INTERNATIONAL WATER RESOURCES ASSOCIATION'S
1st ISLANDS WATER CONGRESS
FAROE ISLANDS - SEPTEMBER 4-6, 2024

International Water Resources Association

JARÐFEINGI
Faroese Geological Survey

Water ResourceManagement: A Caribbean Perspective

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The Caribbean

- Countries in the Caribbean Sea, a region of the Atlantic Ocean between North America and South America and east of Central America, in which many tropical island nations are positioned in close proximity.
- The Caribbean includes thirteen countries classified as sovereign states by the United Nations, as well as nearly two dozen non-sovereign territories.

The Caribbean vs Faroe Islands: Similarities

Insular Geography:

- Both consist of archipelagos, with numerous small islands making up each region. This island geography influences their cultures, economies, and lifestyles.

Marine Economy:

- The economies of both regions heavily depend on the sea. In the Faroe Islands, fishing is a primary industry, whereas the Caribbean relies significantly on tourism, fishing, and, to some extent, maritime trade.

Cultural Heritage:

- Both regions have rich cultural traditions shaped by their geographical isolation. The Faroe Islands have a strong Norse heritage, while the Caribbean islands are known for their diverse cultural mix, including African, European, Indigenous, and Asian influences.

Climate Change Vulnerability:

- Both the Faroe Islands and the Caribbean are vulnerable to the impacts of climate change. The Caribbean faces threats from rising sea levels, hurricanes, and coral bleaching, while the Faroe Islands are affected by changes in ocean temperatures and fish populations.

The Caribbean vs Faroe Islands: Differences

Climate:

- **Faroe Islands:** Subpolar oceanic climate, characterized by cool temperatures, frequent rain, and fog throughout the year. Summers are mild, and winters are relatively cold, though not extreme.
- **Caribbean:** Tropical climate with warm temperatures year-round. It experiences a distinct wet and dry season, and hurricanes are a significant concern during the hurricane season.

Biodiversity:

- **Faroe Islands:** The biodiversity in the Faroe Islands is limited due to its colder climate. The islands are home to seabirds, marine mammals, and a few terrestrial species.
- **Caribbean:** The Caribbean is known for its rich biodiversity, including tropical rainforests, coral reefs, and a wide variety of plant and animal species, many of which are endemic to the region.

Cultural Diversity:

- **Faroe Islands:** Relatively homogenous, with a strong cultural identity rooted in Norse traditions.
- **Caribbean:** Extremely diverse, with a mix of cultures from various ethnic backgrounds, including African, European, Indigenous, and Asian influences, resulting in a vibrant and varied cultural landscape.

Population and Economy:

- **Faroe Islands:** Approx 53,000 people. The economy is largely based on fishing, aquaculture, and related industries.
- **Caribbean:** The Caribbean has a much larger and more varied population, with a regional population in the millions. The economy is diverse, with tourism, agriculture, and services playing significant roles in addition to fishing.

Water Management Faroe Islands vs Caribbean

Dependency on Rainwater:

Both regions rely heavily on rainwater for their freshwater needs. In the Faroe Islands, rainwater feeds into small rivers, streams, and lakes, which are the primary sources of freshwater.

Challenges with Freshwater Availability:

The Faroe Islands, despite frequent rainfall, have limited freshwater storage due to their small size and topography. The Caribbean, on the other hand, faces issues such as overextraction of groundwater, contamination of water sources, and the impacts of climate change, which can lead to prolonged droughts and increased saltwater intrusion.

Importance of Sustainable Practices:

Both regions recognize the importance of sustainable water management practices to ensure the availability of water for future generations. Efforts include protecting water catchment areas, promoting water conservation, and improving infrastructure to reduce water loss and increase efficiency.

Key WRM issues in the Caribbean

- **Infrastructure and Technology:**
  - Varied infrastructure landscape, with some islands having advanced water management systems, while others face challenges related to aging infrastructure, lack of resources, and vulnerability to natural disasters.
- **Water Management Challenges:**
  - Broader range of challenges, including managing water resources in the face of population growth, tourism demands, and climate change.
  - Water scarcity during dry seasons, the risk of contamination from agricultural runoff and untreated sewage, and the need to protect watersheds and aquifers are significant concerns.
  - Climate Extremes, Variability and Change
- **Institutional and Policy Frameworks:**
  - Complex and fragmented governance structure due to the number of independent nations and territories.

IWC- Faroe Islands 2024

Regional Overview

Countries included share many similarities:

- **Pre-colonial and Colonial History,**
- **Geophysical Characteristics**
- **Socio-economic Characteristics**

Many significant differences which must also be considered to fully understand various approaches IWRM:

- **Different stages of progress**
- **Individual priorities**
- **Cultural diversity**

Legal, Policy and Institutional Framework

Required legal and policy enabling environment for IWRM is lacking within the region.

