

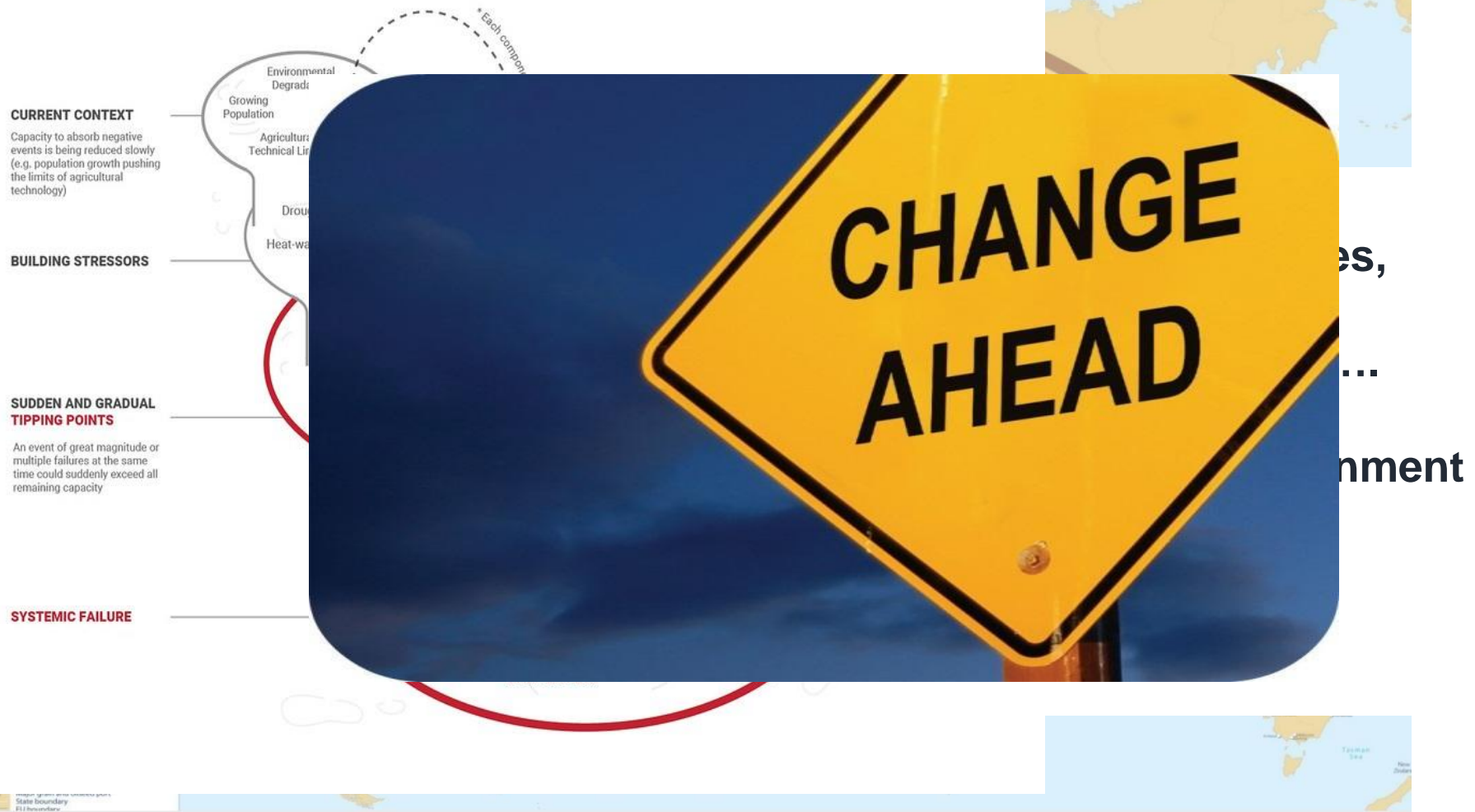
The concept of systemic risk introduced in the GAR 2019 emphasized the need to“understand and manage the interdependent, multidimensional variables of risk that are created by, and magnified among, different systems as they interact across different geographic or spatial scales”

To achieve the Sendai Framework for Disaster Risk Reduction and the 2030 Agenda for Sustainable Development (SDGs) ..and adaptation...**need to better understand and manage systemic risk**

