

The Cambridge Conference 2017 : Mapping Nations: The Next Decades

Environmental Change, Resilience and
Disaster Response



The Urban Challenge

Presenter: Rohan Richards, Jamaica Principal Director, Ministry of Economic Growth and Job Creation in Jamaica, and Co-Chair of the UN-GGIM Working Group on Geospatial Information and Services for Disasters.

The Urban Challenge: Resilience and Disaster Response

Our cities play a vital role in the quest to achieve global ecological sustainability. They are the largest contributors to greenhouse gases and climate change.

● Greenhouse Gases

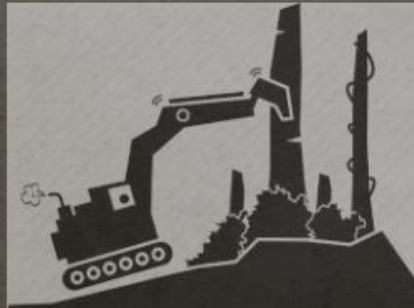


● Increasing Urban Population in Cities



The world's urban centres already account for more than 70 per cent of CO₂ emissions.

● Deforestation



Environmental Issues



Rising Temperatures



Waste Management



Larger Carbon Foot

The Urban Challenge: Cities in developing nations (Caribbean Islands)

Caribbean Islands Susceptibility to Hazards

Tropical maritime climate, with tropical storms and hurricanes during the period June To November



Earthquakes



Flooding (coastal & riverine)



Hurricanes



Landslide

Disasters



Economic Loss

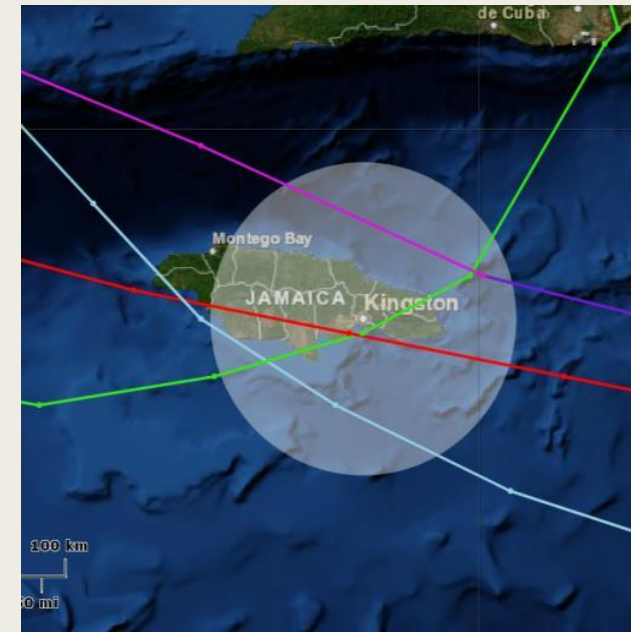


Over the period 1990–2008, the Caribbean experienced 165 natural disasters.

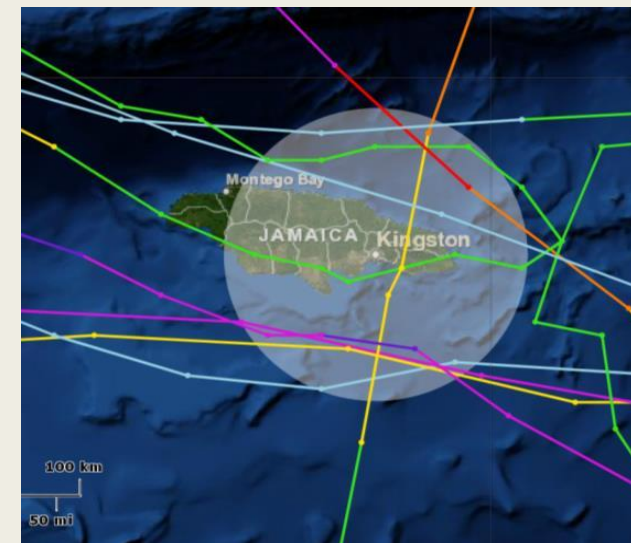
The total impact (damage and losses) for this period was estimated to be US\$ 136 billion.

