Disaster Risk in the Caribbean Region and Cooperation of JICA for Disaster Risk Reduction

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Summary

Risk and Vulnerability

- Caribbean region is one of regions most seriously affected by disasters in the world. The risk is high particularly for weather related disasters (hurricane, floods, landslides).
- The region is vulnerable due to (1) fragile economy depending on mono-culture and tourism, both being susceptible to weather related disasters accordingly to climate change, and (2) small size of land. A single disaster may affect the entire state.
- However the seriousness is not well known in the world because the damage in absolute terms is not large in small islands states.

Impact of Climate Change

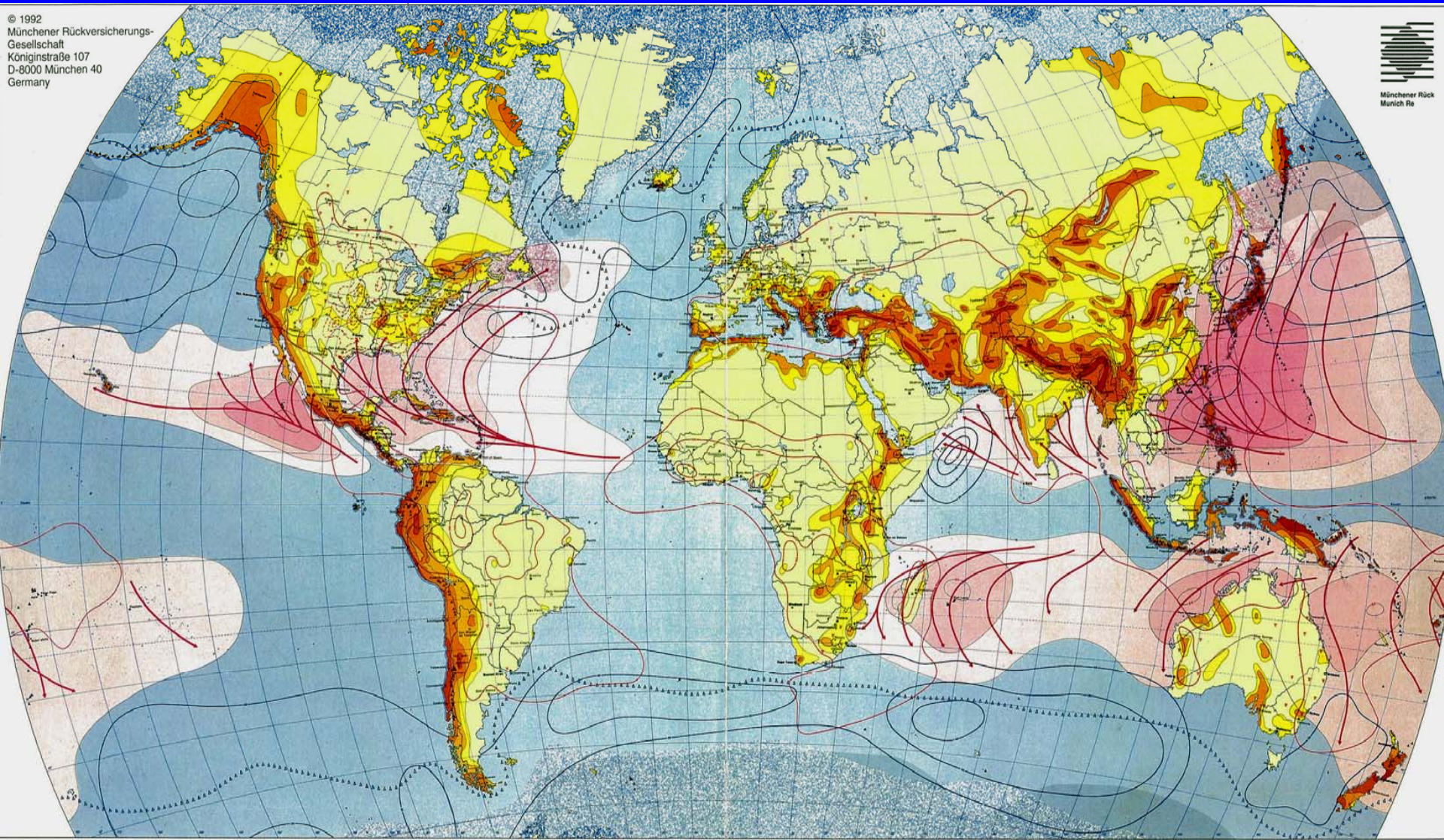
- As a result of climate change, The number of heavy precipitation events and intensity/duration of tropical storms will increase.
- Therefore the risk for weather related disasters will become even higher as the climate change continues.

JICA project for Disaster Risk Reduction (DRR)

- Community disaster management (DM) will be an effective approach for DRR in the region where a number of communities are in at-risk areas, while governments are still in the process of capacity development for DRR. JICA project “Caribbean Disaster Management Project (CADM)” focuses on community DM.
- “Regional Partnership” being established by CADM is a unique scheme for sustainable and self-reliant implementation of community DM, which will be applicable to other SIDS regions.

Risk and Vulnerability

Caribbean Region is one of disaster hot spots in the world.



