

# Generating climate change and disasters indicators for policy decision-making in Antigua and Barbuda



**The CARICOM Sub-regional Experience in Producing its First Climate Change Statistics Publication –CARICOM Secretariat –3 December 2021**

# BACKGROUND

- **UNSD/CARICOM PROJECT:**
- Introduction of Environment Statistics in the Caribbean Community (CARICOM) was in 1999 under a UNSD/CARICOM Project- “**Strengthening Capacity in Social /Gender and Environment Statistics for Conference Follow-up**”. (First Development Account project).
- At that time, one country, **Belize**, had produced an Environment Statistics report in 1999 and **Jamaica** was also commencing work in this area of statistics;
- Project launch for ENV component took place in Belize and a **core set of statistics and indicators** were identified to be compiled by Member States based on **environmental issues** that were considered critical to CARICOM.

# BACKGROUND

- **UNSD/CARICOM PROJECT:**
- The first regional publication, “The CARICOM Environment in Figures -2002” was published as a main project output.
- There was also technical assistance, training in IT, equipment provision and also support from international experts.
- Sustainability considerations led to the formation of a **CARICOM Advisory Group on Statistics** and the development of a **CARICOM Programme in Environment and Social/Gender Statistics** to encourage regional and national data compilation.

# BACKGROUND

- **SELECTED CAPACITY BUILDING UNDERTAKEN:**
- Documentation of metadata/Adoption of the FDES;
- Training workshops- in collaboration with UNSD, funded by IDPs including World Bank and EU;
- In-country Technical Assistance focusing on Interagency collaboration;
- Establishment of a Technical Working Group for the Development of Environment Statistics – First meeting (virtual) in 2016 with representatives from Antigua and Barbuda, Jamaica, St. Kitts and Nevis, St. Vincent and the Grenadines, Suriname, Bermuda, the BVI, and Turks and Caicos Islands. Outputs included TOR and work plan.
- Assessment of Data availability by country and indicators

# Environment list of indicators

MAPPING			
Topic	Sub-topic	Indicators	Framework
<b>Hazardous events and disasters</b>			
	<b>Occurrence of hazardous events and disasters</b>		
		Natural disasters by type and year	CARICOM Programme, CSMDG
		Percentage of coral reefs destroyed by human activity and by natural disasters	CSMDG
		Number of deaths, missing people, injured, relocated or evacuated due to disasters per 100,000 people	CC SDG
		Social dislocation resulting from natural disasters	CSMDG
		Economic losses resulting from natural disasters	CSMDG
		Direct disaster economic loss in relation to global gross domestic product (GDP)	CC SDG
		Direct disaster economic loss in relation to global GDP, including disaster damage to critical infrastructure and disruption of base services	CC SDG
	<b>Adaptation policies /strategy /plans</b>		
		Number of countries with national and local disaster risk reduction strategies	CC SDG

# Environment list of indicators

		MAPPING	
Topic	Sub-topic	Indicators	Framework
<b>Environmental Health</b>			
	<b>Water Quality</b>		
		Level of Water Stress: freshwater withdrawal as a proportion of available freshwater resources	CC SDG
		Amount of water and sanitation related Official Development Assistance that is part of a government coordinated spending plan	CC SDG
	<b>Human health</b>		
		Number of Reported Cases of Environmentally Related Diseases	CARICOM Programme
	<b>Vulnerable population</b>		
		Number of Households by Type of Water Supply	CARICOM Programme
		Number of Households by Type of Sanitation Facilities	CARICOM Programme
		Number of Households by Size of Household	CARICOM Programme
		Proportion of population using safely managed sanitation services including a hand washing facility with soap and water.	CC SDG
		Proportion of population using safely managed drinking water services	CC SDG
		Proportion of population with access to electricity	CC SDG
		Number of Households by Type of Fuel Used for Lighting	CARICOM Programme
		Number of families in coastal areas	CARICOM Programme
		Proportion of urban population living in slums, informal settlement or inadequate housing .	CC SDG