Economic impact being the highest at US\$ 63 billion (Association of Caribbean States, 2012).

EVENT	Year	Cat	Cost (J\$B)	Impact (% GDP)
Hurricane Michelle	2001	4	2.52	0.8%
May /June floods	2002	-	2.47	0.7%
Hurricane Charley	2004	4	0.44	0.02
Hurricane Ivan	2004	3	36.9	8.0
Hurricanes Emily & Dennis	2005	4	5.98	1.2
Hurricane Wilma	2005	5	3.6	0.7
Hurricane Dean	2007	4	23.8	3.4
TS Gustav	2008		15.5	2.0
TS Nicole	2010		20.6	1.9
Hurricane Sandy	2012		9.4	0.8



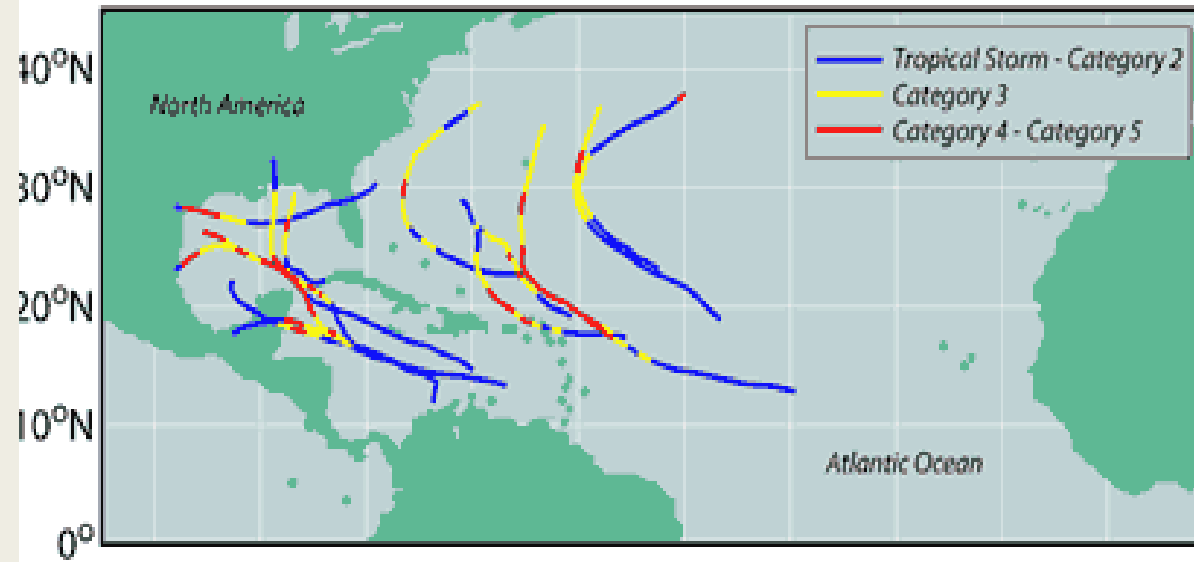
1980-1999



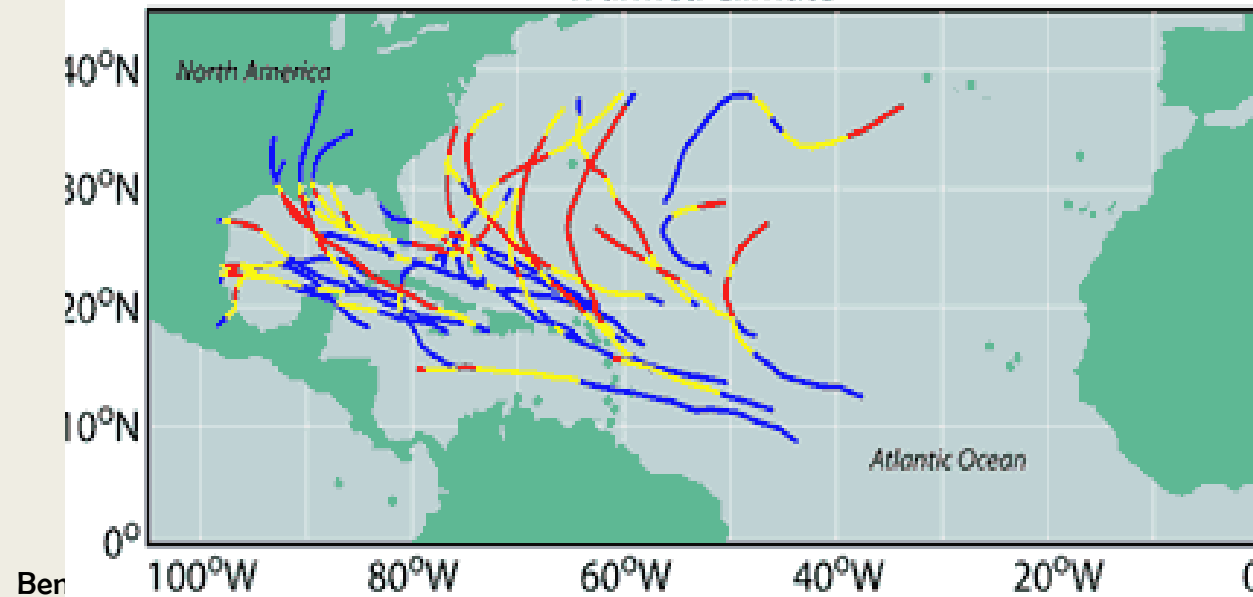