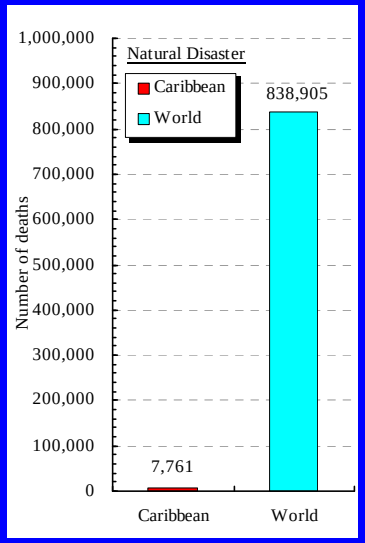
Risk and Vulnerability

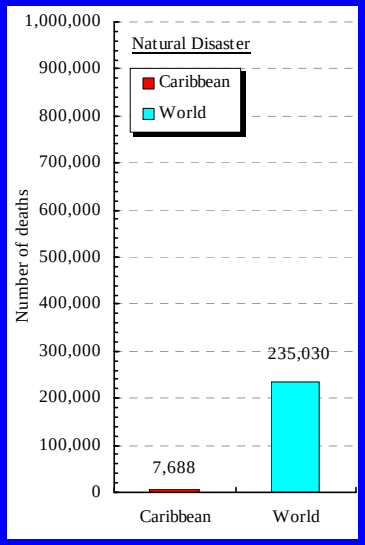
Number of victims of the Caribbean region is less than that of the whole world in absolute terms but higher in relative terms, particularly for weather related disasters.

All types of disasters

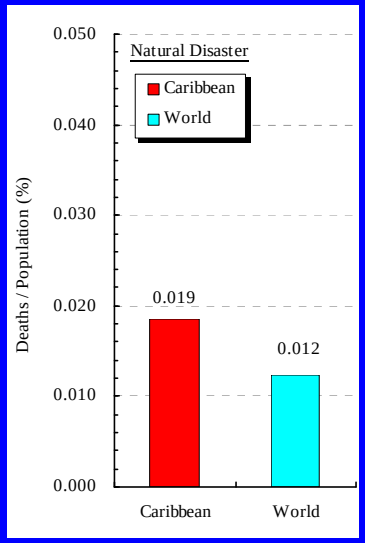
Weather-related disasters

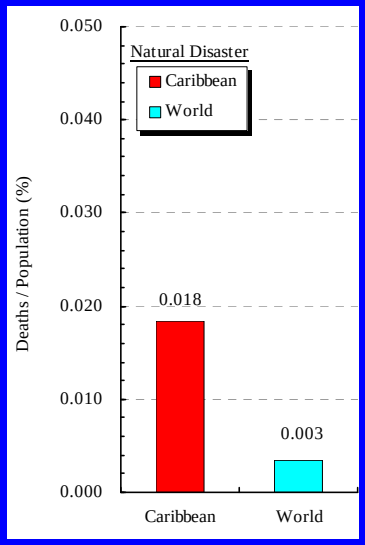
Number of the dead





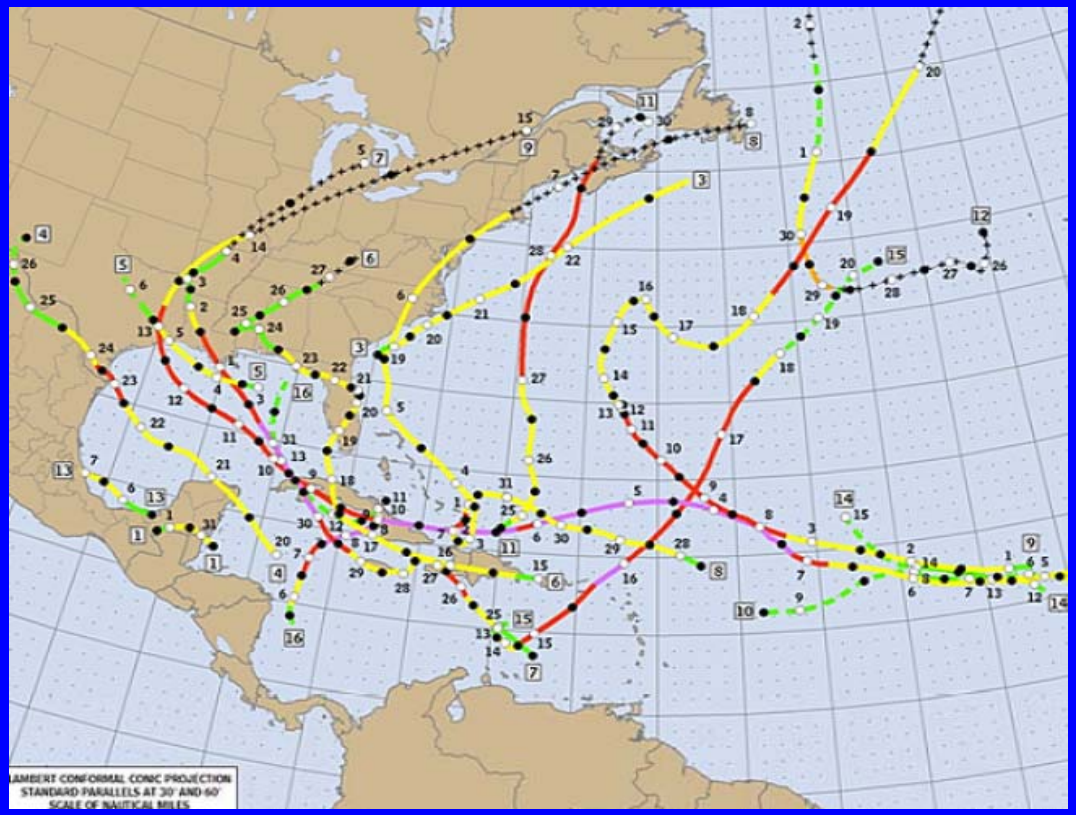
Dead/Population (%)





