

12.0 Trinidad and Tobago

CARICOM	Caribbean Community
CCCCC	Caribbean Community Climate Change Centre
CIMH	Caribbean Institute for Meteorology and Hydrology
EMA	Environmental Management Authority
GDP	Gross Domestic Product
GEF	Global Environment Facility
GRTT	Government of the Republic of Trinidad and Tobago
LNG	Liquefied natural gas
MACC	Mainstreaming Adaptation to Climate Change
UNFCCC	United Nations Framework Convention on Climate Change
USDS	United States Department of State

The Republic of Trinidad and Tobago is an archipelagic nation in the southern Caribbean, located northeast of Venezuela and south of Grenada. The country occupies an area of 5,128 square kilometers with a population of 1.3 million people. It consists of two main islands: Trinidad, the larger and more populous island, and Tobago, a smaller island which only comprises six per cent of the nation's land area and four per cent of the population (GRTT, 2010). The country's terrain is characterized by plains and low mountain ranges, and experiences a rainy season from June through December (USDS, 2010).

Unlike many other Caribbean nations, the island has a relatively large industrial base. It is the largest producer of oil and gas in the Caribbean and its economy is dependent on its energy supplies; it is also the fifth largest exporter of liquefied natural gas (LNG) in the world and provides two-thirds of LNG imported into the United States (USDS, 2010). The oil and gas sector contributes 46 per cent of the nation's Gross Domestic Product (GDP), followed by financial services (11 per cent), distribution and restaurants (11 per cent), manufacturing (5 per cent), and other activities (USDS, 2010). Tourism contributes a much smaller portion of GDP to the nation's economy than other Caribbean nations, at around 1 per cent (EMA, 2001). The per capita income of the country is approximately US\$18,864 per year (USDS, 2010).

A. Adaptation Needs and Priorities

Trinidad and Tobago's climate is tropical and experiences a rainfall of bimodal distribution, with a peak in June or July and a second peak in November (EMA, 2001). Flooding is a perennial problem within the country, with heavy rains causing overflow of the nation's major river basins (EMA, 2001). However, compared to many other Caribbean nations, the country experiences relatively few extreme weather events, particularly severe storms and hurricanes (EMA, 2001).

Trinidad and Tobago's Initial National Communication to the United Nations Framework Convention on Climate Change (UNFCCC) lists coastal and marine resources, freshwater resources, forestry and land use, and biodiversity as the most vulnerable areas to the impacts of climate change. The recently prepared draft Climate Change Policy (2010) concurs with the conclusions of the National Communication, though also identifies human health and human settlements as additional vulnerable sectors (GRTT, 2010).

Trinidad and Tobago's Initial National Communication discusses its vulnerability to climate change in a number of areas:

- *Caroni Basin*: This area is located between the northern mountain range and the central range of Trinidad and is considered to be highly vulnerable to climate change for the following reasons: it is the most densely populated area of the country and has a significant concentration of biodiversity (coastal mangroves, swamp fringes); the area is already under threat from poor land-use practices, including deforestation of the northern range that has caused flooding in the lower areas of the Basin, as well as siltation and a decline in water resources.
- *Coral resources*: Impacts of climate change on the nation's coastal resources include coral bleaching and subsequent impact on the tourism sector, as well as coastal erosion as a result of sea level rise.
- *Fisheries*: The vulnerability of coral reefs to the impacts of increased sea-surface temperature, as well as increased siltation in Trinidad and Tobago's rivers and pollution is expected to adversely impact aquatic life.
- *Wetlands*: Trinidad and Tobago's wetlands form the habitat of a variety of highly vulnerable species of plants and animals; more than 90 per cent of the wetlands are less than five meters in elevation, making these areas vulnerable to the effects of sea level rise.
- *Agriculture sector*: Although agriculture contributes a small amount of the nation's GDP, it employs approximately 10 per cent of the labor force and is considered particularly vulnerable to the effects of climate change. The sector is vulnerable to changes in precipitation, enhanced evapotranspiration, and the potential impacts of rising temperatures and other factors on crop yields.
- *Freshwater*: The country's ground and surface water resources may be impacted by changes in precipitation and saltwater intrusion through rising sea levels.

- *Human health:* As temperatures rise and precipitation becomes more erratic, heat stress may increase in prevalence, especially in elderly populations. The effects of climate change may also affect vector-borne diseases.

The country’s Draft Climate Change Policy makes a number of recommendations regarding adaptation, including:

- Strengthening existing institutional arrangements for systematic observation, research and climate change modeling;
- Assess sectoral vulnerability to climate change by conducting vulnerability analyses and formulating adaptation options;
- Revising sectoral policies to include consideration of climate impacts derived from vulnerability analyses;
- Revising national development plans to incorporate climate change vulnerability, impacts, and adaptation options;
- Enhance the resilience of natural biophysical systems so as to maximize ecosystem services, such as the natural coastal defense properties of coral reefs and mangrove systems; and
- Promote community-based adaptation through expanded use of the Green Fund for capacity building and enhancing resilience (GRTT, 2010).

B. National Level Policies and Strategic Documents

Trinidad and Tobago has prepared a National Communication through the UNFCCC and in 2010 began consultations to formulate a climate change policy. The status of this policy is not yet clear, however is a good indication that the country is beginning to integrate climate change adaptation into its national development planning processes.

Table 1: Key Government Policies and Reports reflecting Adaptation Needs, Priorities and Planned Actions

Name of Policy Action		Government Division Responsible	Status	Sector(s) of Focus	Summary description
1.	Initial National Communication to the UNFCCC	Environmental Management Authority	Submitted in 2001	Agriculture, forests, Caroni basin, marine fisheries, coastal resources, freshwater, human health	This document provides a review of Trinidad and Tobago’s national circumstances, its greenhouse gas emissions profile, vulnerability to climate change, as well as suggested options to address vulnerability in the country.
2.	Draft Climate Change Policy	Ministry of Planning, Housing, and the Environment	Released in 2010	Multi-sectoral	This draft document aims to provide policy guidance for the development of an appropriate administrative and legislation framework for the pursuit of low-carbon development in Trinidad and Tobago, including adaptation and mitigation measures.