2000-2012

Modeled Category 4 & 5 Hurricane Tracks

Present Climate



Warmed Climate



The Urban Challenge: Factors Contributing to Caribbean Islands Susceptibility to Hazards

Improper Land Use for Urban Areas

Lack of adherence to building codes



Development in high-risk areas (along gully courses, on steep hillsides, and on road and railway line reserves).



Environmental degradation

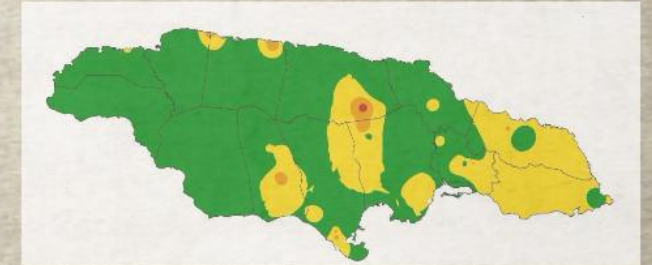
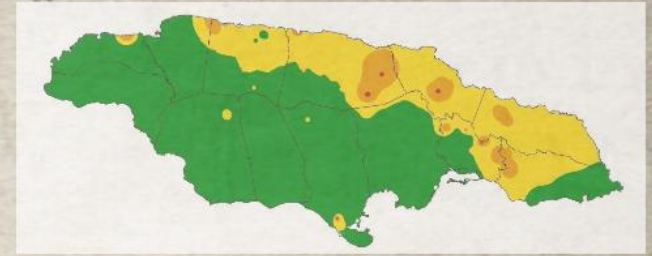
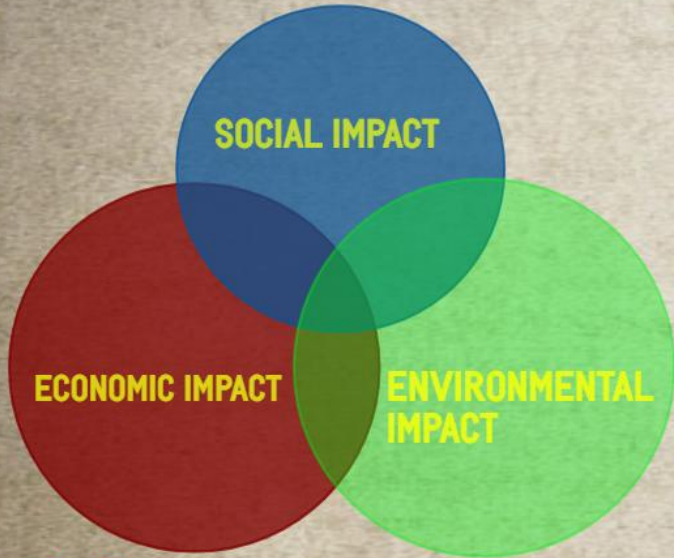