Globally networked risks:

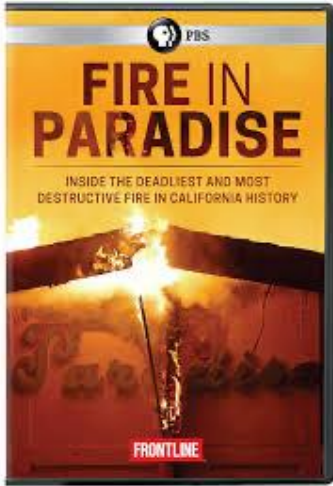
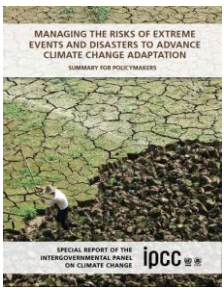
e.g. modern food systems highly dynamic, complex, formal and informal – fundamentally important to food security

Main trade flows of corn, wheat, soybean complex and palm oil



“We know there will be more outbreaks, ...

as a consequence of extreme weather, biodiversity destruction, political instability.....”



Traditional risk assessment and management strategies are increasingly challenged by **systemic and evolving** impacts of climate extremes, variability and change



am

2017

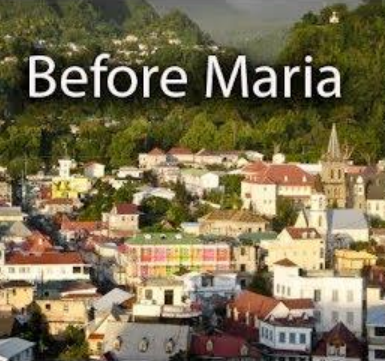
Twenty-two (22) of 29 Caribbean island states impacted:
4 were affected by 1 storm, 13 by two storms,
5 by three storms