C. Current Adaptation Action

It appears there are three ongoing adaptation activities within Trinidad and Tobago, the lowest level of adaptation programming in the Caribbean region. The Government of Switzerland is funding a project in Trinidad and Tobago (as well as Barbados) that focuses on adaptation in the water sector, aiming to enhance understanding of vulnerabilities and assist in decision making. The Red Cross/Red Crescent's also implemented the project "Preparedness for Climate Change" in Trinidad and Tobago. It sought to increase the capacity of the national societies to understand and prepare for the impacts of climate change. In addition, Trinidad and Tobago participated in the Global Environment Facility (GEF) funded "Mainstreaming Adaptation to Climate Change" project.

Table 2: Current Adaptation Projects and Programs active in Trinidad and Tobago

Name	Objectives	Funder(s)	Implementing Agency(s)	Type of project	Duration	Priority Sector(s)	Geographic focus (if any)	
Participation in Regional and Global Actions								
1.	Mainstreaming Adaptation to Climate Change: Caribbean Community (MACC) ¹⁵⁸	The objective of the MACC project is to facilitate an enabling environment for climate change adaptation in the Caribbean Community small islands and coastal developing states participating in this effort. Project components aimed to: (1) build regional capacity to collect and analyze data, thus expand the knowledge base on climate change impacts in order to assess the associated physical and socioeconomic vulnerabilities; (2) build in-country capacity to formulate and analyze adaptation policy options and finalize sectoral adaptation strategies for participating countries; (3) build capacity in preparation for a regional position for the United Nations Framework Convention on Climate Change; and (4) support public education and outreach programs by strengthening information access and data resources, and foster public	GEF Trust Fund; co-financing Budget: US\$16 million	CCCCC, CARICOM, World Bank, Government of Canada, GEF, Government of US	Capacity building; Knowledge communication; Policy formation and integration	2003–2009 (closed)	Government	<i>Regional:</i> Antigua and Barbuda, Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Jamaica, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Trinidad and Tobago
		<i>In Trinidad and Tobago:</i> Further information required						

¹⁵⁸ GEF, <http://www.gefonline.org/projectDetailsSQL.cfm?projID=1084> and CCCCC, <http://caribbeanclimate.bz/projects/projects.html>

Name	Objectives	Funder(s)	Implementing Agency(s)	Type of project	Duration	Priority Sector(s)	Geographic focus (if any)
	awareness through technical assistance and capacity building.						
2. Preparedness for Climate Change ¹⁵⁹	The aim of this program was for the Red Cross and Red Crescent National Societies in countries particularly vulnerable to climate change to gain a better understanding of climate change and its impacts to identify country-specific adaptation measures in line with risks. Activities could include organizing a workshop on risks, assessment of risks through preparation of a background document, capacity building programs, and developing climate change resilient plans.	Red Cross/Red Crescent Climate Centre	National Red Cross/Red Crescent Societies	Capacity building; Policy formation and integration	Phase 1: 2006–2009 Phase 2: ongoing	Disaster risk management	39 countries <i>Caribbean countries Phase 1:</i> Antigua & Barbuda, Grenada, Saint Kitts & Nevis, Trinidad & Tobago
<i>In Trinidad and Tobago: Further information required</i>							
3. Caribbean Water Monitor: Small island states, water resources and climate change ¹⁶⁰	The Caribbean Water Monitor is expected to be an essential tool in water resources management, and to assist in decision support for planning and managing water resources. The project builds on the existing Caribbean Drought and Precipitation Monitoring Network launched under the Caribbean Water Initiative, ¹⁶¹ to monitor & forecast rainfall for extremes (drought and excessive precipitation) with the goal of supporting water management.	Government of Switzerland	Earth Sciences-University of Applied Sciences of Southern Switzerland and CIMH	Research; Assessment	ongoing	Freshwater supply; Climate information services	<i>Regional:</i> Barbados, Trinidad and Tobago
<i>In Trinidad and Tobago: Further information required</i>							

D. Proposed Adaptation Action

There is no evidence of planned adaptation activities in Trinidad and Tobago.

¹⁵⁹ IFRC, <http://www.climatecentre.org/site/preparedness-for-climate-change-programme>

¹⁶⁰ <http://www.cimh.edu.bb/projects.html>

¹⁶¹ <http://www.mcgill.ca/cariwin>



E. Assessment

Given Trinidad and Tobago's relatively advanced industrial base and smaller reliance on tourism as a source of revenue, it could be said that the country is better placed to adapt to climate change than many of its Caribbean neighbors. However, as identified through its National Communication, many socioeconomic sectors in the country are vulnerable to the impacts of climate change, including sensitive ecosystems, fisheries, the agriculture sector, and its freshwater resources. The country appears to be addressing this vulnerability through a national adaptation policy planning process, but a smaller number of adaptation projects involve Trinidad and Tobago, some of which are now closed. These projects supported policy formation and integration as well as the water sector, two areas that are important to the country's ongoing efforts to address climate change.

Going forward there may be a need to diversify adaptation activities towards other vulnerable socioeconomic sectors that were identified through the country's National Communication, and that may be identified in a forthcoming national adaptation strategy. These include a focus on the country's vulnerable ecosystems, including the Caroni Basin, coral resources and wetlands, as well as a focus on the agriculture sector, fisheries, human health and looking more closely at how climate change will affect men and women differently.

References:

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