Risk and Vulnerability

Risk is high for Hurricanes. Hurricanes frequently pass through the Caribbean sea affecting SIDS one by one with multiple impacts: strong winds, torrential rains leading to flooding and landslides, high waves and storm surges leading to extensive coastal flooding.



Hurricane tracks (2008)
Source : USA National Hurricane Center

Damage by Ivan (Grenada)

Risk and Vulnerability

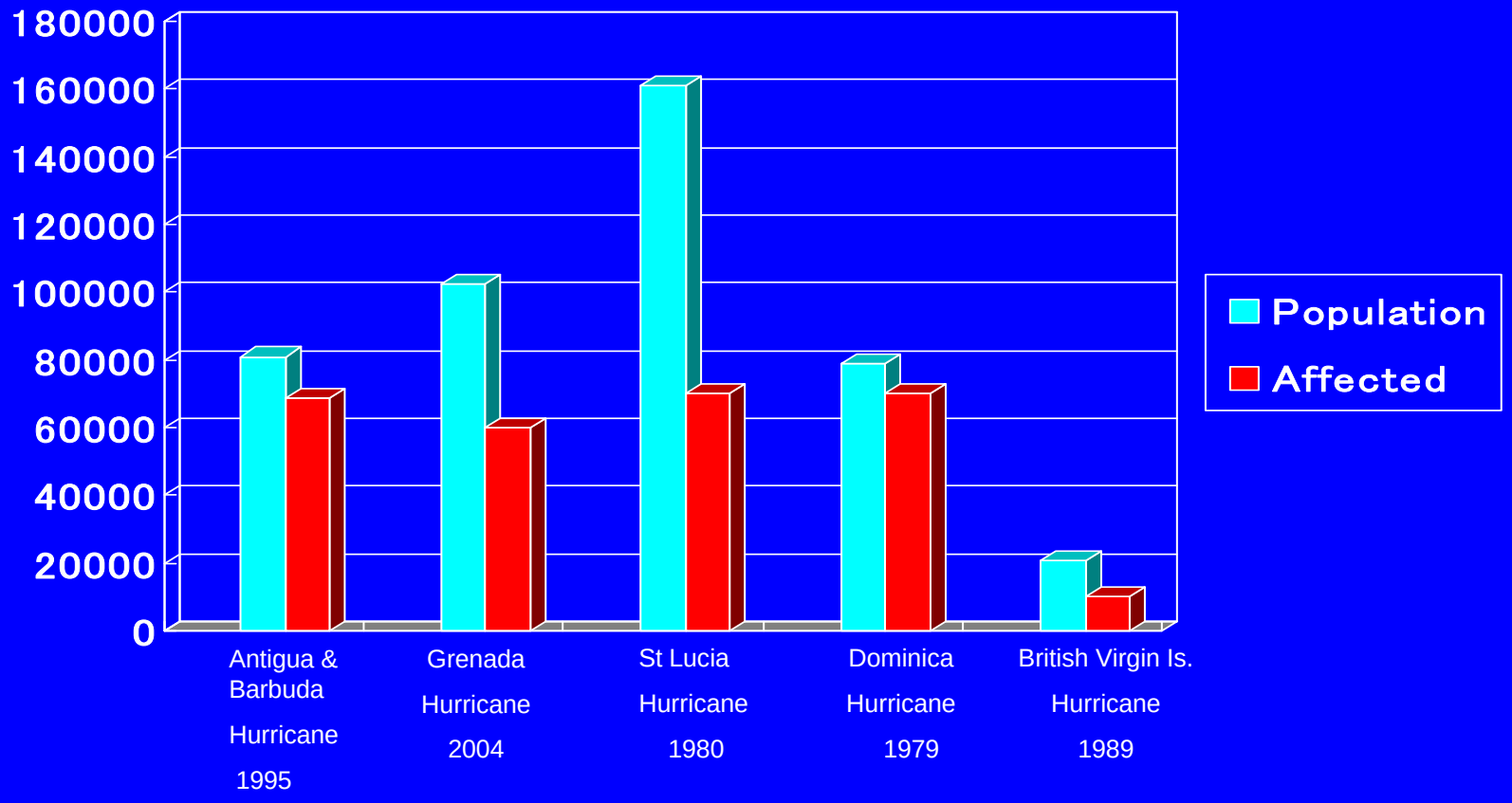
Risk is high for flash floods and landslides (including debris flows) in small islands of volcanic origin. They are caused by localized heavy rainfall over small and steep river catchments.