'OUR
DES

Critical system failures caused evacuations, closures,
and reduced services

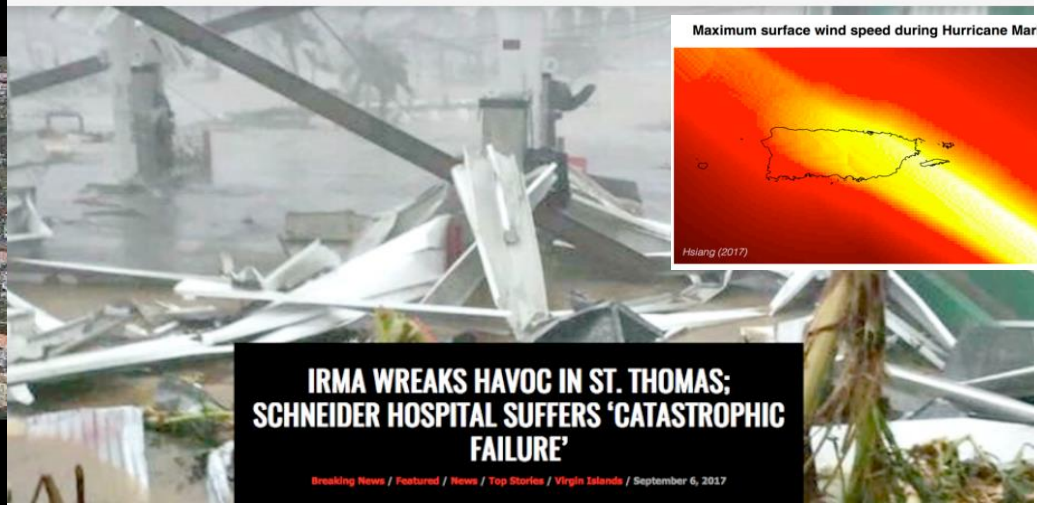
Roseau, Dominica



Before Maria

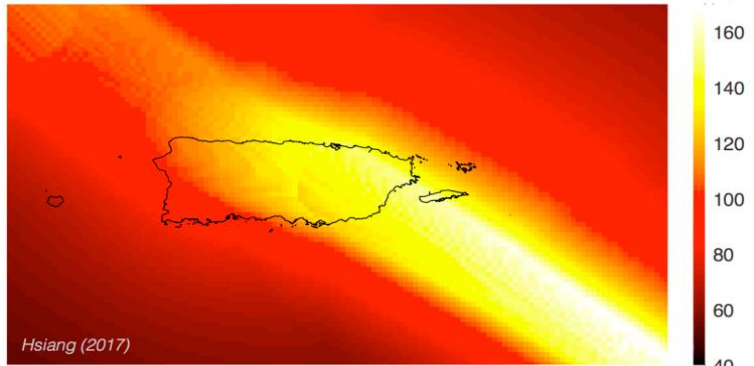


After Maria



IRMA WREAKS HAVOC IN ST. THOMAS;
SCHNEIDER HOSPITAL SUFFERS 'CATASTROPHIC
FAILURE'

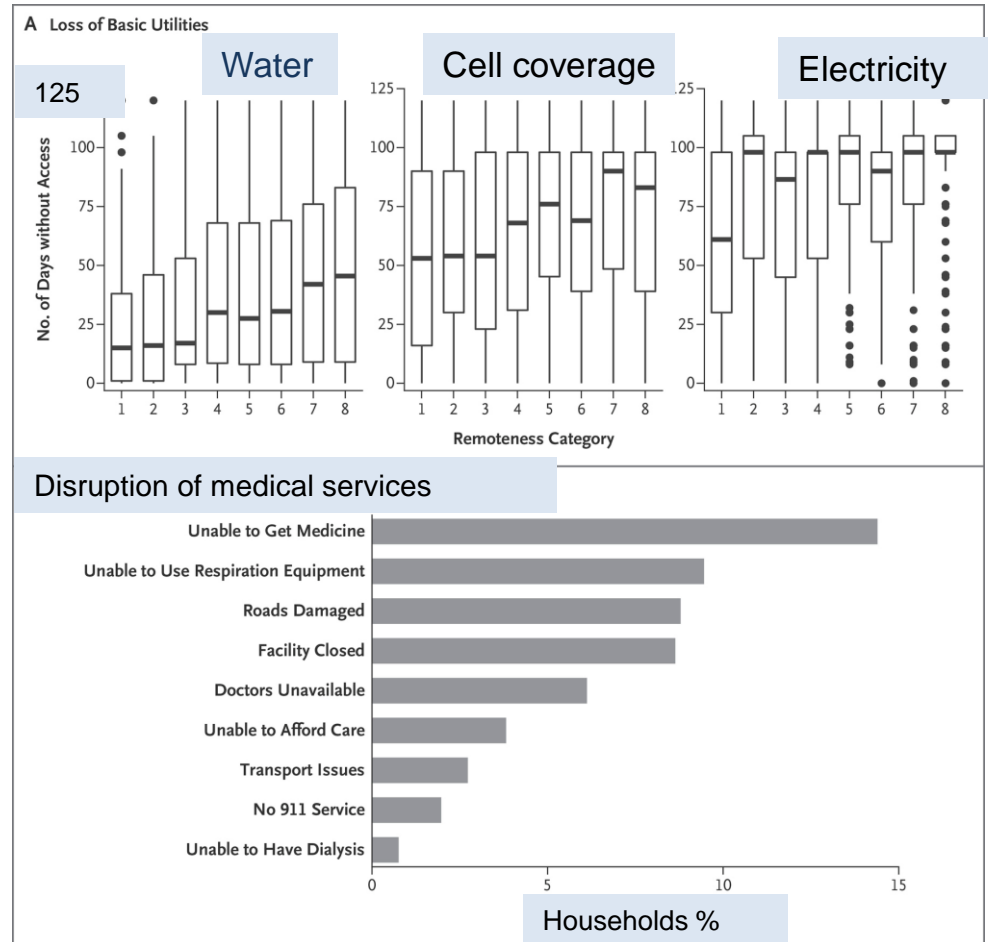
Maximum surface wind speed during Hurricane Maria



Hsiang (2017)

Puerto Rico 2017 Hurricanes Maria and Irma Critical system failures caused evacuations, closures, and reduced services

Loss of utility



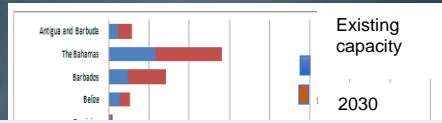
Panel shows the distribution of the number of days that households reported being without water, cellular coverage, electricity, and disruption of medical services between September 20 and December 31, 2017. (Kishore et al 2018, Hsiang et al 2018))

