment and provide for family, in particular for single and young mothers Risk exposure to various forms of violence from young men	Young men at-risk of committing crimes as a result of stresses from climate-related shocks to the economy Young men are susceptible to unemployment and lack of financial security, due to high proportion of older men in the workforce and highly trained women	Risk of Poverty	No opportunities for elderly	No or fewer opportunities for PWDs who participate in labour force		Spatial data needed on at-risk men If determinants of young men criminal offending is not addressed there will be more perpetrators

## ADAPTIVE COPING MECHANISMS

Barbados has adaptation policies to respond to the economic impacts of climate events and has integrated coping mechanisms into climate-related policies and plans, and development plans. In recent years, resilience and adaptation have been fully embedded into all government policies in Barbados. This includes the **2021 Physical Development Plan (PDP) and Barbados Roofs-to-Reefs Programme (R2RP)**, which offer holistic, sustainable development approaches with climate change as a cross-cutting theme. R2RP provides an overarching framework to address the most significant challenges facing key sectors responsible to addressing responses to climate change impacts.

To achieve resilience, Barbados has adopted a human security approach and has taken steps to improve coordination. Still, however, adaptation strategies are often rife with conflicting criteria, diverse participant backgrounds and vague problem specifications. For more balanced decision-making, it is necessary to have a comprehensive view of local vulnerability and resilience.



Table 2:  
**National Programmes and Mechanisms to Respond to the Economic Impacts of Climate Events**

Programme/Mechanism	Description
<b>Coastal Risk Assessment and Management Programme (CRMP), 2012-2020</b>	Funded by IDB, this programme aimed to build resilience through improved monitoring, conservation and management of the coastal zone. Key programme components included: <ul style="list-style-type: none"> <li>Coastal risk assessment, monitoring and management</li> <li>Coastal Infrastructure improvements, including shoreline stabilisation, increased coastal infrastructure resilience and improved public beach access</li> <li>Institutional sustainability for integrated coastal management, which entailed mainstreaming disaster risk management and climate change adaptation into coastal zone management and government policies</li> </ul>
<b>Water Resource Management and Flood Resilience Climate Change Programme, 2013-2020</b>	Funded by the United States Agency for International Development (USAID), this programme aimed to: <ul style="list-style-type: none"> <li>Deliver Barbados' Storm Water Management Plan for improvement of the management of overland and subterranean storm water flows to reduce flooding and improve sustainable drainage</li> <li>Improve storm water management in flood-prone and severely affected areas</li> <li>Increase incorporation of climate change adaptation into the national development process</li> <li>Evaluate the quality of storm water and impacts of run-off on coastal and marine environments</li> <li>Upgrade and expand the hydrometric data collection system</li> <li>Capture rainfall run-off and divert it to groundwater storage, and improve recharge rates</li> <li>Provide education programmes and tools for water resources mitigation and adaptation</li> </ul>
<b>Contingent Credit Facility for Natural Disaster Emergencies (CCF)</b>	Set up by IDB, the CCF is an important tool to help the country develop effective strategies for natural disaster financial risk management (sized at 1% of the GDP)



In addition to the abovementioned programmes and mechanisms, in 2018, during International Monetary Fund (IMF)-facilitated debt restructuring, Barbados introduced **debt instruments with a disaster-linked clause**, which allowed for an automatic extension of debt services in the event of a disaster. Barbados is the first country to take advantage of re-papering the terms of its domestic and foreign sovereign debt to include a 'natural disaster' clause to enable such a deferral. Clause coverage extends to

hurricanes, earthquakes and rainfall, and its trigger is conditional upon material loss above a pre-arranged threshold by the Caribbean Catastrophe Risk Insurance Facility, under the authorities' catastrophe insurance policy. It also allows for capitalization of interest and postponement of scheduled amortization falling due over a two-year period, following the incidence of a major natural hazard.

**Sustainable (Blue and Green) Financing** should also be integrated into core adaptation and loss and damage financial packages for the protection and enhancement of natural capital, and preservation of threatened resource endowments.