Acknowledgement and acceptance of IWRM as a best practice for managing national water resources.

Generally governed via a suite of legislation, policies and strategies (some of which are archaic, and others remain in draft form for an extended period of time).

Fragmentation of the mandate across several institutions with no designated responsible/accountable party for water resources management.

Obscurities exist across institutions

Data and Knowledge Management

Lack of technical capacity has been cited as a major hindrance to conducting the business of WRM.

Lack of an adequately trained cohort of professionals to manage the countries' water resources is reflected in:

Imperative that institutions charged with the mandate of WRM move away from the outdated, fragmented sectoral approach

Effective communication and coordination between responsible agencies, and with the private sector and civil society is essential for IWRM implementation.

Sustainable Financing

The availability and mobilisation finance has been flagged as a major bottleneck to IWRM within this sector.

The lack of funding for operational activities of the institutions with responsibility for WRM perpetuates other challenges.

Adaptation Challenges

Regional Challenges

- Inefficient advisory services
- Lack of policy direction → ineffective enabling environment
- Low productivity and low resistance and resilience to shocks including climate related hazards
  - Low technology use
  - Inadequate knowledge and technical capacity
  - Poor water and soil management
- Limited data collection and information management
- Limited access to finance

Act of God or …is it US?

- **Urbanization**
- **Deforestation**
- **Land Use Changes**
- **Infrastructure Development**
- **Dams and Reservoirs**

How can we improve?

Management and Mitigation Strategies

Natural Infrastructure:

- Emphasizing the role of natural infrastructure, such as wetlands, mangroves, and forests, in flood mitigation. These ecosystems can absorb and slow floodwaters.
- Promoting the conservation and restoration of these natural features is an important strategy.

Land-Use Planning and Zoning:

- Enforcing land-use regulations and zoning codes to restrict construction in flood-prone areas and encourage responsible development.
- Ensuring that new construction adheres to building codes that account for flood resilience.

Community-Based Disaster Risk Reduction (CBDRR):

- Empowering local communities to take part in flood risk reduction efforts through CBDRR initiatives.
- Encouraging communities to develop evacuation plans, establish local warning systems, and promote flood-resistant building practices.

Community Preparedness and Response

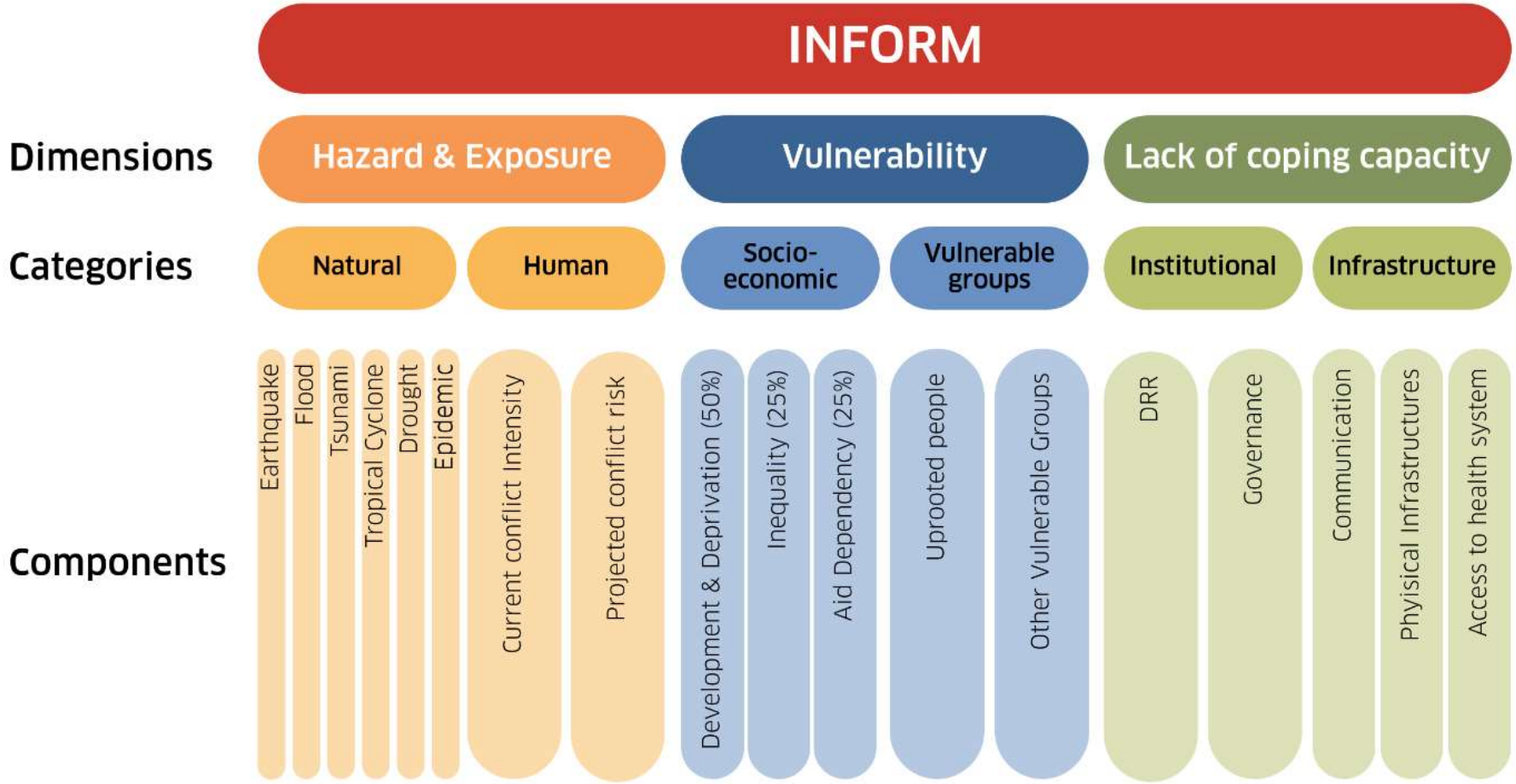
Early Warning Systems:
Implementing effective early warning systems to provide timely information to residents about impending floods.