**2017 hurricane season Twenty-two (22) of 29 Caribbean SIDS impacted:
4 were affected by 1 storm, 13 by two storms, 5 by three storms**

Caribbean Basin Systemic risks 2021

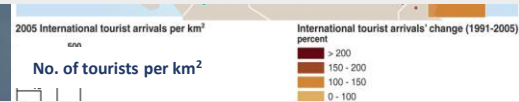
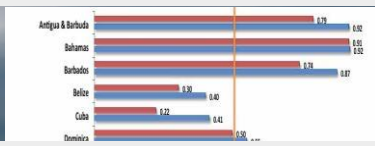
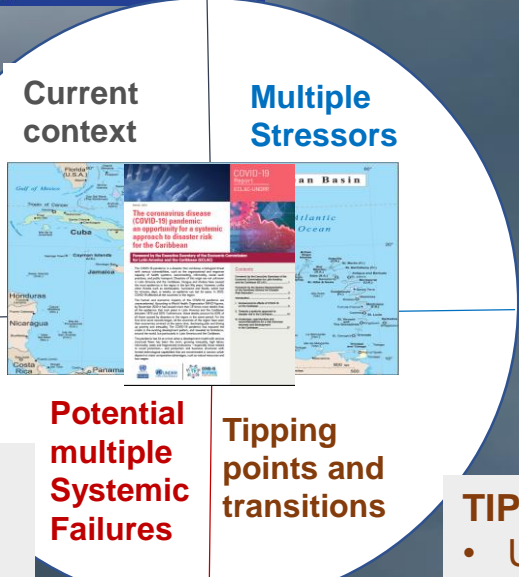
CURRENT CONTEXT:

- 90% of Caribbean economies and cities are in coastal areas
- Poor (Coastal) Infrastructure
- Low agricultural production and high imports (G)
- Dependence on foreign tourism and remittances
- Vulnerability to weather-climate extremes
- High debt to GDP ratio



MULTIPLE STRESSORS:

- Inter-regional Displacement
- Strong dependence on external markets
- Reduced remittance flows
- Potable water access
- Food Insecurity
- Low demand on tourism services
- Sargassum development
- Impact, relief & recovery cycle/ limited proactive investments
- Low level of insurance
- Adequacy of medical facilities
- High mental stress levels



POTENTIAL MULTIPLE SYSTEMIC FAILURES

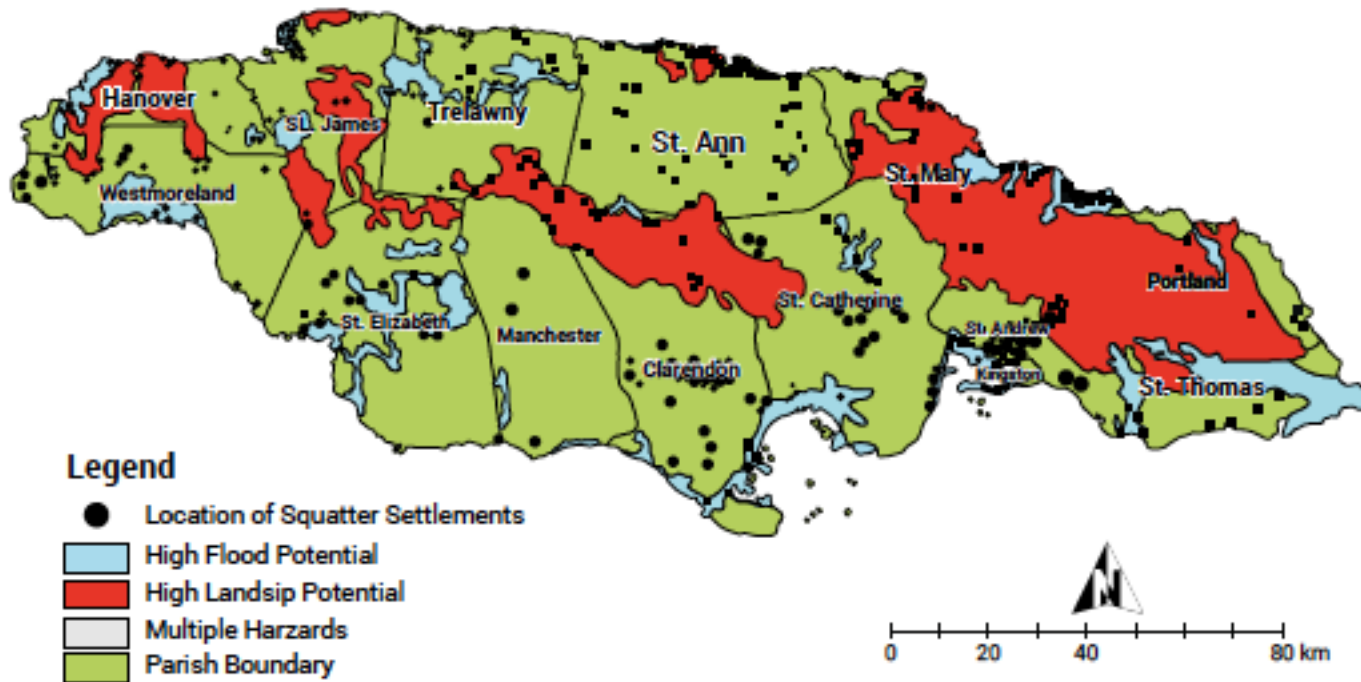
- Pandemics
- Unavailability of services and goods for basic needs
- Inaccessibility of disaster sheltering (social distancing measures)
- Overwhelmed disaster response capabilities
- Reduction of financial capabilities to meet basic needs
- Continuous disruption of basic services