The increase in Caribbean's population due to urbanization, has led to increased demand for limited natural resources eg. water.

The Urban Challenge: Caribbean Islands Susceptibility to Hazards

ISLAND DROUGHT CONDITIONS FOR MAY - JUNE 2015

Case Study: Drought in Jamaica



MAPPING OF DROUGHT AREAS :DROUGHT ANALYSIS

- 40% of our domestic agriculture production. In addition, parishes such as Clarendon, Portland, St. Thomas and St. Mary, which are also significant producers of crops, have also been affected.
- Over 40% of the Island's Population was directly affected by Drought Conditions

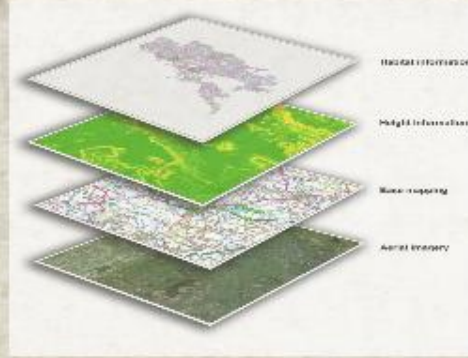
Resilience and Disaster Response: Reliable and Timely Geospatial Information



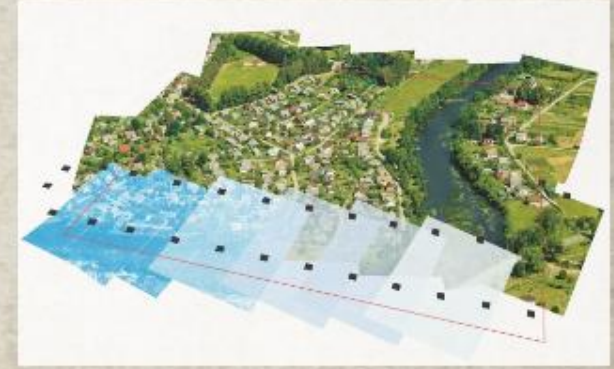
1 Urban Hazards - Flooding, Landslide, Drought and Earthquakes



The importance of knowledge of the hazards and physical, social, economic and environmental vulnerabilities to disasters are vital for actions to be taken .



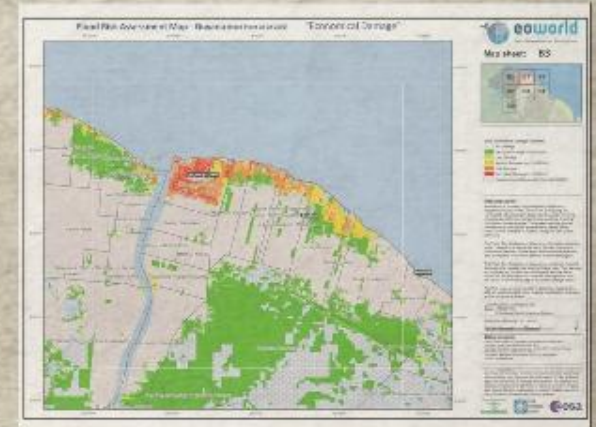
3 Spaced Based Data combined with other fundamental geospatial datasets –data within Government Agencies