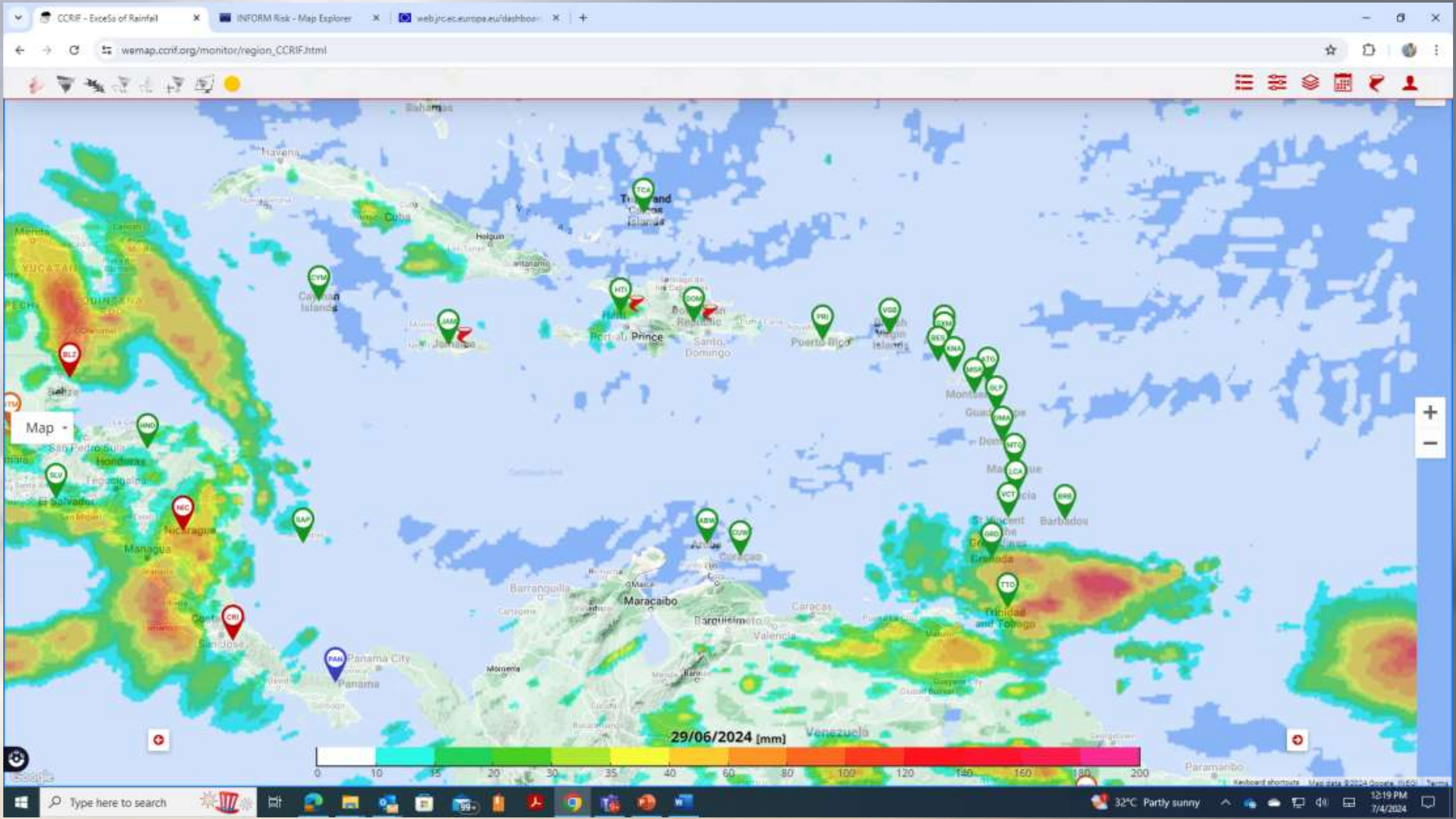
Emergency Plans: Developing and communicating flood emergency plans that include evacuation routes, shelter locations, and ways to protect property.