# Environment list of indicators

		MAPPING	
Topic	Sub-topic	Indicators	Framework
<b>Waste</b>			
	<b>Solid Waste</b>		
		Percentage of urban solid waste regularly collected and with adequate final discharge with regards to the total waste generated by cities	CC SDG
		Annual mean levels of fine particulate matter ( e.g. PM2.5 and PM 10) in cities population weighted	CC SDG
		Number of Parties to international multilateral environmental agreements on hazardous and other chemicals and waste that meet their commitments and obligations in transmitting information as required by each relevant agreement	CC SDG
<b>Biodiversity</b>			
	<b>Protected Species</b>		
		Proportion of fish stocks within biologically sustainable levels	CC SDG
		Red List Index	CC SDG
	<b>Protected Areas</b>		
		Coverage of protected areas in relation to marine areas	CC SDG
		Proportion of important sites for terrestrial and freshwater Biodiversity that are covered by protected areas by ecosystem type	CC SDG
		Official development assistance and public expenditure on conservation and sustainable use of biodiversity and ecosystems,	CC SDG
<b>Population and Households</b>			
	<b>Building and infrastructure vulnerable to Climate Change</b>		
		Number of Households by Type of Dwelling	CARICOM Programme
		Number of Households by Type of Tenure	CARICOM Programme
		Proportion of Households with Own Dwelling	CSDMGs
		Number of Households by Type of Material of Outer Walls	CARICOM Programme
		Number of Households by Type of Material Used for Roofing	CARICOM Programme
		Number of Households by Number of Bedrooms	CARICOM Programme



# Environment list of indicators

Topic	Sub-topic	MAPPING Indicators	Framework
<b>Tourism</b>			
	<b>Tourist arrivals</b>	Same-day visitor (or excursionist)	CARICOM Programme
		Tourist (or overnight visitor)	CARICOM Programme
		Cruise passengers	CARICOM Programme
		Number of tourist nights spent	CARICOM Programme
		Tourist Intensity Ratio	CARICOM Programme
		Tourism Penetration Ratio	CARICOM Programme
		Tourist Arrivals by Country of Origin	CARICOM Programme
		Tourist Arrivals by Type of Accommodation	CARICOM Programme
	<b>Hotels</b>	Number of Hotels Classified by Size	CARICOM Programme
		Total number of beds	CARICOM Programme
		Total number of rooms occupied	CARICOM Programme
		Room occupancy rate	CARICOM Programme
		Visitor expenditure (in US\$)	CARICOM Programme
		Total directly employed in tourism (total, women, men)	CARICOM Programme
<b>Energy and Minerals</b>			
	<b>Energy Production and Consumption</b>	Energy Consumption by Type and Year	CARICOM Programme
		Number of Households by Type of Fuel Used for Cooking	CARICOM Programme
	<b>Minerals</b>	Mineral Production by Type	CARICOM Programme
		Mineral Reserves by Type	CARICOM Programme
<b>Land Use and Agriculture</b>			
	<b>Land Use</b>	Land Use by type and year	CARICOM Programme, FDES
		Ratio of land consumption rate to population growth rate	CC SDG
	<b>Agricultural Crops</b>	Use of Fertilizers by Type and Year	CARICOM Programme, FDES
		Use of Pesticides by Type and Year	CARICOM Programme, FDES



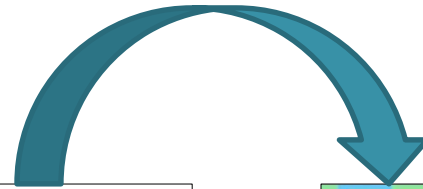
# Environment list of indicators

Topic	Sub-topic	MAPPING Indicators	Framework
<b>Coastal and Marine resources</b>			
	<b>Marine resources</b>		
		Total marine area	CARICOM Programme, FDES
		Fish landings by type	CARICOM Programme, FDES
		Protected marine area	CARICOM Programme, FDES
<b>Forest</b>			
		Protected Area as a Percentage of Total Territorial Area	
		Forest area as a proportion of total land area	FDES, CC SDG
		Total Territorial Area	CARICOM Programme, FDES
		Total Protected Area (terrestrial and marine)	CARICOM Programme, FDES
		Total forest area	CARICOM Programme, FDES
		Protected forest area	CARICOM Programme, FDES
		Total land area	CARICOM Programme, FDES
		Protected Forest Area as a percentage of Total Forest Area	CARICOM Programme, FDES
		Protected Forest Area as a percentage of Total Land Area	CARICOM Programme, FDES
<b>Air</b>			
	<b>GHG emissions</b>		
		CO2 emission per unit of value added.	CC SDG
		Emissions of Sulfur Dioxide (SO2)	CARICOM Programme, FDES
		Emissions of Nitrogen Oxides (NOx)	CARICOM Programme, FDES
		Emissions of Non-Methane Volatile Organic Compounds (NM-VOCs)	CARICOM Programme, FDES
		Emissions of Carbon Dioxide (CO2)	CARICOM Programme, FDES
		Emissions of Methane (CH4)	CARICOM Programme, FDES
		Emissions of Nitrous Oxide (N2O)	CARICOM Programme, FDES
		Emissions of Lead (Pb) and Consumption of Leaded Petrol	CARICOM Programme, FDES