COVID19 Report ECLAC/UNDRR LAC 2021



TIPPING POINTS /TRANSITIONS

- Unusually active hurricane season
- Potential for multiple hurricane impacts
- Supply chain disruption
- Potable water supply for tourism services during the dry season
- Post disaster migration
- Inter-regional Displacement
- Further dependence on remittance Flows



Source: McHardy, P. and Donovan, M. G. (2016).

Informal settlements in hazard-prone areas of Jamaica.

The effects of climate change on Caribbean countries include more frequent and severe hurricanes, tropical storms, droughts, and rising sea levels – the latter of which is of particular concern given that seventy per cent of the Caribbean population live in coastal cities and approximately 4.2 million people reside in low-elevation coastal areas. The pollution generated by informal settlements in the upper portions of river basins is affecting coastal areas, contaminating the marine environment and damaging coral reefs across the subregion.



2.7m New displacements by Hurricanes Laura, Eta, and Iota in 14 countries

Hurricane Laura — Category 4 hurricane formed in August, most displacements were reported in the US and Cuba.
1,019,000 New displacements in 5 countries

Hurricane Eta — Category 4 hurricane formed in October, most displacements were reported in Cuba, Guatemala and Honduras.
638,000 New displacements in 12 countries

Hurricane Iota — Category 4 hurricane formed in October, it impacted some areas that were hit by **Eta** two weeks before. Most displacements were reported in Honduras, Nicaragua and Guatemala.
1,039,000 New displacements in 6 countries