## Tourism Sector

Under MTI, policies to cultivate a sustainable tourism sector have been developed. The most relevant include:

- **White Paper on Tourism Development in Barbados** – Identifies the overarching policy framework and charts a progressive and sustainable path for the tourism sector.
- **Tourism Master Plan 2014-2023** – Advances the policy framework of the White Paper on Tourism Development in Barbados by outlining more detailed strategies and actions to accomplish tourism goals, and by extension, ensure the balanced and sustainable growth of the tourism sector.
- **Tourism Development Act 2002** – Replaces the Hotel Aids Act of 1956, and significantly expands incentives for investment in the tourism and hospitality sector, beyond the traditional accommodations sector.
- **Physical Development Plan (PDP)** – Details best practices and policies for development of various industries and communities.



## Agriculture Sector

The Ministry of Agriculture, Food and Nutritional Security (MAFS) has created an enabling environment to enhance growth in the sector. Adaptive strategies adopted include:

- Measures to enhance crop and quality livestock production
- Policies to safeguard arable land and conserve soils
- Policies that provide a framework for sustainable natural resources use and diversification of the sector
- Focus on food security, nutrition and health through food zones
- Create new market facilities
- Expand youth development programmes in farming practices
- Education and incentive packages to promote sustainable farming practices, including post-harvest technology, organic farming, permaculture and new crop technology.



The agricultural community of Barbados plays a significant role in informing and creating change, and is integral for the dissemination of knowledge, information and skills related to sustainable farming practices and climate response mechanisms. Two key stakeholders are the **Barbados Agricultural Development and Marketing Corporation**, which has promoted research in food processing and commercialising local agricultural products, and the **Barbados Agricultural Society**, which introduced initiatives for local farmers (e.g., use of cassava as a fuel).

MAFS's approach to adaptation is based on individual farmers; gender considerations are new to MAFS. In recent years, MAFS embarked on a food and nutritional security programme, entitled **Farmers Empowerment and Enfranchisement Drive (FEED)**, which is meant to encourage more of the populace to engage in farming and the creation of employment opportunities, and to increase these opportunities for women and youth. Yet, MAFS faces challenges integrating gender- and age-sensitive approaches and meeting the needs of women and youth.



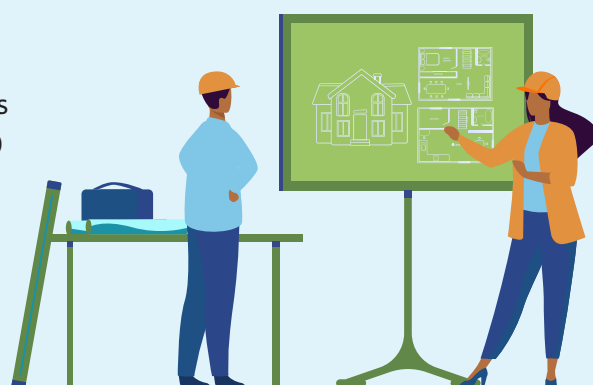
## Infrastructure Sector



Led by the MTWW, Barbados has embarked on a national infrastructure resilience programme. The most recent and notable project is the **Road Rehabilitation and Infrastructure Resilience Campaign**, which is funded by the Latin American Development Bank (CAF), China EXIM BANK and IDB. This campaign will improve drainage, bridges and culverts, and connectivity of road infrastructure across the country. It will also provide the Government with digital transport planning and asset management systems to support more effective allocation of resources to priority investments.

## Housing Sector

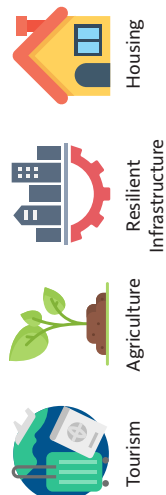
Barbados is working to meet housing demands with a government mandate to provide 10,000 housing solutions within five years. One of the Government's flagship projects is the **Home Ownership Providing Energy (HOPE) Project**, which aims to provide energy efficient affordable housing to first-time homeowners and to rehabilitate and resettle communities impacted by land slippage and households residing on former dumpsites. The HOPE Project is coupled with infrastructure development, mainly roadworks, to address land slippage issues.



