KNOWLEDGE NEEDS FOR TRANSBOUNDARY CLIMATE RISK

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Regional Workshop on National Adaptation Strategies and Plans

EU4Climate

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Action funded by the EUROPEAN UNION

TOPICS

- Transboundary climate risks
- A changing international focus
- Key knowledge gaps in understanding transboundary climate risks

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CLIMATE RISKS

Climate risks = The potential for adverse consequences for human or ecological systems, recognizing the diversity of values and objectives associated with such systems. In the context of climate change, risks can arise from potential impacts of climate change as well as human responses to climate change (IPCC, 2022)

The potential for adverse consequences = risk

The potential for beneficial outcomes = opportunity

AN INTERCONNECTED WORLD WHERE THREATS OF RISKS IN ONE PLACE CAN EASILY RIPPLE OUT:

ACROSS COUNTRIES AND CONTINENTS

CASCADING FROM ONE SECTOR TO ANOTHER,

OR DISRUPT AND DESTABILIZE GLOBAL SYSTEMS AND MARKETS

Photo credit: 123RF/Konstantin Faraktinov

BUT ADAPTATION MOSTLY CONSIDERED A LOCAL ISSUE

Photo credit: FAO

CLIMATE HAZARDS IMPACTING ONE AREA – AND POLICY RESPONSES TO THEM – CAN TRIGGER CASCADING EFFECTS ACROSS BORDERS AND SECTORS – IMPACTING PEOPLE'S LIVES AND LIVELIHOODS IN OTHER AREAS