Flood Insurance: Encouraging residents in flood-prone areas to purchase flood insurance to aid in recovery efforts.

Public Education: Raising awareness about flood risks and teaching communities about preparedness measures, including how to safely evacuate during floods.

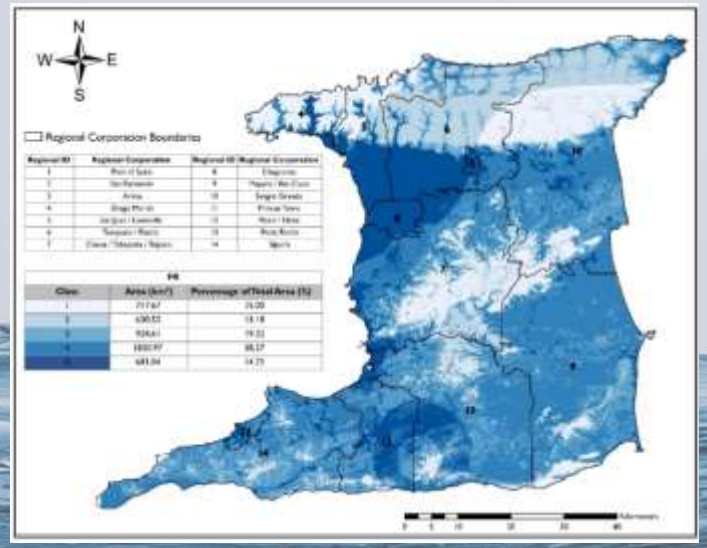
Hazard Risk Assessment



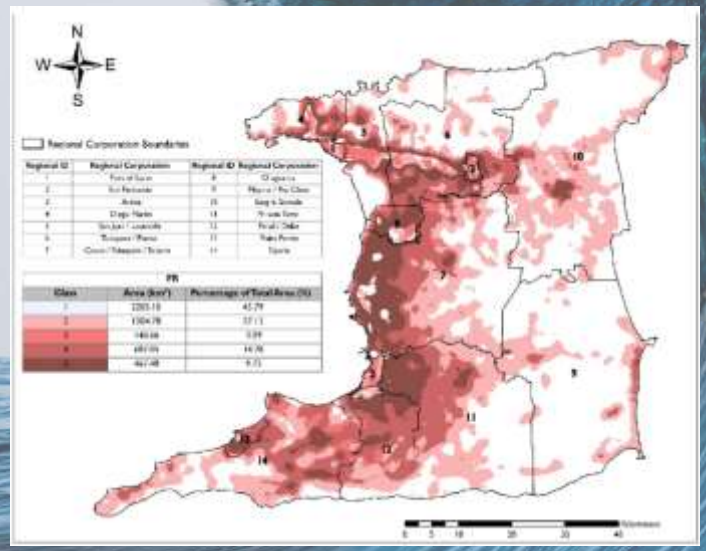

CCRIF - ExceSs of Rainfall
INFORM Risk - Map Explorer
wemap.ccrif.org/monitor/region_CCRIF.html
Map
29/06/2024 [mm]
0
10
15
20
30
35
40
60
80
100
120
140
160
180
200
Havana
Cuba
Turks and Caicos Islands
Cayman Islands
Port-au-Prince
Santo Domingo
Puerto Rico
Barbados
Trinidad and Tobago
Maracaibo
Barquisimeto
Venezuela
Panama City
Panama
Managua
Nicaragua
Honduras
Belize
Type here to search
32°C Partly sunny
12:19 PM
7/4/2024