## Stakeholder Adaptive Coping Mechanisms

Table 3 outlines responses from interviews and focus groups as it pertains to how stakeholders access certain coping mechanisms. What is captured are some of the coping mechanisms stakeholders from the tourism, agriculture, infrastructure and housing sectors have identified.

Table 3:  
Stakeholder Coping Mechanisms



COPING MECHANISMS	GENERATED USE OF COPING MECHANISMS BY SECTOR						HAZARDS	FREQUENCY OF USE
	Male	Female	Male Youth	Female Youth	Elderly	PWDs		
Insurance Schemes							H, S, T	S
Rebates								
Hobby Farming					B	B	D, C, S	A
Diversification - Same Industry							H, D, S, T, C	O
Diversification - Other Industry							H, D, S, T, C	S
Change in techniques							D, F	O
Diversification - Photovoltaic								
Loans							H, S, C, F	R
Government Grants								S
Relief/Distress Funds					B	B	H, D, S, C, F	A

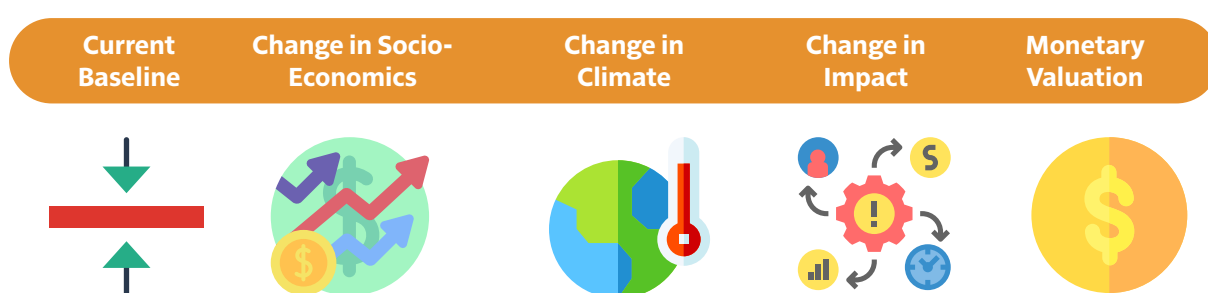


COPING MECHANISMS	GENERATED USE OF COPING MECHANISMS BY SECTOR							HAZARDS	FREQUENCY OF USE
	Male	Female	Male Youth	Female Youth	Elderly	PWDs			
Membership to a Cooperative/Social Org.					B	B		H, D, S, T, C, F	O, A
Climate-resilient technology									S
Greenhouses									S
Rainwater harvesting/Barrels								D	A
Savings								H, D, F	S
Temp/part-time jobs								H, D, F	O
Leave the sector								D	R
Move towards processing								S, D, F, C	O
Training/Learning								H, D, S, T, F	O
Becoming Owners of Assets							B		S
Microfinancing Schemes									S
Back-up power systems									
Remittances							B		

## COST OF INACTION

Calculating the cost of inaction to climate change is essential for prioritising, planning and budgeting what is required to adapt to and mitigate climate and disaster risks; estimating these costs is complex. Some impacts of inaction are more apparent, such as changes in agricultural yields, whereas others are more difficult to quantify, such as long-term trauma related to climate-related hazards.

The figure below highlights the method by which the cost of inaction on climate change for Barbados can be calculated vis-à-vis the European Commission's Technical Report No. 13/2007 on *Climate Change: The cost of inaction and the cost of adaptation*.



Using this model, the **cost of inaction to climate change for Barbados** has been calculated to be **13.9% of the GDP by 2050**, which is projected to increase to **27.7% by 2100**.

These projections focused on impacts caused by climate hazards, where just the culmination of three – increased hurricane damages, loss of tourism revenue and infrastructure damages – has the potential of causing the cost of inaction to total **USD 22 billion annually by 2050** and **USD 46 billion by 2100**.



In terms of sectoral damage and costs of inaction, the infrastructure sector presents the highest impact. Using data from 2007, the infrastructure sector is estimated to incur a cost of **USD 442 million** and the tourism sector is estimated to incur a cost of **USD 280 million**. These projections were made prior to the COVID-19 pandemic, which greatly impacted the country's tourism sector. The tourism sector has a significant impact on women, who make up the majority of the labour force in the service industry, and intersects with other sectors, such as the agricultural sector, which is a supplier to the tourism and services industries.