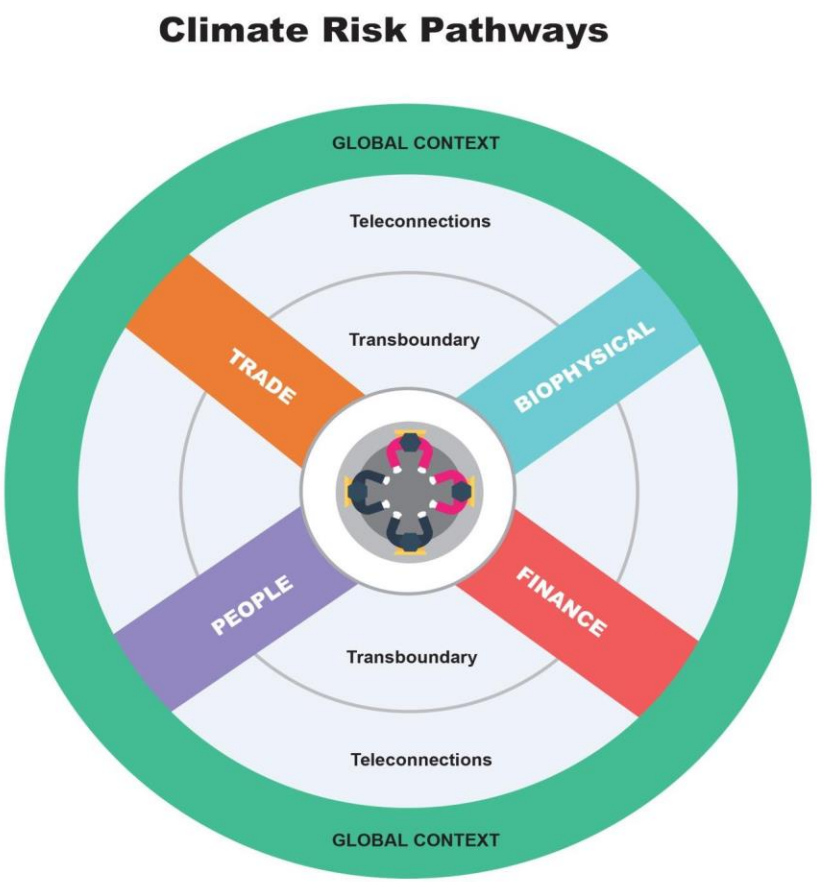


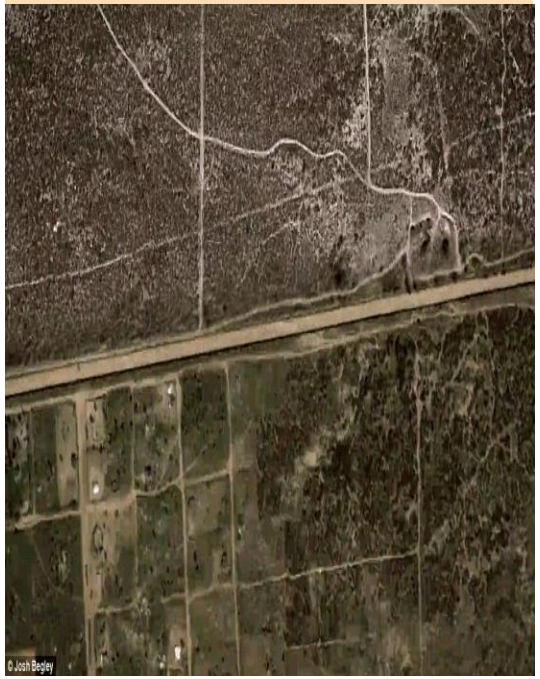
Image: SEI (2019)

- Trade – import and export of goods and services, as well as transport and processing sites
- Finance – the flow of capital and other assets, such as foreign investment and remittances
- People – tourism, migration or forced displacement
- Psychological – Perception and communication of climate risks and opportunities, especially as delivered by the media ("cognitive filter")
- Geopolitical – impacts on international relations, resource access and strategies;
- Biophysical – shared ecosystems and resources, such as mountain ranges and river basins
- Infrastructure – transport and telecommunications links

Adapted from Carter et al. (2021)