Jamaica (2009)

Barbados (2004)

Risk and Vulnerability

A single disaster may affect nearly whole population.

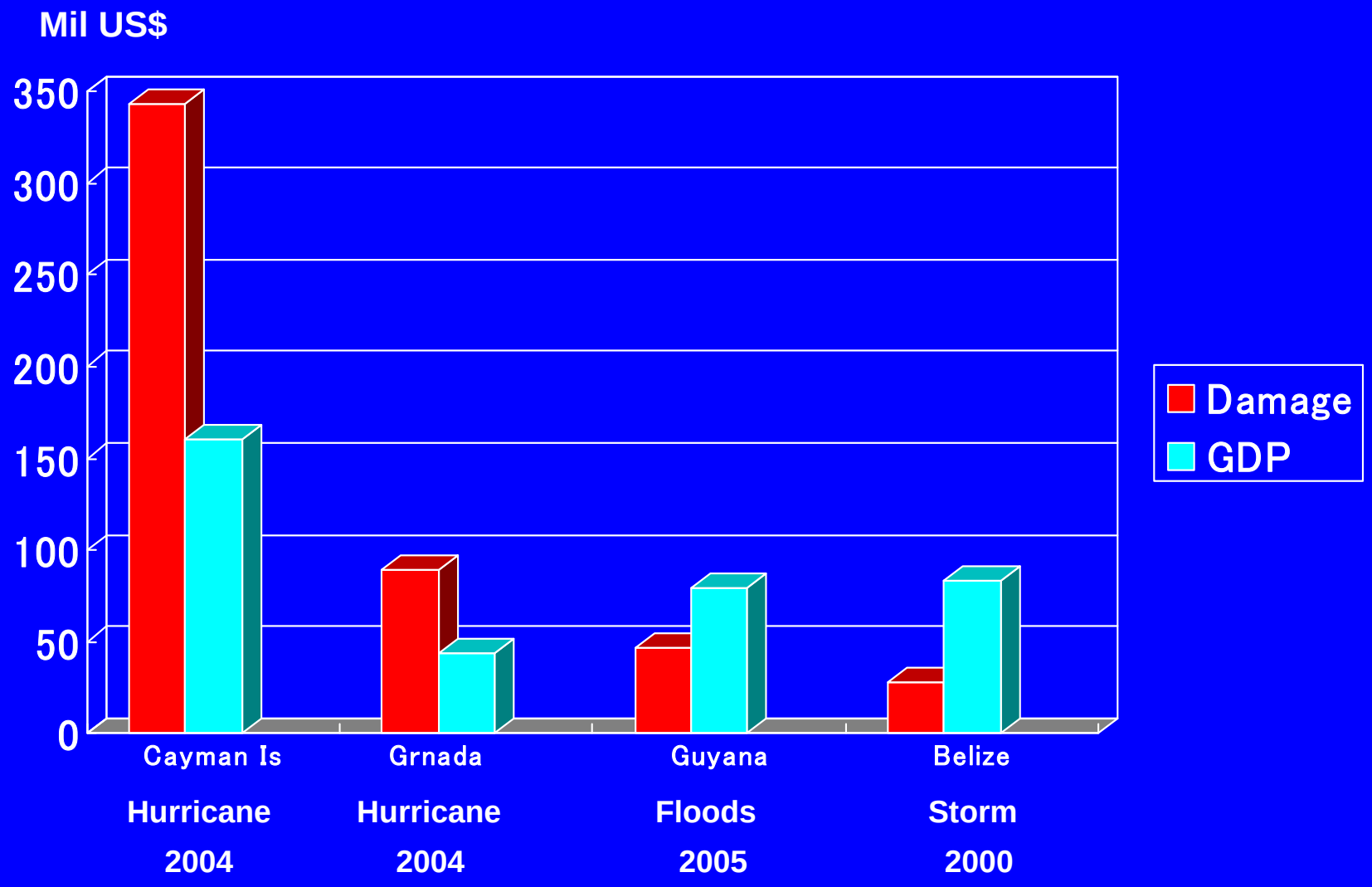


Source: Population : Data Book of the World(2006) (2001 base)