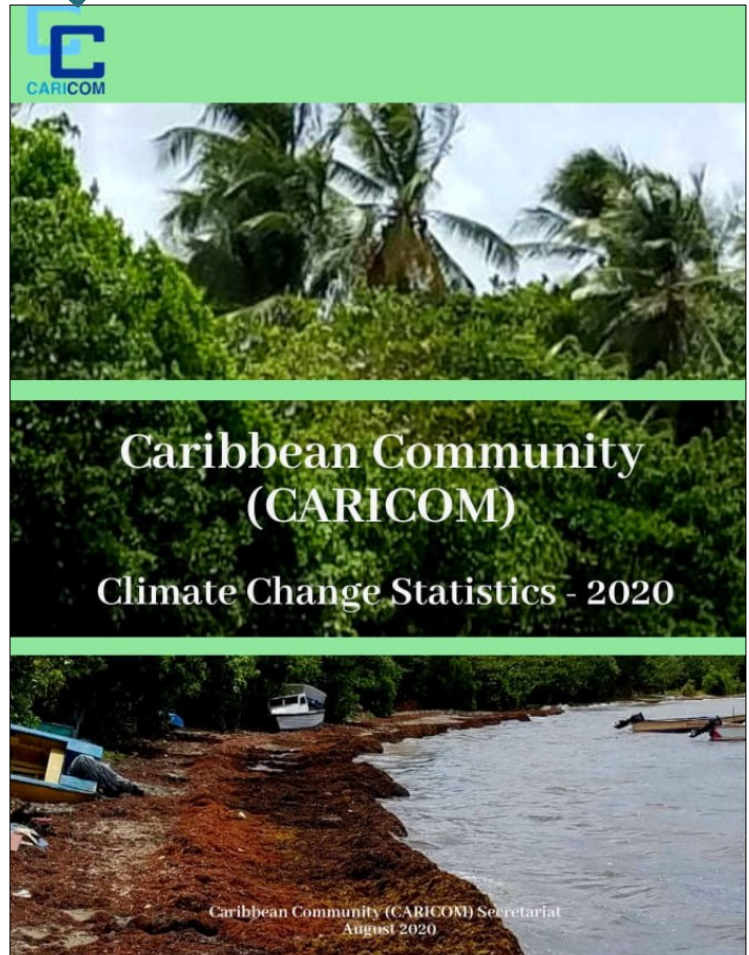
# STATUS -CURRENT WORK

- **ITALIAN PROJECT/ IDB PROJECT:**
- “Capacity Building in Statistics” project funded by the Italian Agency for Development Cooperation (AICS) and implemented by the Italian National Institute of Statistics (Istat) jointly with the CARICOM Secretariat.
- The Italian project is complimented by the “Support to Statistical Capacity in CARICOM Countries” initiative funded by the Inter-American Development Bank (IDB)
- Both projects are aimed at providing the RSP of the CARICOM Secretariat and NSOs with being able to compile a range of complete and reliable information concerning 3 fields – Agriculture, Gender and Environment

# From Environment to Climate Change Statistics



## THE CARICOM ENVIRONMENT IN FIGURES 2014



# From Environment to Climate Change Statistics

- The Secretariat has now produced a total of four (4) CARICOM Environment in Figures publication plus its first **Climate Change Statistics Publication**.
- The CARICOM Climate Change Statistics Publication- **which is largely exploratory** is based on the fact that Climate Change is of high importance to CARICOM Small Island Developing States and it is hoped that this first publication can **lay the groundwork for future work** in this area.
- The approach to the production of Climate Change Statistics utilised the framework of the **FDES 2013** and specifically the **IPCC schematic framework**;