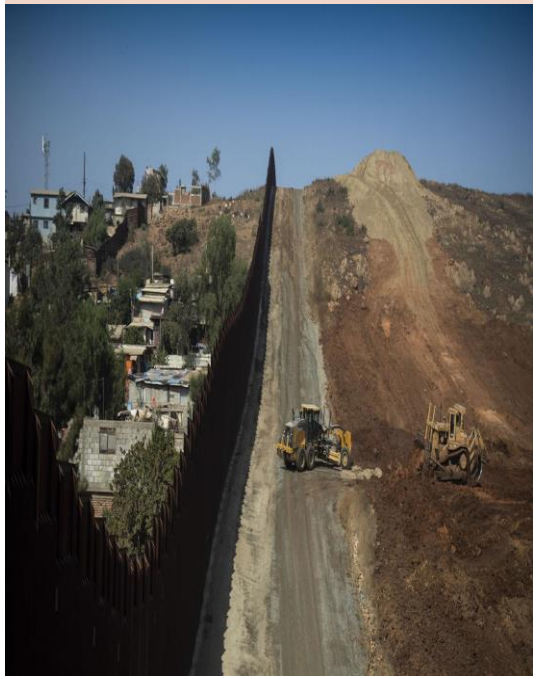
THESE RISK PATHWAYS ARE REFLECTED IN MULTIPLE BARRIERS TO ADAPTATION

DEVELOPMENT APPROACHES



PEOPLE BARRIERS

INSTITUTIONAL BARRIERS



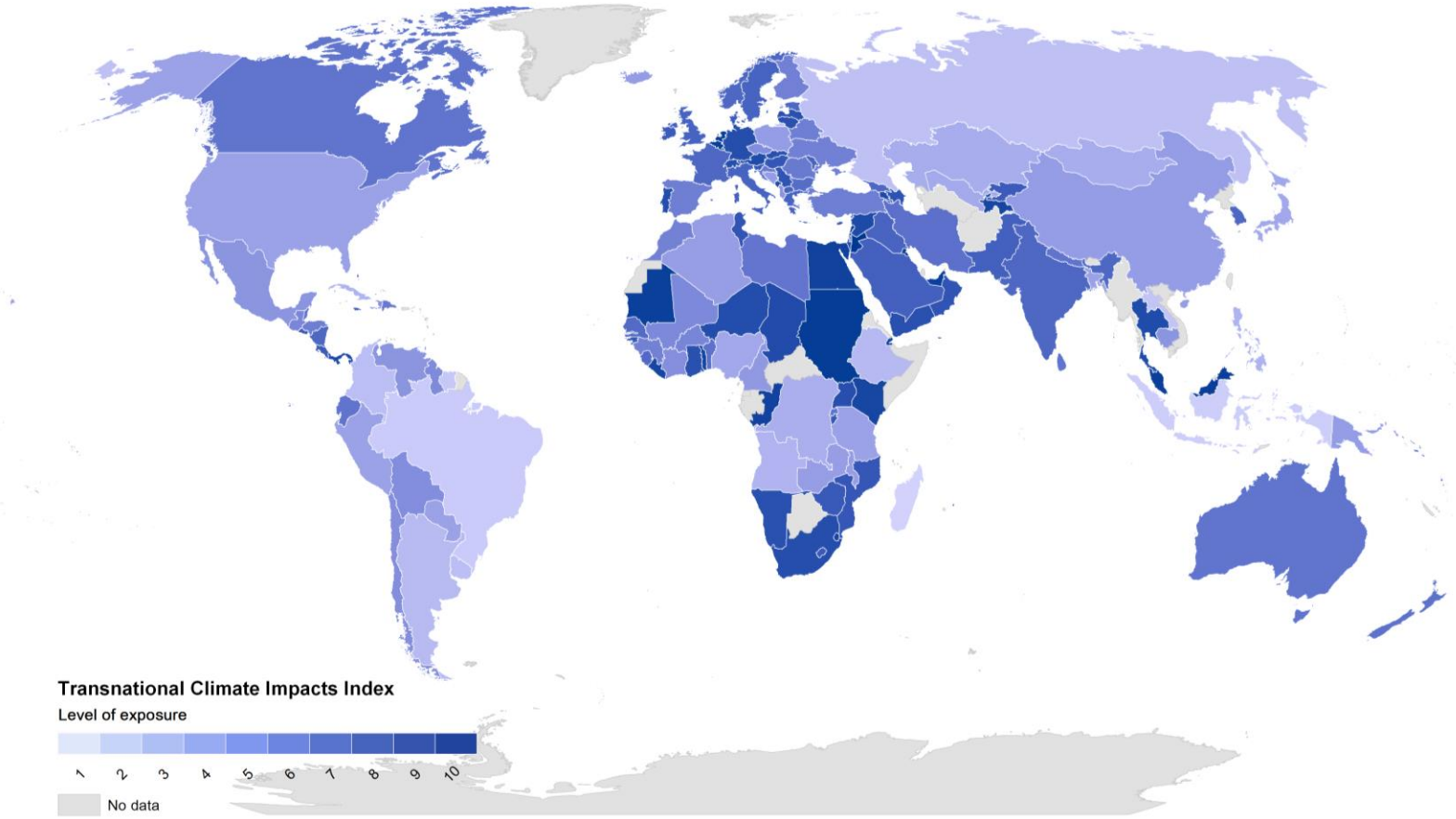
WHAT DO WE KNOW ABOUT TRANSBOUNDARY CLIMATE RISKS ?

- Inconsistent national and international understanding
  - Flows of goods, money and people are by their very nature already monitored quite well, though mainly for other purposes.
  - Biological risks (for agriculture, forestry, biodiversity and public health) related to invasive species and shifting ecosystems are much harder to monitor adequately
- Increasing awareness by Governments to the systemic nature of climate change
  - A small number of countries have explicitly attempted to assess transboundary risks at the national or city level
    - Predominantly to assess the potential implications to security, development, diplomacy, trade, food security and migration
    - Very little translation into specific adaptation priorities or adaptation measures
  - Most current efforts to identify and govern cross-border risks are occurring beyond the realm of explicit adaptation initiatives
    - e.g., the African Union's Great Green Wall Initiative aims to build regional resilience throughout the Sahel and the Sahara