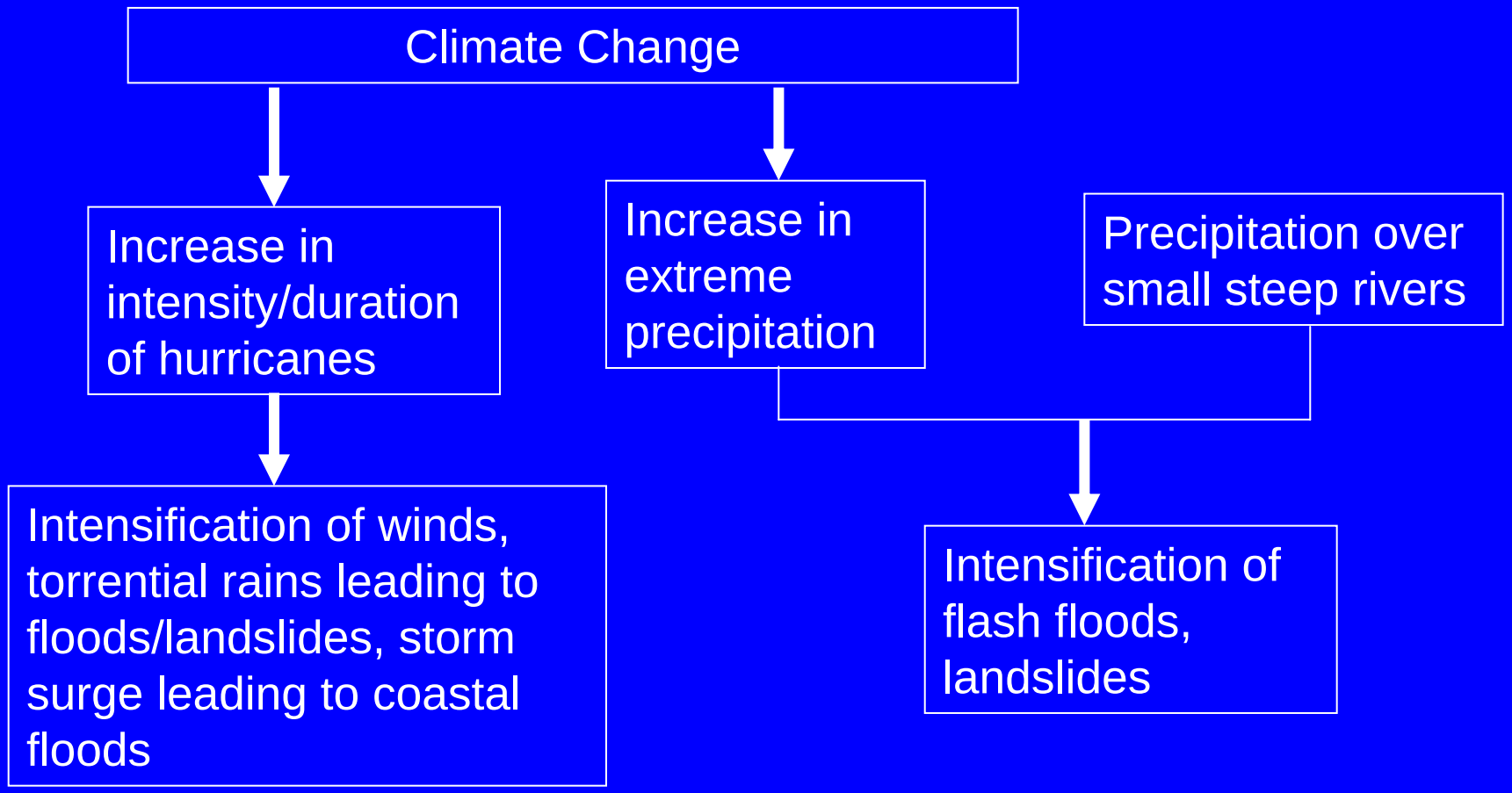
Number of Affected : EM DAT

Risk and Vulnerability

Fragile economy : A single disaster may cause damage of the order of GDP or more.



Impact of Climate Change



Impact of Climate Change

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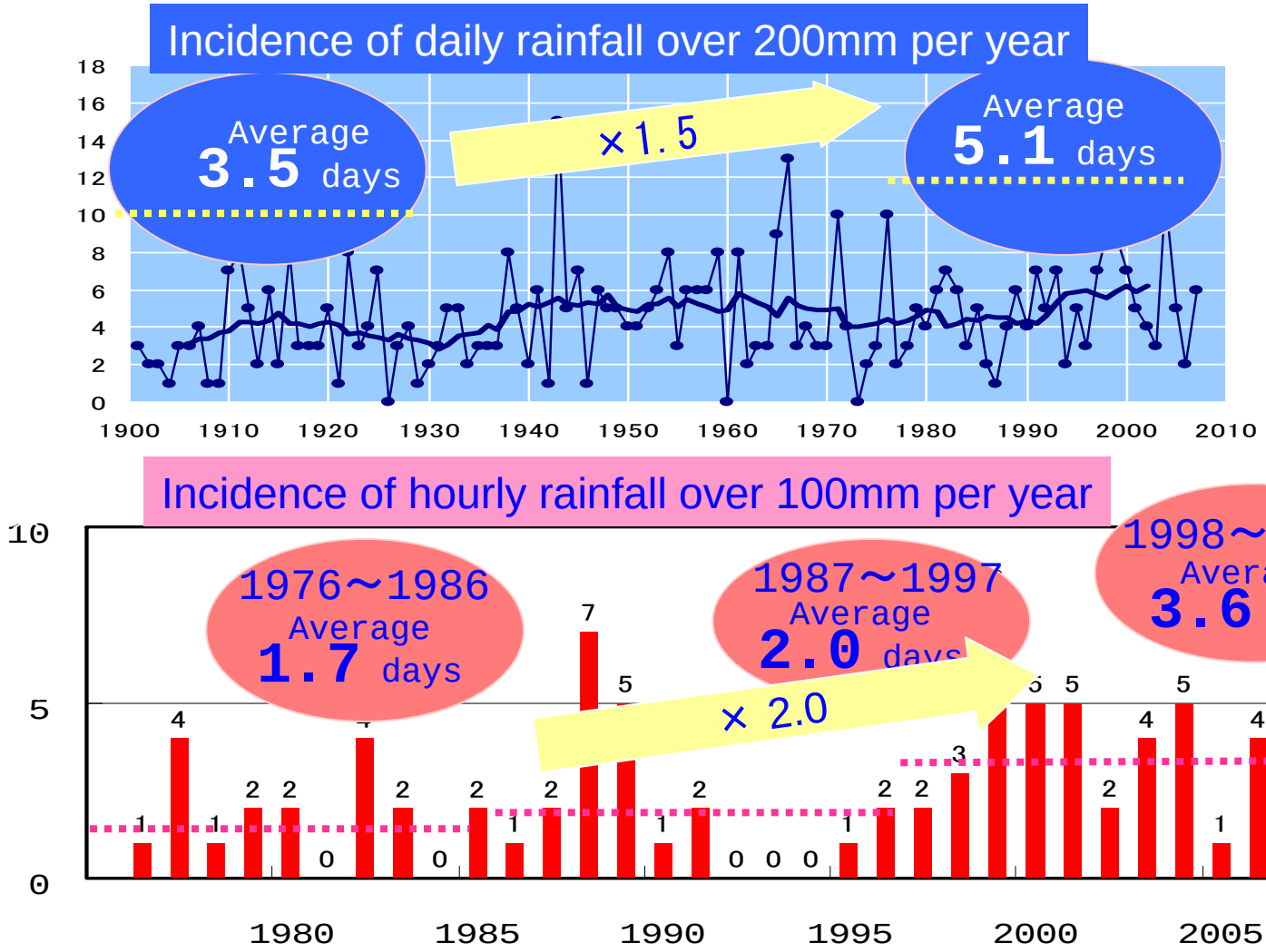
Increase in extreme precipitation events (Japan)