Flood Risk Assessment

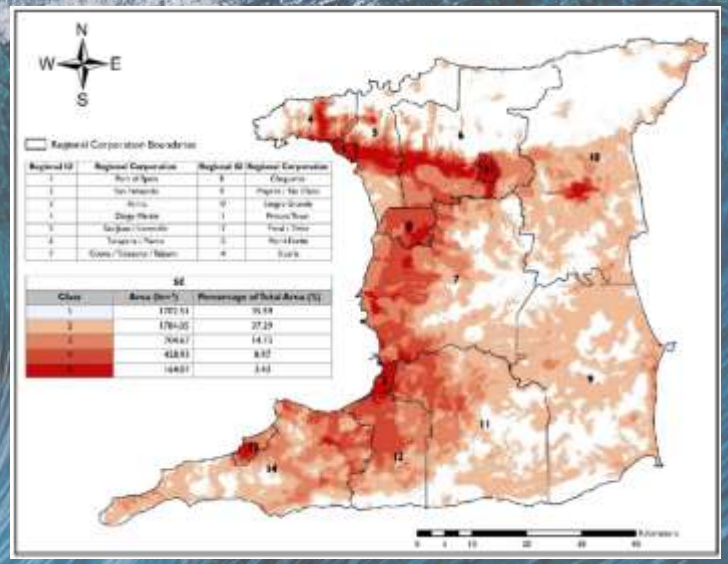
Exposure



Vulnerability



Risk



Roopnarine et al. 2022

WASA- Operational Control Centre

- Leveraging advanced technology for improved water and wastewater management.
- Offers a glimpse into the future of water and wastewater management in Trinidad and Tobago.

Some Recent Initiatives

- Water Academies and Capacity Building Training
- Water Information Management System IMS
- Community Flood Early Warning Systems (CFEWS, UNDP-ODPM)
- Flood Mapping/Hydrological Modeling (WRA, ODPM)
- Increase installation of weather stations (WRA/ Met office)
- Upgrade of River Level Monitoring (WRA)
- RSAP (CWWA)
- Regional IWRM Framework (GWP-C, OECS, CARPHA)
- Water Safety Plans (CARPHA)
- IWRM Stakeholder Forum (August 2024, MPU/WRA)

GEF CreW+

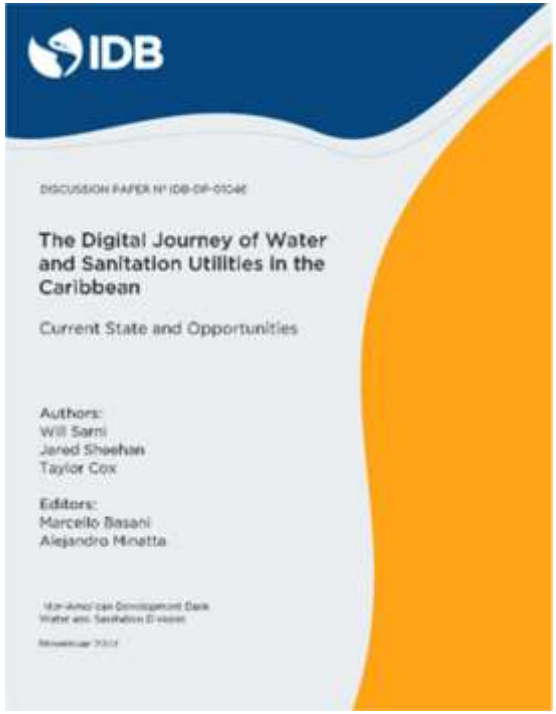
Financed by gef

Co-implemented by IDB, UN environment programme

Co-executed by giz, OAS

- The GEF CReW+ is a partnership project funded by the Global Environment Facility (GEF) that is being co-implemented by the Inter-American Development Bank (IDB) and the United Nations Environment Programme (UNEP) in 18 countries of the Wider Caribbean Region (WCR).

  - Promote the development of strategies, policies, laws, criteria, guidelines and regulations concerning water resources and wastewater management at the institutional level.
  - Identify sustainable financial mechanisms, such as payment for ecosystem services, blended finance, and revolving funds.
  - Improve access to sustainable WASH services through the design and construction of climate resilient wastewater treatment plants and sanitary facilities.