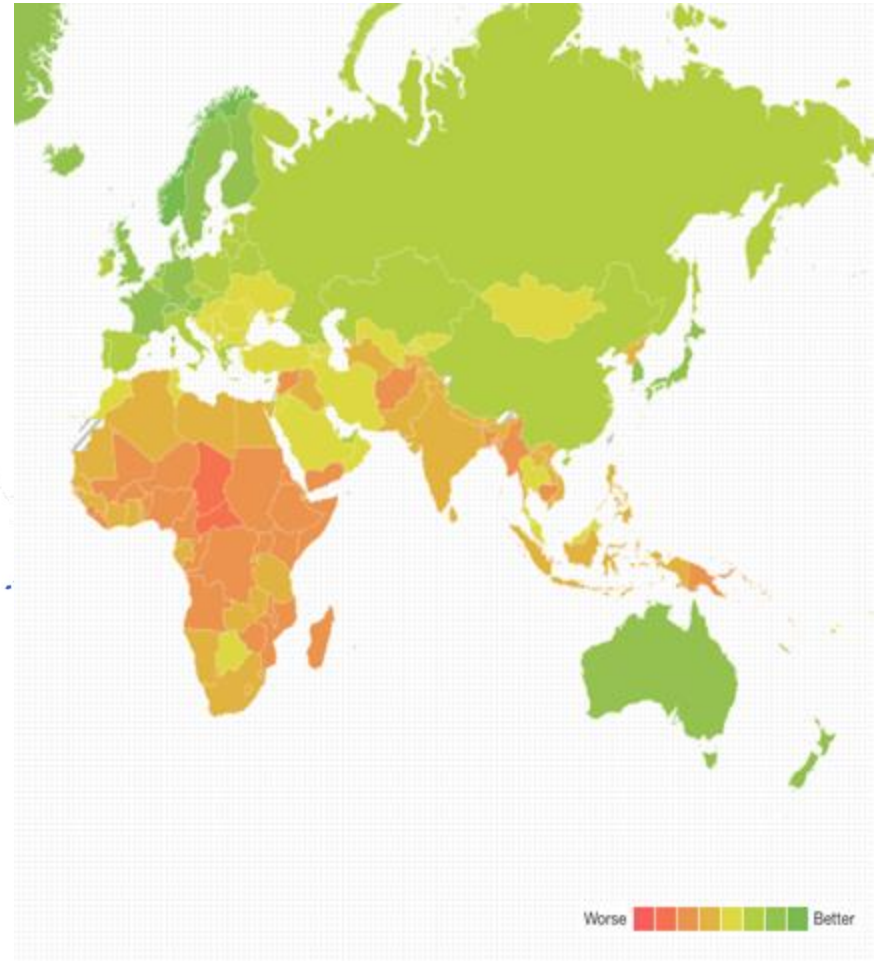
TRANSNATIONAL CLIMATE IMPACTS INDEX

- SEI Transnational Climate Impacts (TCI) Index
  - Uses nine indicators of country-level exposure
  - A different, more diverse distribution of climate risk
    - Reduced correlation to development