New disaster displacement in 2020. Source: IDMC

Returning to Guatemala: voluntarily

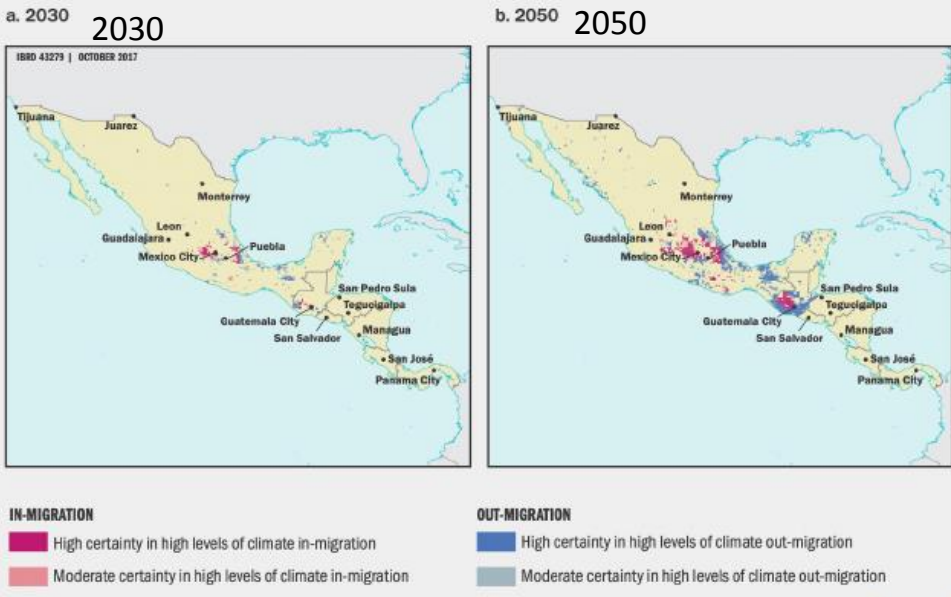
Women: family / partner obligations

- “I returned because of him. **He called me to go back because he was deported.** My life was good there, I had my money (Adela, maya, 23)

Men: nostalgia and achieving goals

- “I thought all the time about my family, I even remembered my dog. I couldn’t sleep, thinking. I decided to return, because I already had something to start in Guatemala” (Víctor, mestizo, 41).

Aracely Martinez U. Valle de Guatemala 2021



Projected migration climate hotspots. Source: World Bank, Groundswell Report



Drought: The Lived Experience: What is being learned ?



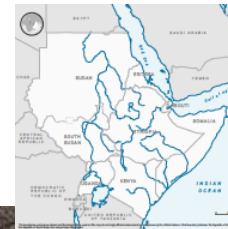
Scale: Region/countries/watershed/community

Background: Actors, institutions and significant past events

Exposure and Vulnerabilities: Who is affected and how, Trends, Projections

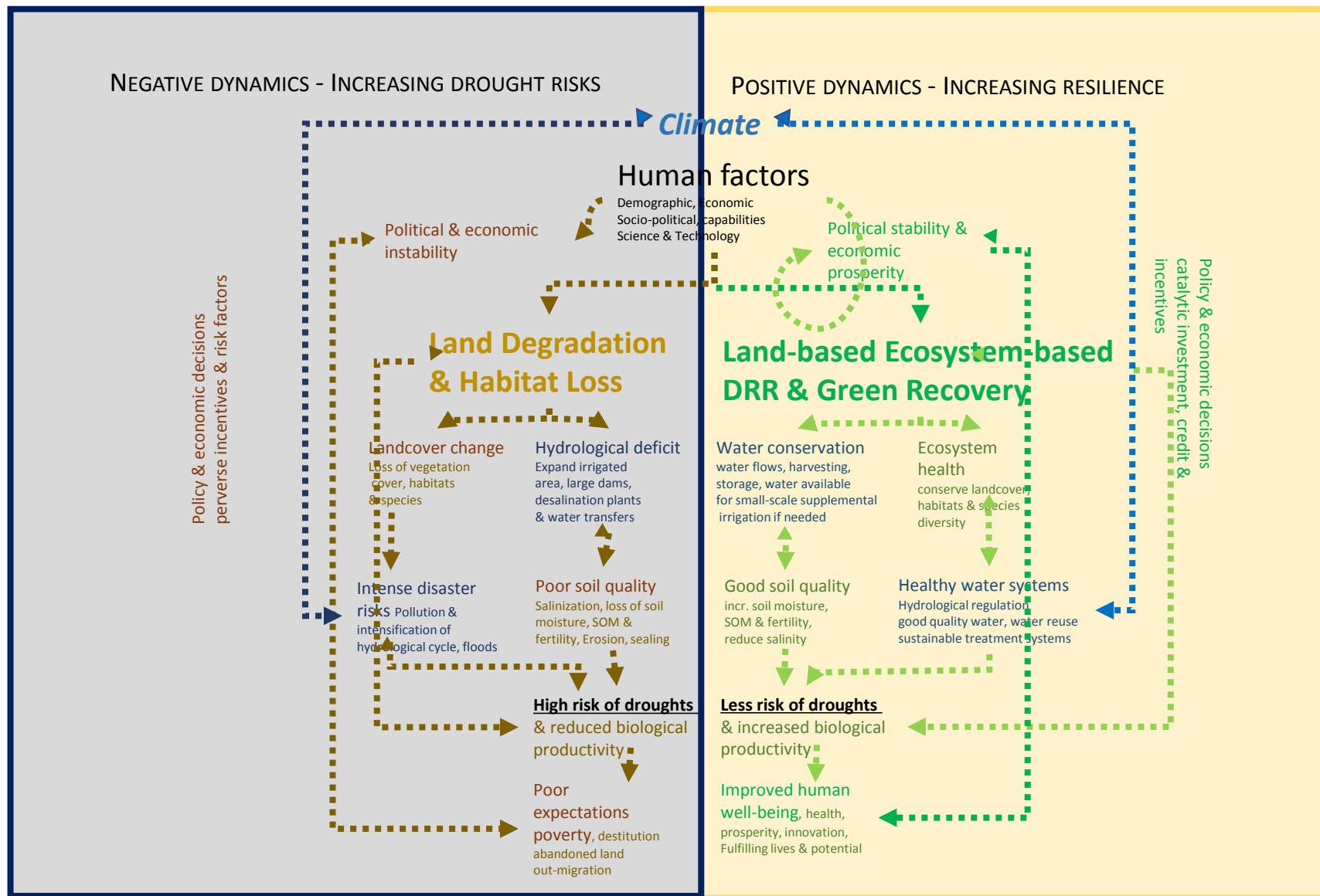
Approaches and responses: EWS, risk management, adaptation, financing and coordination