CDB and IDB

- Watershed management which is included in our capital water projects.
- Project preparation for building climate resilience:
  - CRVAs for water utilities that identifies risks and vulnerabilities of the resource
  - Supporting our water sector clients to access climate finance with a focus on IWRM
  - Feasibility stages of a climate change project preparation facility (that will benefit water sector).
- CWWA - ministerial forum.
- CWUIC - donor funding
- Support to water resources management entities:
  - Water resources master plans for one of our clients.
  - Strengthening of hydrometeorological network for a few of our client countries
- Strengthening of the water sector regulatory environment in a few of our client countries, i.e. support for tariff review and determinations that include water resources.

IWC- Faroe Islands 2024

INTER-AGENCY COORDINATION MECHANISM AND ITS STANDARD OPERATING PROCEDURES

UNDP

dpm
Office of Disaster Preparedness and Management
A DIVISION OF THE MINISTRY OF NATIONAL SECURITY

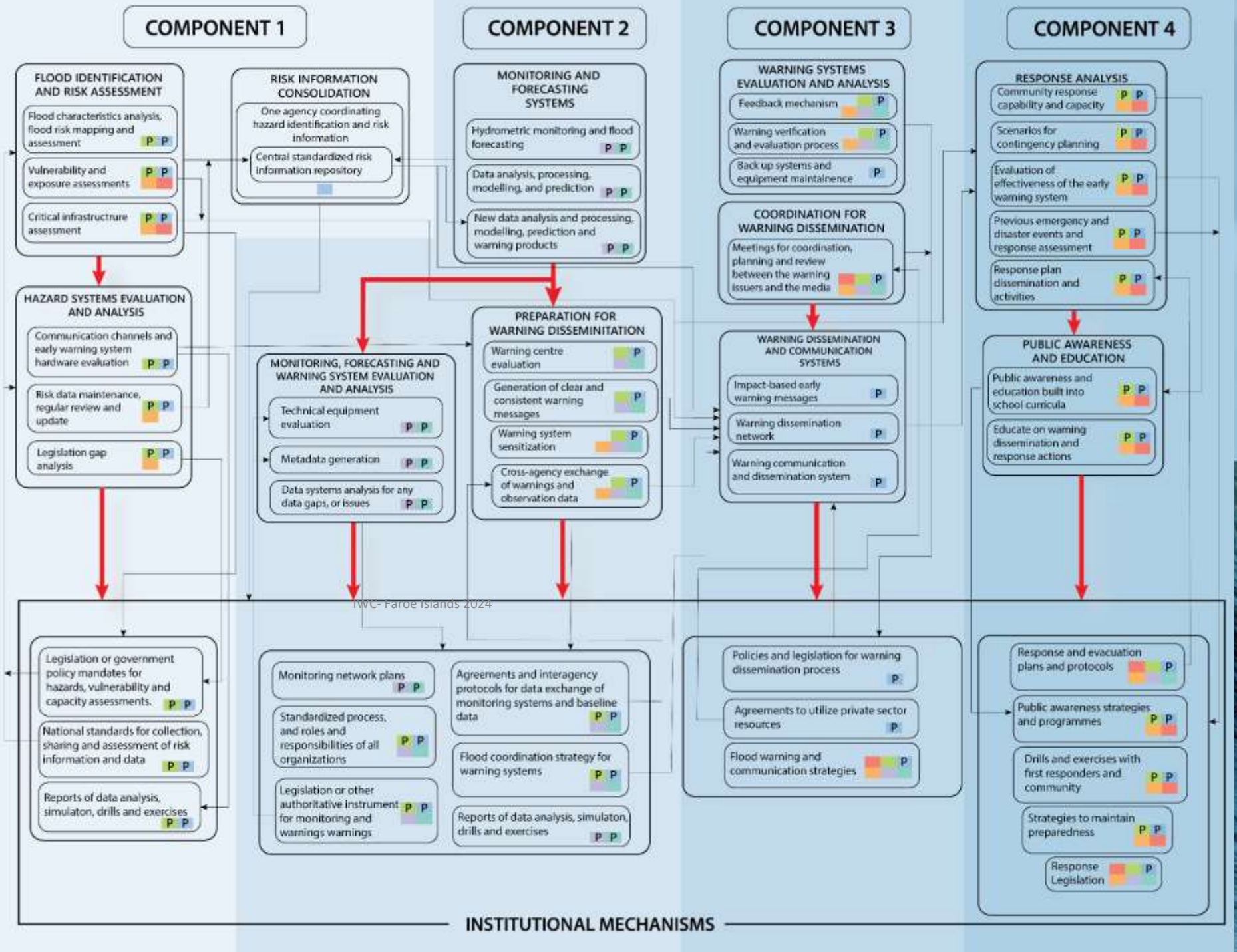


Figure 1. Roles and Responsibilities of the Key Agencies to the FEWS

Nature-based Solutions

Dominica Landslide

Opportunities for Progress IWC 2024

- Island Administration
- Climate Change and Nature Nexus
- Groundwater Resources Management