4 Maps have been compiled by the National Disaster Agency for stakeholders to ensure that they are used effectively



2 Data Collection – UAV ,GPS/GNSS and Voluntary geospatial information



Common operational picture – urban hazard and risk assessment process

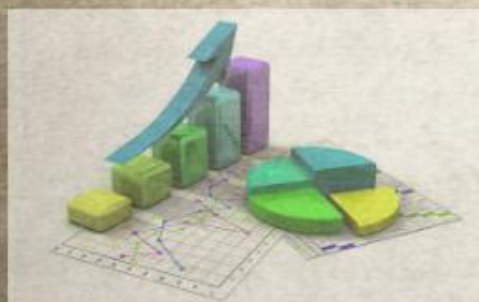
ROLE OF UN-GGIM TO ENHANCE THE AVAILABILITY AND QUALITY OF GEOSPATIAL INFORMATION IN SUPPORT OF EFFECTIVE DISASTER RESPONSE



HAZARDS



SPATIAL DATA



STATISTICAL INFORMATION

PRIORITIES FOR ACTIONS FROM UN-GGIM Draft Strategic Framework on Geospatial Information and Services for Disasters

Governance and Policies



Awareness Raising and Capacity Building



Data Management



Common Infrastructure and Services



Resource Mobilization



UN-GGIM

United Nations Group of Experts on Geographical Information

2019-2023

SUSTAINABLE DEVELOPMENT GOALS



SDG

Sendai Framework
for Disaster Risk Reduction
2015 - 2030



Geospatial Data is key to measuring the SDG & Sendai Framework in support of disaster response

**Sendai Framework
for Disaster Risk
Reduction**

The Urban Challenge: Resilience and Disaster Response

'Use of Geospatial Information for Decision Making'

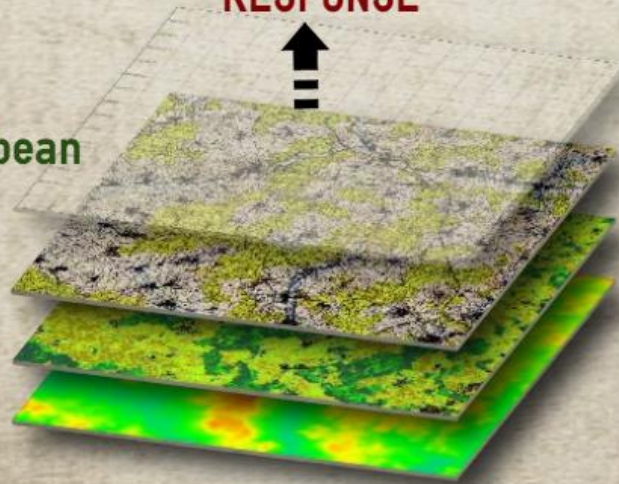
ADDRESSING THE ISSUES OF:

SUSTAINABLE DEVELOPMENT

- Improper Land Use for Urban Areas
- Increasing Urban Populations
- Increasing Climate Related Risk in Caribbean
- Environmental degradation



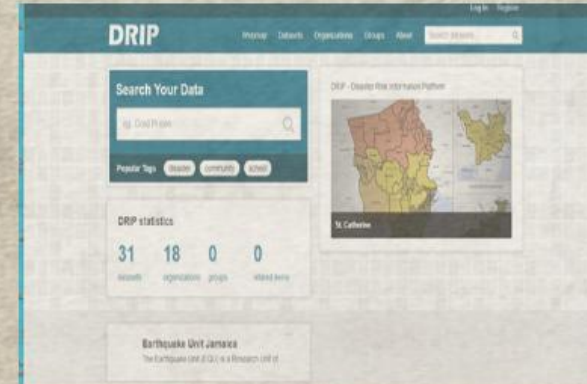
**EFFECTIVE
RESILIENCE AND
DISASTER
RESPONSE**



Spatial Information Platforms in the Caribbean



Dominica's public
Geographic
Information System
(GIS) repository



Jamaica's
Disaster Risk
Information
Platform
(DRIP)

Reliable data on Landuse, environmental data, infrastructure management information, climate change data/statistics, agricultural information, socio-economic data and hazard risk information.

Data Provided by Government entities from the sector areas of social, environment and physical infrastructure