# From Environment to Climate Change Statistics

- **APPROACH TO PUBLICATION ON CLIMATE CHANGE STATISTICS**
- The tables previously published under environment statistics were rearranged under the five (5) components- Drivers, Impacts, Adaptation, Mitigation and Vulnerability;
- New tables were identified where required and the series in the existing tables were updated (up to 2019 for some tables).
- **Key Lesson learnt: Strengthening Environment Statistics can lead to the production of Climate Change Statistics**

# Highlights from Climate Change Statistics Publication

- **DRIVERS (Selected Tables)**
- **Sub-component 1.1: Emissions to Air**
- **Topic 1.1.1: Emissions of greenhouse gases**
- 1.1.1.a: Total emissions of direct greenhouse gases (GHGs), by gas:
  - 1.1.1.a.1: Carbon dioxide (CO<sub>2</sub>)
- *Table 1.1.1.a.1: Carbon dioxide emissions (CO<sub>2</sub>): 2000-2014*
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# Highlights from Climate Change Statistics Publication

## Topic 1.1.1: Emissions of greenhouse gases

**Table 1.1.1.a.1: Carbon dioxide emissions (CO<sub>2</sub>): 2000-2014**

Country	(Gg)						
	2000	2001	2002	2003	2004	2005	2006
<b>Antigua and Barbuda</b>							945.54
<b>Barbados</b>	1134.00	1152.00	1152.00	1138.00	1166.00	1208.00	1225.00
<b>Belize</b>	11950.00			18168.00			17375.00
<b>Dominica</b>	106.00	118.00	113.00	111.00	111.00	119.00	
<b>Grenada</b>	207.50	216.70	226.40	238.70	232.20	243.40	251.40
<b>Guyana</b>	1734.00	1713.00	1684.00	1675.00	1731.00		
<b>Haiti</b>	2595.81						
<b>Jamaica</b>							11205.00
<b>Saint Lucia</b>							
<b>St. Vincent and the Grenadines</b>	155.15				217.41		





# Highlights from Climate Change Statistics Publication

- **IMPACTS ( Selected Tables)**
- **Subcomponent 2.1: Areas impacted by climate change**
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- **Topic 2.1.1: Forests**
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- 2.1.1: Forest area
- Table 2.1.1.1: Total and Protected Forest Area: 2009-2013
- Table 2.1.1.2: Forest Area (% of land area)
- Chart 2.1.1.1: Forest Area (% of land area): 1990, 2000, 2010 and 2016
- <http://statistics.caricom.org/climatepub.html>