Sources





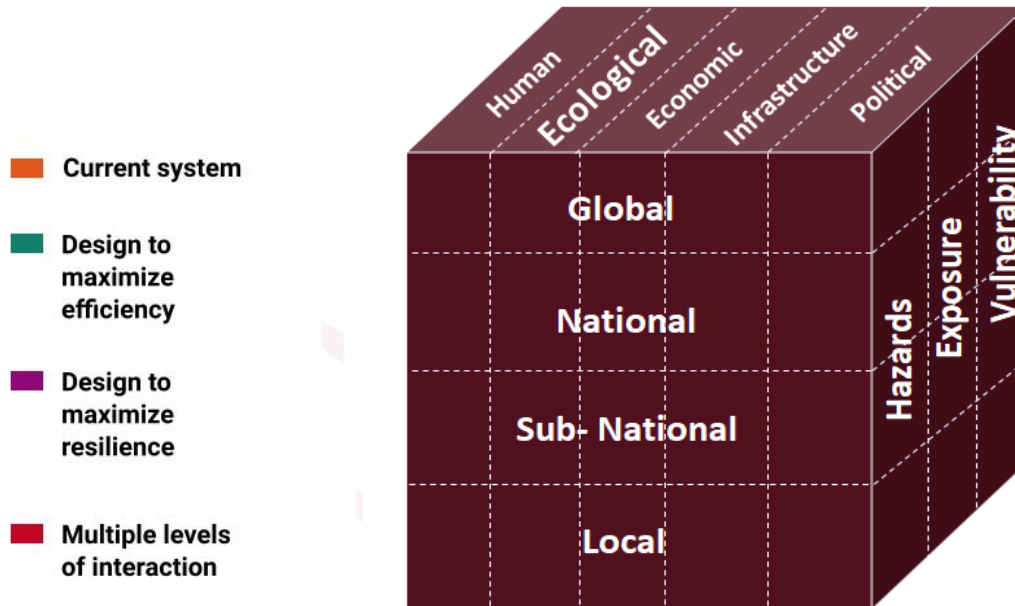
Choices(?) and Pathways...”if we are not careful we will end up where we are going”



Governing systemic risks: just transitions in an interconnected and rapidly changing world.....