TRANSNATIONAL CLIMATE IMPACTS INDEX



SEI, 2016



ND-Gain, 2022

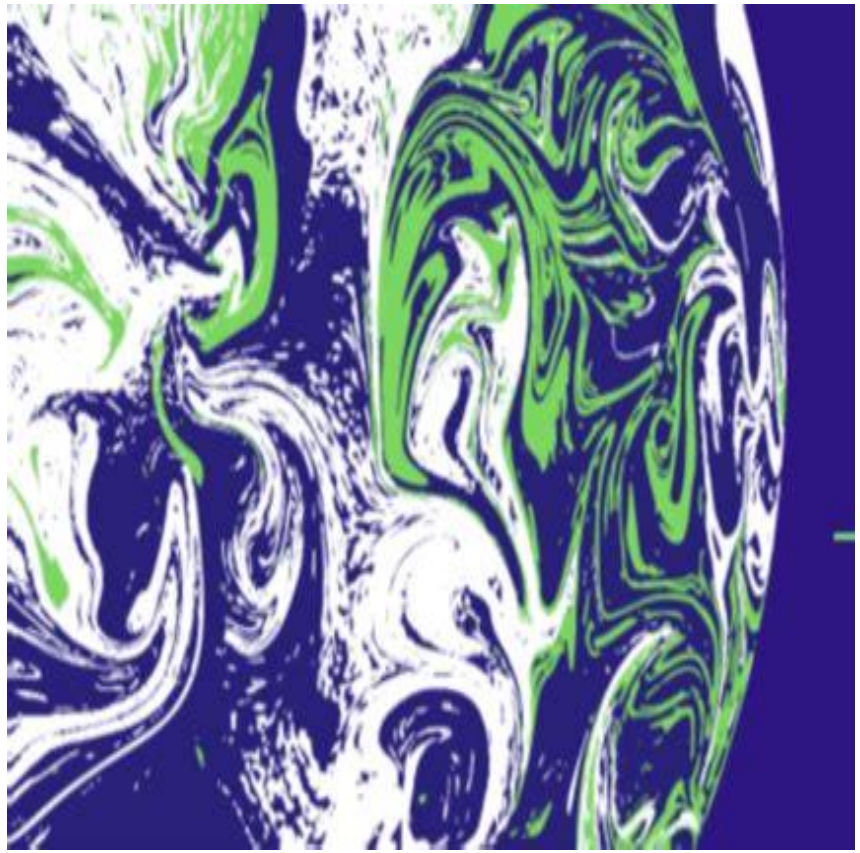
TRANSNATIONAL REGIME RELATED TO CLIMATE CHANGE

More than 60 international institutions have or perform some climate related governance function

- Each supplements an aspect of the UNFCCC process

Several non-UNFCCC conventions hold mandates and remits relevant to the assessment and management of certain types of transboundary climate risks

- Waters
- Industrial accidents
- Hazardous waste
- Air pollution
- Organized crime
- Maritime biodiversity
- ….



LESSONS FROM 2007-8 ECONOMIC CRASH AND FROM 2020-2021 COVID-19 PANDEMIC

HOW COUNTRIES RESPOND (TO CLIMATE IMPACTS AND ANTICIPATED RISKS) IS AS IMPORTANT AS THE INITIAL IMPACTS IN DETERMINING LEVELS OF DAMAGE AND DISRUPTION

(CLIMATE) IMPACTS CAN AFFECT SYSTEMS THAT ARE DISTANT FROM THEIR INITIAL SOURCE

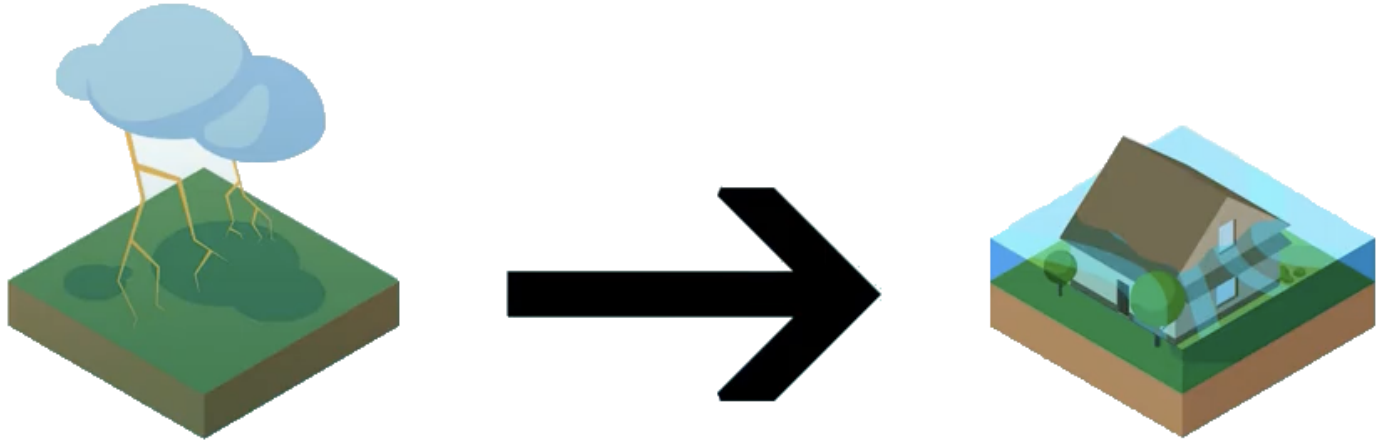
INTERNATIONAL GUIDANCE MOVING TOWARDS SYSTEMIC RISK ASSESSMENT

- Since 2015, UNDRR is placing increasing focus on cascading and systemic risk
  - Incentivizes transdisciplinary, integrated, multisectoral risk assessment and decision-making
    - Improve efficiency and reduce duplication of effort
    - Allow for connected, collective action

- In AR6, IPCC highlights transboundary climate risks both within and across borders (IPCC, 2022)
  - Cascading risks will combine to substantially influence the magnitude, lifespan, rate of emergence, and spatial spreading of individual risks across economies, societies and natural systems, so that severe climate risks will likely be higher, last longer and occur both sooner and at larger scales and will therefore be more complex to anticipate and manage.