## RECOMMENDATIONS

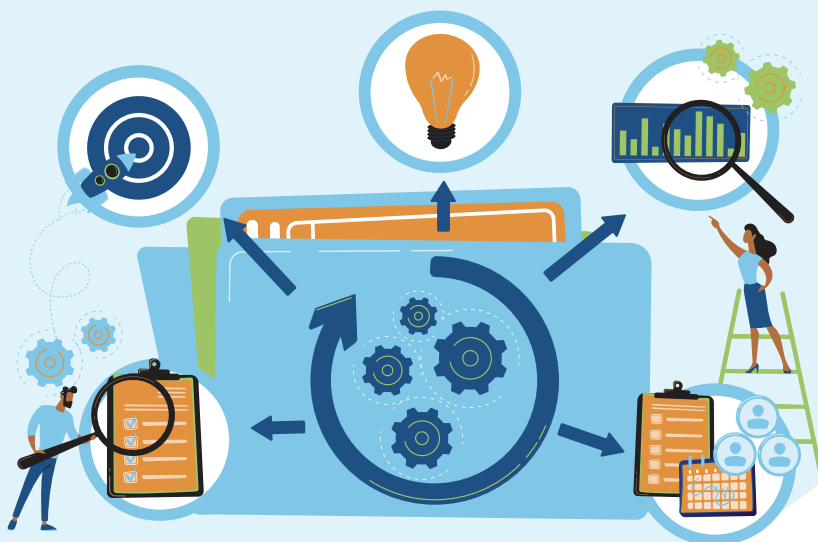
There is a need to access sex-disaggregated data and to understand how to use such data to make effective decisions on addressing gender- and age-related inequalities to tackle climate and disaster risks. Women face a variety of barriers and are prevented from participating equally in adaptation and mitigation strategies across the four sectors.

Should disaster and climate risks be mitigated, Barbados can potentially benefit from institutional strengthening and mainstreaming of gender and human rights-based considerations moving forward.



- All national plans and strategies need gender mainstreaming, and there is a need of national capacity building on data collection through information management systems.
- Provide capacity building for disaster management teams and focal points.
- Train women to conduct vulnerability assessments as part of a community-based approach and collect sex- and age-disaggregated data at the community level.
- Ensure women and girls have coping strategies and skills related to climate and disaster risks, including safety techniques and coping strategies for livelihood resilience.
- Ensure women have roles in the early warning system to ensure a holistic model for community-based early warning that reaches all people; this should also be the case for ensuring young people and the elderly, and other vulnerable groups, such as migrants, with different levels of risk and need are considered when designing early warning systems. Women are more vulnerable than men during and after climate and disaster risks, as women tend to hold roles related to domestic and care work, which are not considered in early warning systems; thus, women do not always get messages around incoming hazards early enough to respond.
- State roll-out of WASH relief kits for vulnerable groups during times of inaccessibility.
- Mainstream women and persons with disabilities into leadership and decision-making positions where systemic change can occur.
- Gender quotas/targets can be used and are necessary for criteria to be met for participants selected.

- A KAPB study would highlight practices and awareness that stakeholders share and utilise, and gender, location and sector should be key areas focused on by the KAPB study.
- Women and young girls have agro-forestry and agri-business needs, and there are work schemes and professional development initiatives related to persons with disabilities.
- There is a need for sectoral adaptation strategies and action plans, and gender and age considerations should be imbedded into such strategies and plans.
- There is a need for more access to financial windows that will allow women and men to safeguard property through insurance and assurance criteria.
- There is a need to assess national infrastructures to develop climate resilient structures.
- There is a need for climate smart technologies and climate resilient crops and diversification.
- There is a need to improve communications and marketing strategies around microfinance schemes and grants, and make sure that microfinance schemes are gender-responsive and provide opportunities for persons with disabilities. Cooperatives should be engaged to communicate microfinance schemes.



## ACKNOWLEDGEMENTS

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