Risk Reduction and Management

- Reactive.....*Crisis-based*
- Proactive.....*Risk-based*
- Prospective...*Resilience-based*



Putting the pieces together

Managing for resilience is different than for efficiency

Key nodes Vertical and horizontal alignment

Broadening the actor network and their roles in expanding Drought and water-related finance: vertically and horizontally

National and Sub-National Governments

Development, NGOs Partners

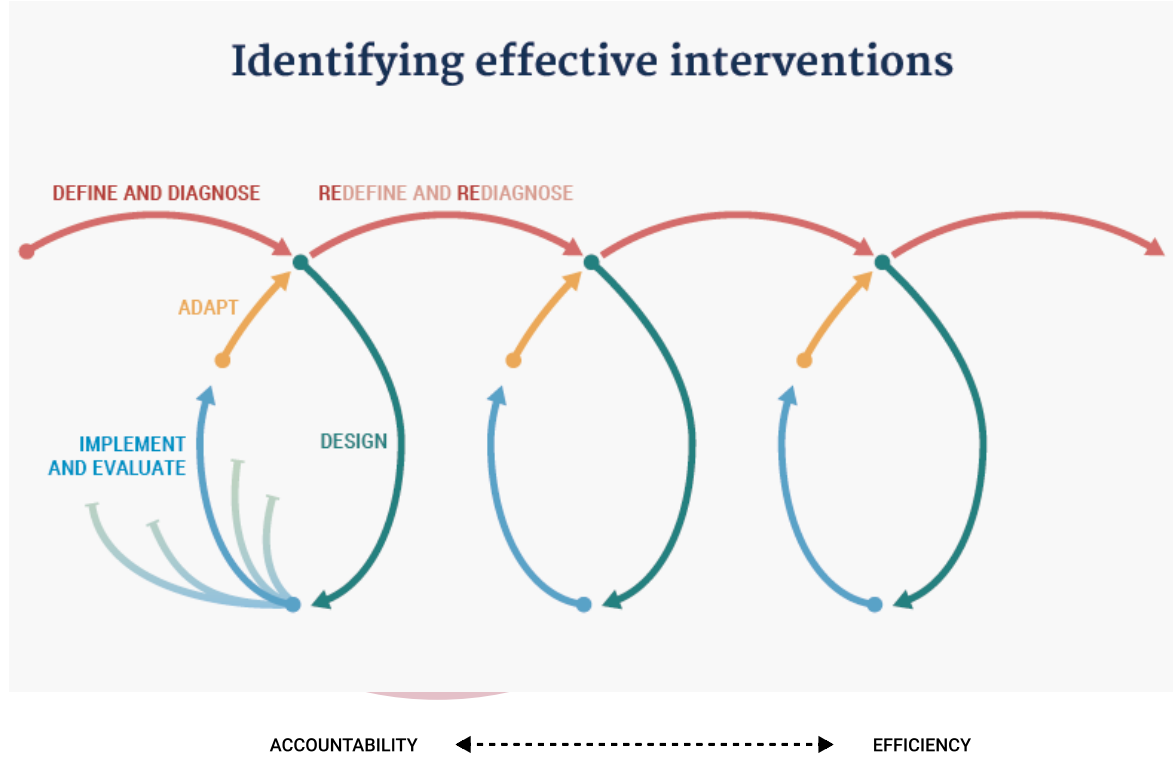
Universities and Research Institutions

Financial Institutions, Impact Investors and Insurance Companies

Businesses and Individuals

Risk governance: broadening the “actor network”

Collaborative process for individual and institutional learning



Transforming Governance under conditions of increased complexity and uncertainty

- Create awareness of moving from extreme events response to addressing extreme risk accumulation
- Transforming information into knowledge in increasingly complex risk contexts
- Overcoming the gap between theory and practice
- Containing risk drivers and new dynamics in risk construction –legislative frameworks



To sustain these processes there is a need to “strengthen and integrate territorial information systems” (RAR, 2021)



COORDINATION

A purple rectangular box containing various icons representing communication and coordination. The icons include a person with a speech bubble, a group of people, a megaphone, a bar chart, a speech bubble with a plus sign, a document with a checkmark, a person with a speech bubble, a globe, a person with a speech bubble, a group of people, a person with a speech bubble, a plus sign, a gear, a target, a group of people, and a speech bubble with a plus sign. The word "COORDINATION" is written in large, bold, teal letters across the middle of the box.

Ongoing Challenge:

Sustaining collaborative networks across research, observations, services and decision-making

GVR Global Assessment Report on Disaster Risk Reduction **UNDRR**
U.N. OFFICE FOR DISASTER RISK REDUCTION

Drought is human.



Thank you!
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