Caribbean Disaster Management Project (CADM)

Phase 1 (2002-2005) Phase 2 (2009-2011)

Objective

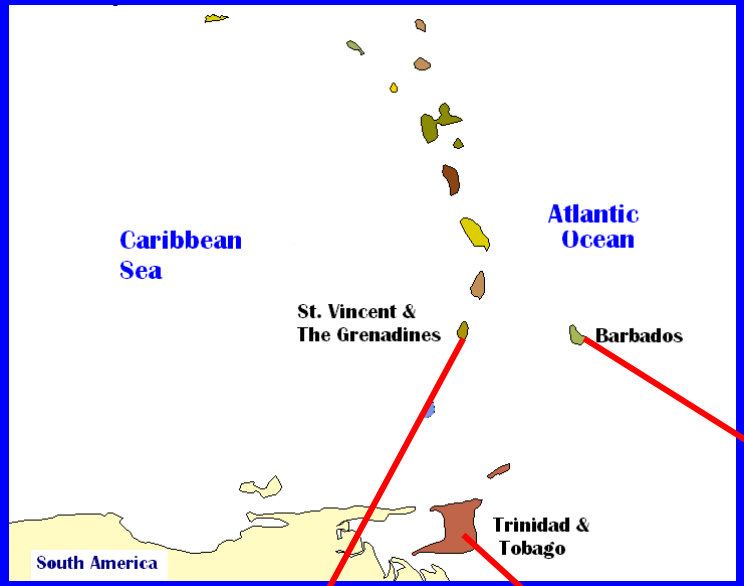
- To promote Community DM project under the partnership of CDEMA, regional organizations and member states.

Activities

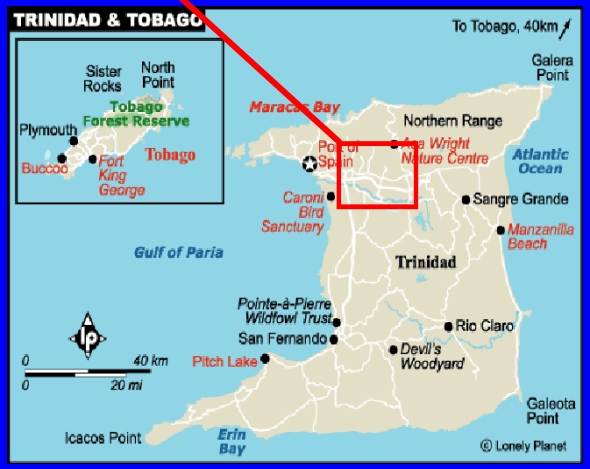
- Flood risk mapping, establishing flood early warning system and community disaster management planning for pilot communities under partnership of CDEMA, Regional Team (RT) and National Teams (NTs).
- Pilot communities: one each for eight countries (Barbados, SVG, TT, Belize, Dominica, St. Lucia, Grenada, Guyana)
- RT : University of West Indies, University of Guyana, and Caribbean Institute of Meteorology and Hydrology
- NT : Government organizations, NGOs and communities.