CASCADING HAZARDS

- Cascading disasters are non-linear, and the impacts of one disaster continue beyond the location of impact for an extended time
  - One hazard triggers another hazard and effects increase in progression over time and generate unexpected secondary events
  - The secondary impacts tend to be as serious as the original event and contribute significantly to the overall duration of the disaster's effects.

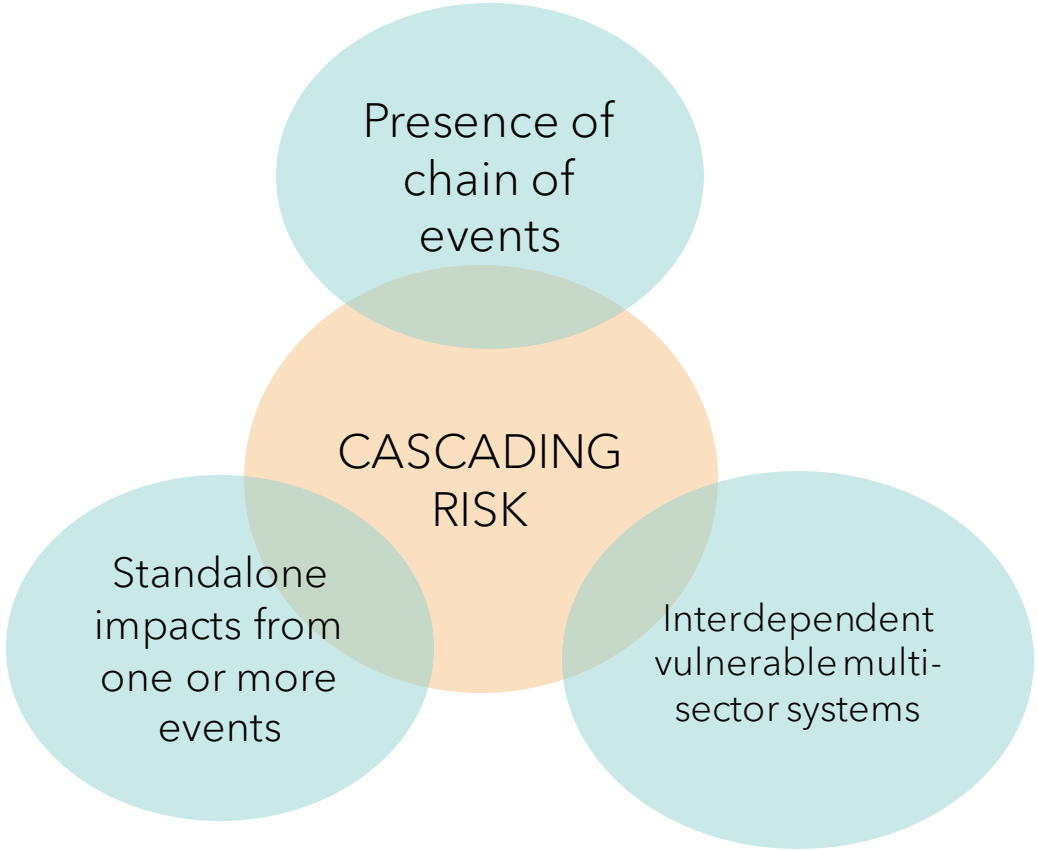


Thunderstorm

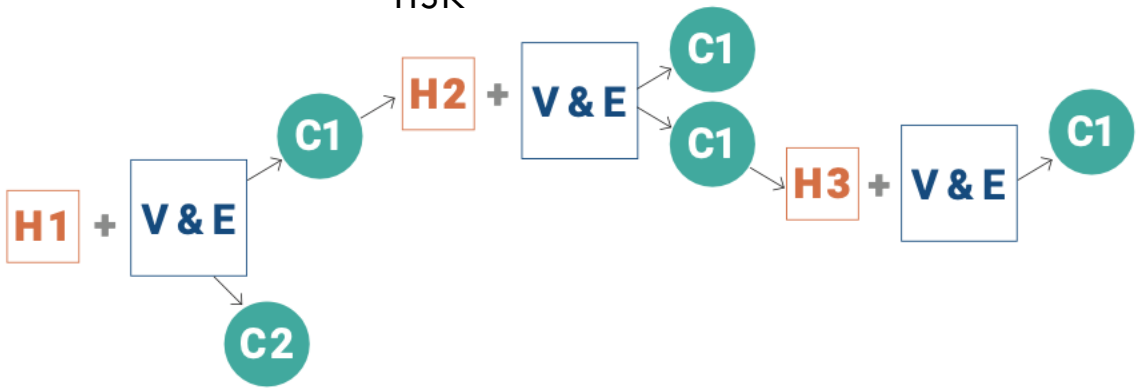
Flood

CASCADING RISK

Key characteristics



Understanding cascading risk

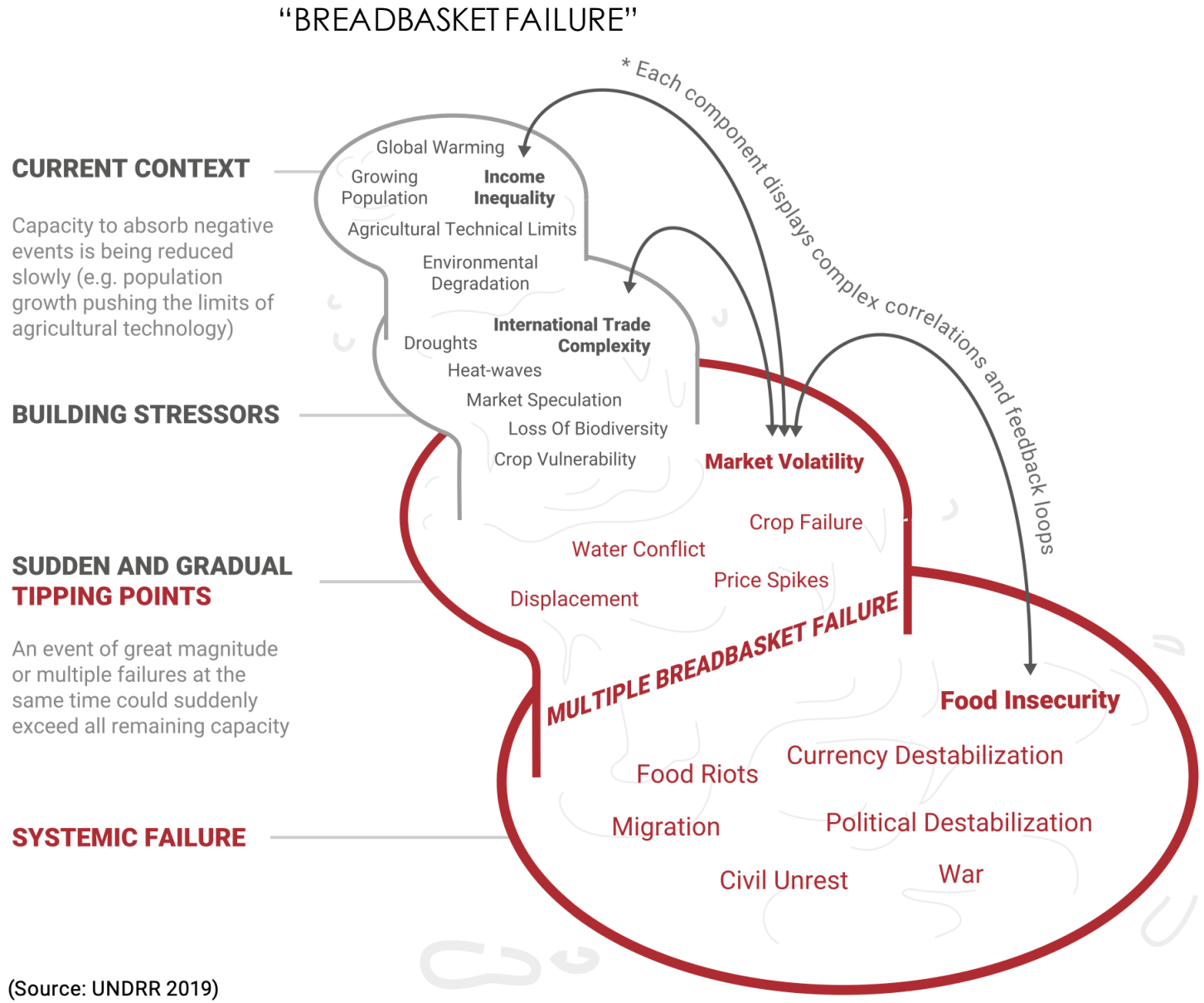


Legend:

UNDRR GAR 2019

SYSTEMIC RISK