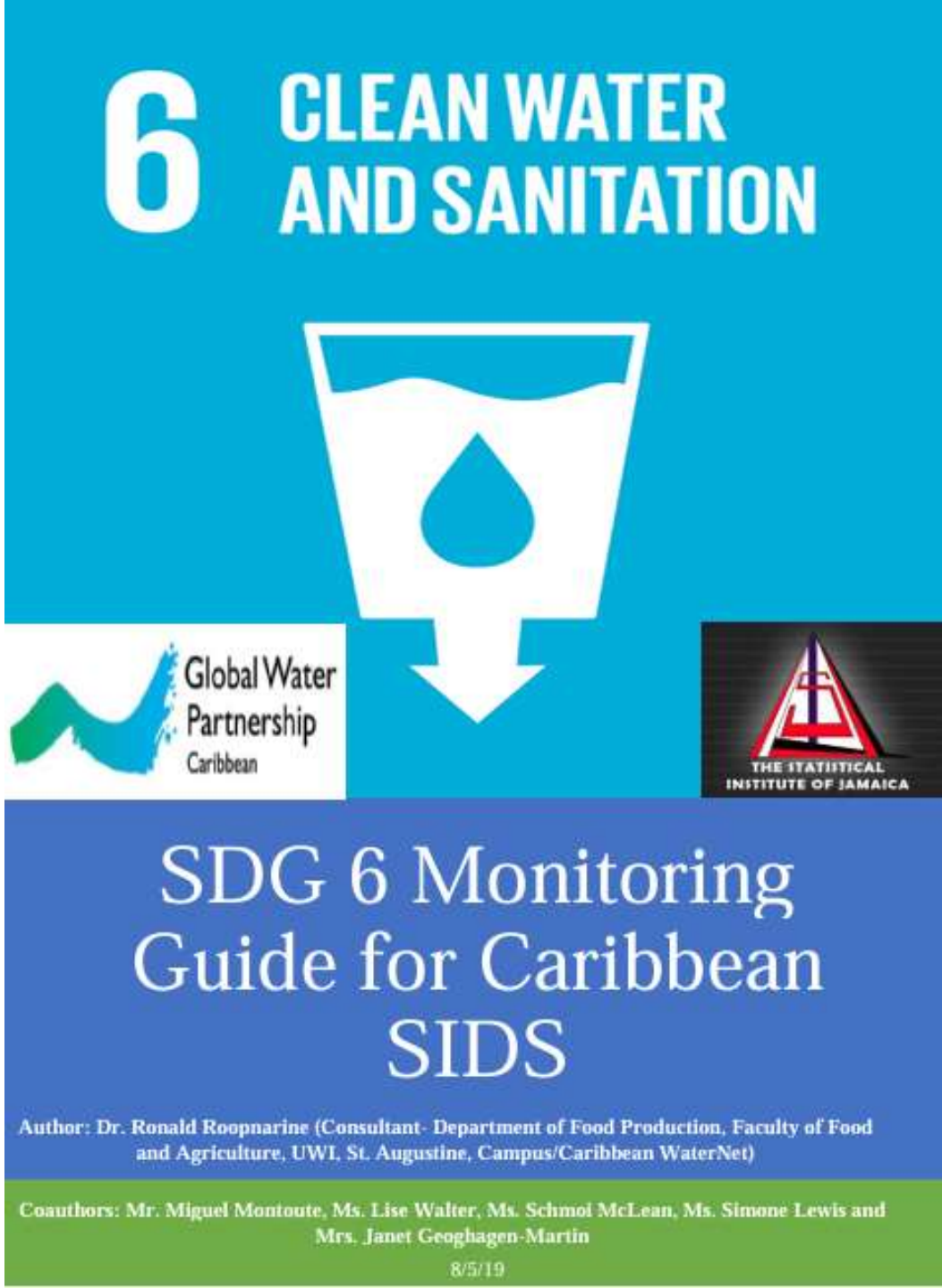
Progressing the SDGs – SDG 6

- **Communicators**

Outside the international development sector, few people are aware that world leaders have come to a historic, far-reaching agreement to improve the lives of people and the planet by 2030.

- **Leaders**

When young people are empowered with the knowledge of their rights and equipped with leadership skills, they can drive change in their communities and countries.