CADM Project

Pilot communities (Phase 1)



Mesopotamia (St.Vincent & Grenadines)

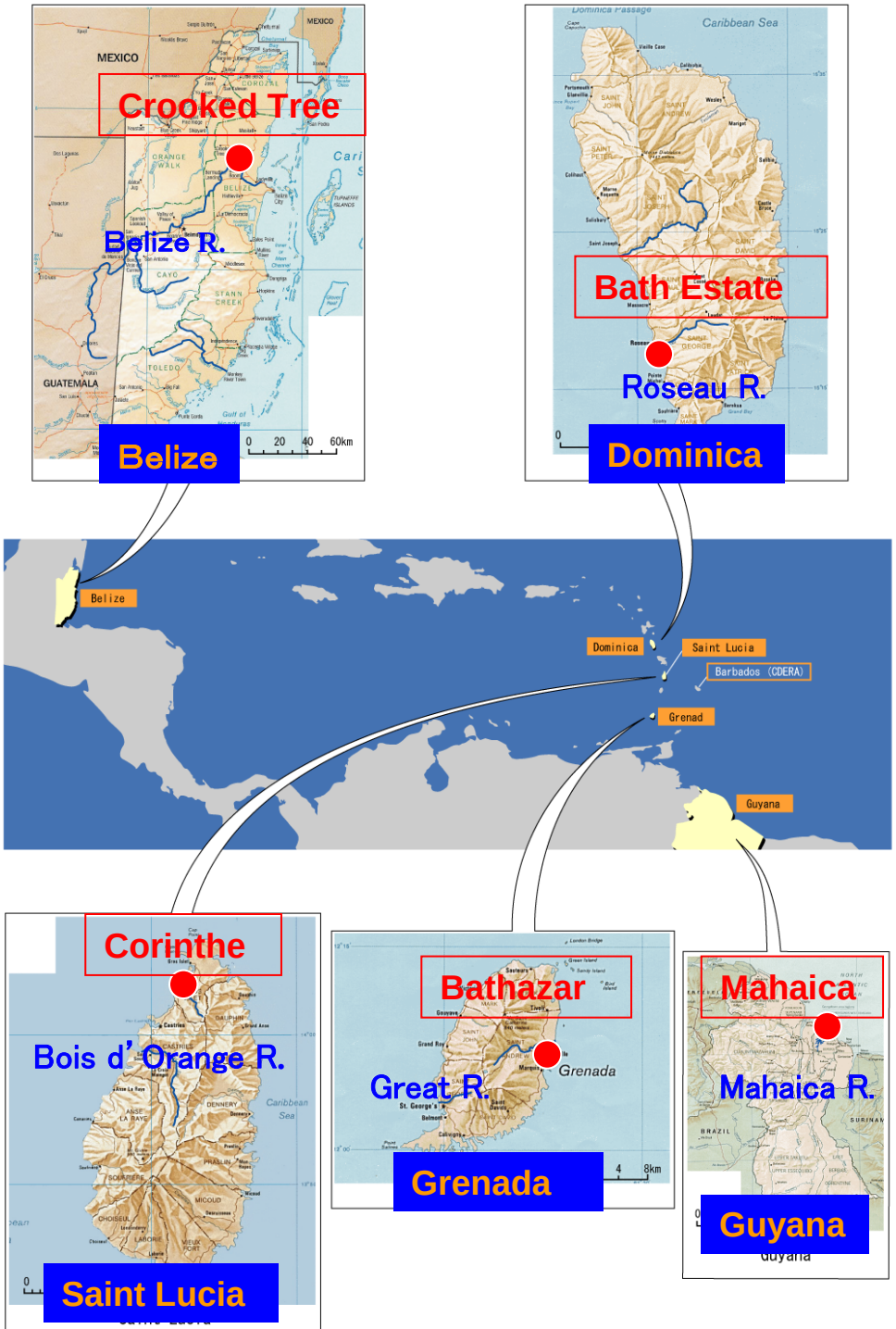


San Juan (Trinidad and Tobago)

Speighhtstown (Barbados)

CADM Project

Pilot communities (Phase 2)



CADM Project

Target communities

Crooked Tree

Corinthe

Bath Estate

San Juan

Speightstown

Bathhazar

Mahaica

CADM Project

Pilot communities and river catchment

In small rivers, floods reach target communities within 0.5-1.0 hour after rainfall.

Country	Community	River	Catchment area (km^2)
Barbados	Speightstown	Speightstown	8
St Vincent & Grenadines	Mesopotamia	Zenga	9
Trinidad & Tobago	San Juan	San Juan	67
Belize	Crooked Tree	Crooked Tree	8,609
Dominica	Bath Estate	Roseau	33
St. Lucia	Corinthe	Bois d'Orange	10
Grenada	Bathazar	Great	46
Guyana	Baiboo/Mahaica	Mahaica	1,453

CADM Project

Partnership of Regional and National Organizations

CDEMA	• Coordination	Mr. Jeremy Collymore
UWI (TT)	• GIS • Flood Analysis	Dr. Jacob Opady Dr. Vincent Cooper
UWI (Jamaica)	• Community DM	Dr. Balfour Spence
CIMH	• Flood Analysis • Hydrological Observation	Mr. Kailas Narayan Mr. Shawn Boyce Ms. Cherie Pounder
Univ. of Guyana	•Community DM	Dr. Paulet Bonoe
National Organizations	NEMO(SVG), DEM(Barbados), ODPM(TT), NEMO(Belize), ODM(Dominica), NEMO(St. Lucia), NaDMA(GRENADA), CDC(Guyana)	

CADM Project

CADM project (2002-2005, 2009-2011)

JICA

CDEMA Regional Team
UWI, CIMH, Univ. of Guyana

National Teams of Pilot States (8)