# Highlights from Climate Change Statistics Publication

## Topic 2.1.1: Forests

**Table 2.1.1.2: Forest Area (% of land area): 1990, 2000, 2010 and 2016**

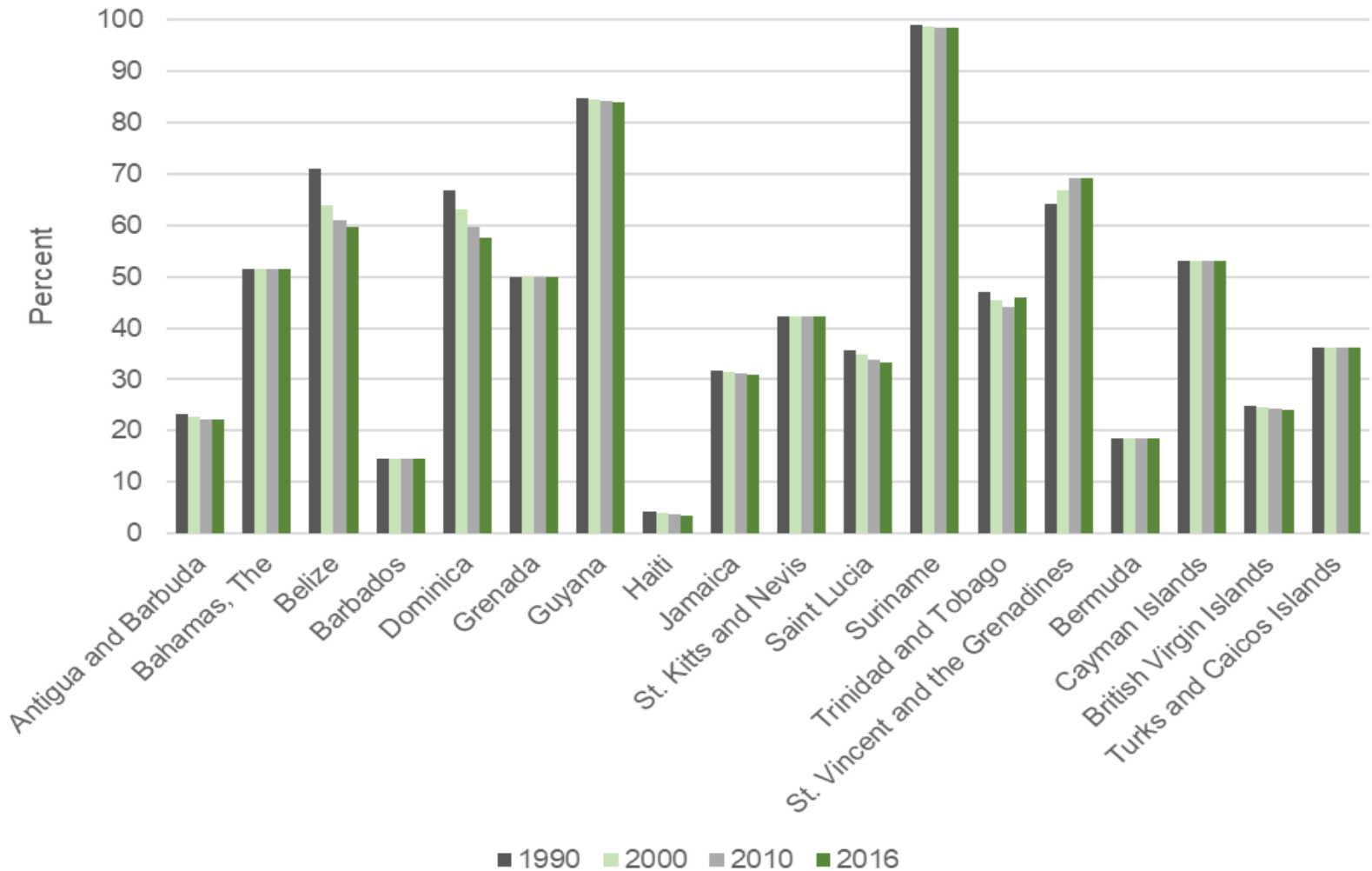
Country	Percent			
	1990	2000	2010	2016
Antigua and Barbuda	23.4	22.7	22.3	22.3
The Bahamas	51.4	51.4	51.4	51.4
Belize	70.8	64.0	61.0	59.7
Barbados	14.7	14.7	14.7	14.7
Dominica	66.7	63.1	59.5	57.4
Grenada	50.0	50.0	50.0	50.0
Guyana	84.6	84.4	84.2	83.9
Haiti	4.2	4.0	3.7	3.5
Jamaica	31.8	31.5	31.1	30.9
St. Kitts and Nevis	42.3	42.3	42.3	42.3
Saint Lucia	35.7	34.8	33.8	33.2
Suriname	98.9	98.7	98.4	98.3
Trinidad and Tobago	46.9	45.5	44.1	46.0
St. Vincent and the Grenadines	64.1	66.7	69.2	69.2
Bermuda	18.5	18.5	18.5	18.5
Cayman Islands	52.9	52.9	52.9	52.9
British Virgin Islands	24.7	24.5	24.3	24.1
Turks and Caicos Islands	36.2	36.2	36.2	36.2

**Source:**

Food and Agriculture Organization, electronic files and web site.

# Highlights from Climate Change Statistics Publication

Chart 2.1.1.1: Forest Area (% of land area): 1990, 2000, 2010 and 2016



# Challenges and Best Practices

- Major Data Gaps – Data we have
  - Drivers - Almost all topics covered except AFOLU drivers (IPCC) such as deforestation
  - Impacts - 4 out of 13 topics only
  - Mitigation - 1 out of 3 topics (3 indicators)
  - Vulnerability - 1 out of 5 topics (1 indicator)
  - Adaptation - 2 out of 7 topics (waste and water management indicators)
- There is also a **Technical Work Group** on Environment Statistics that continue to operate to sustain the production of these statistics
- Use of data in the National Communications to the UNFCCC
- Use of Proxy data – Energy Statistics, Trade data
- Use of data from international sources -Disaster Statistics
- Metadata challenges –differences in computation, use of differing methodology
- Lack of dedicated staff to compile Environment Statistics
- Lack of national climate change reports
- **Strengthening Inter-agency collaboration within the NSS**



Thank you!