Transformational Change through Behavioral Change

Human are social creatures - Follow the herd

Reducing Fear

Effective Communication

Positive Feedback

Fundamental Lessons

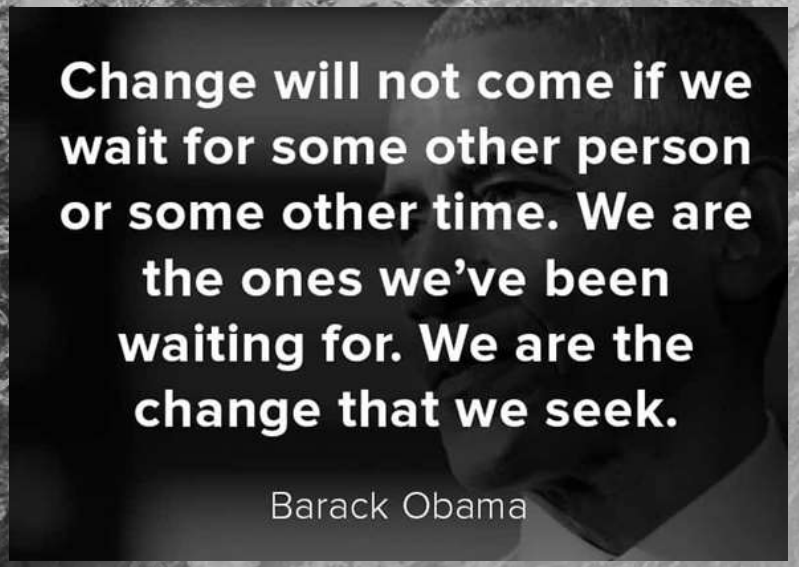
People are both drivers of and the solution to major environmental challenges

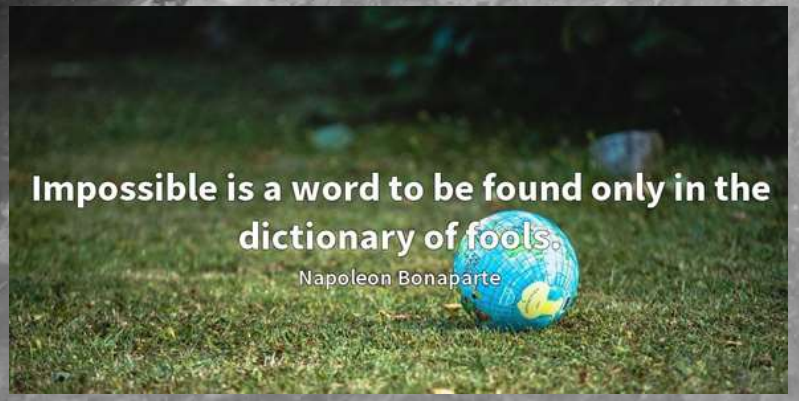
Emotions are more powerful than reason

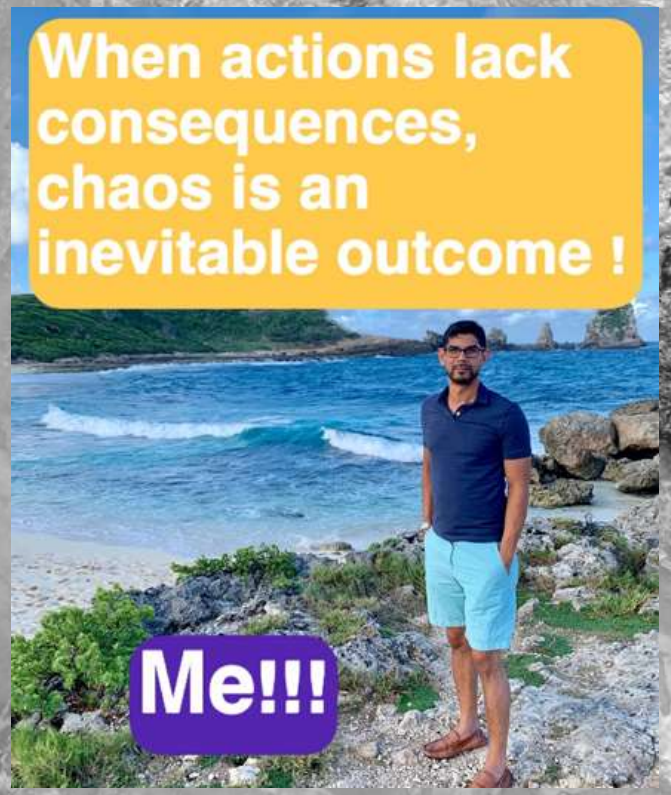
We are social animals and care about what people think about us

The way choices are presented to us matters

Realizing our global development aspirations depends on empowering our youth!







Parting Inspiration

Thank You