- Barbados
- St Vincent & Grenadines
- Trinidad &Tobago
- Belize
- Dominica
- St Lucia
- Grenada
- Guyana

Post CADM (2012-)

CDEMA Regional Team

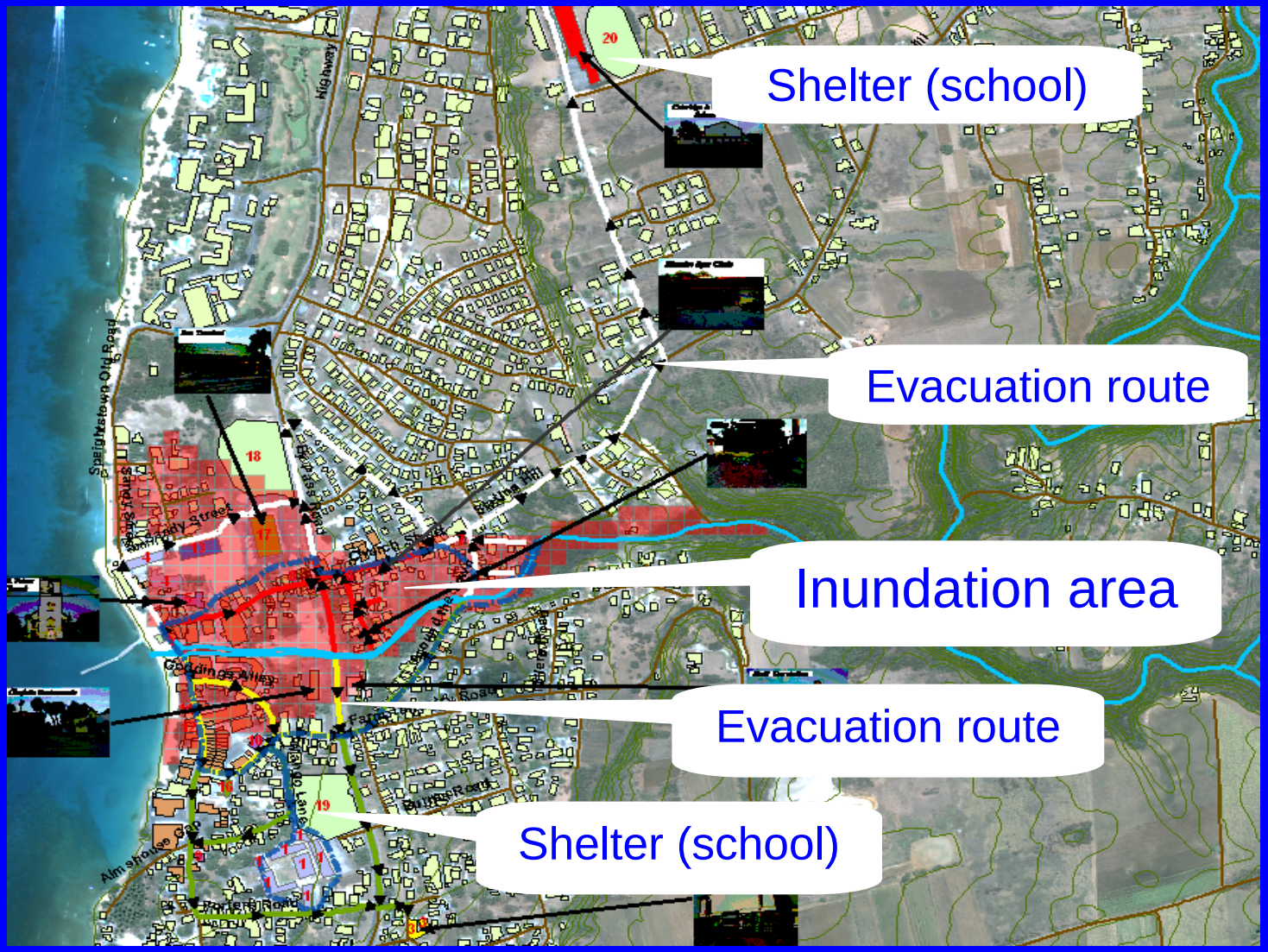
NTs of Pilot States (8)
Community DM project will be expanded to other communities with the initiative of NT (existing) in cooperation with RT.

NTs of other states (10)
Community DM project will be initiated and implemented with the initiative of NT (newly organized) in cooperation with RT.

Community DM will be implemented for all communities in flood risk areas under the regional partnership self-reliantly without resorting to external assistance.

CADM Project

Flood hazard map for 100 years return period flood (Speightstown, Barbados)



CADM Project

Community operated early warning is essential for communities which are located in areas at risk of flash floods and landslides. Hydrological equipment suitable for community early warning have been developed (as seen below) and are being disseminated to communities within the Caribbean and other regions.

The advantages : (1) cheep in cost
(2) easy for assembly, operation and maintenance
(3) safe observation in the house
(4) Short, heavy rainfall even in the mid-night will be measured without fail due to the alarm device.

The observer and the rainfall equipment installed in his house, Speightstown, Barbados

Dr. Opadeyi assembling equipment in workshop, UWI/TT

Development of environment friendly technology

River bank protection using waste tires developed by Min. of Public Works of TT .

END