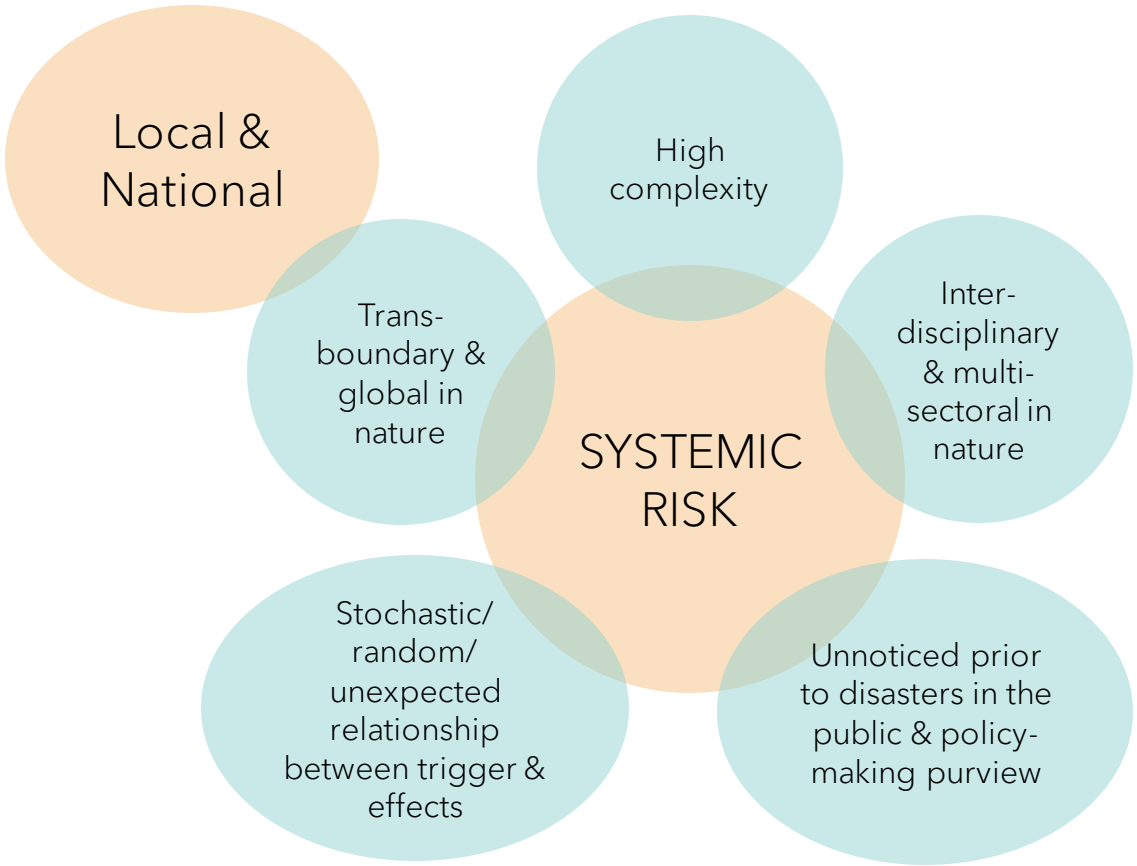
Systemic risk is endogenous to, or embedded in, a system and which, by itself is not considered to be a risk and is therefore not generally tracked or managed, but which has a latent or cumulative risk potential to negatively impact overall system performance when some characteristics of the system change



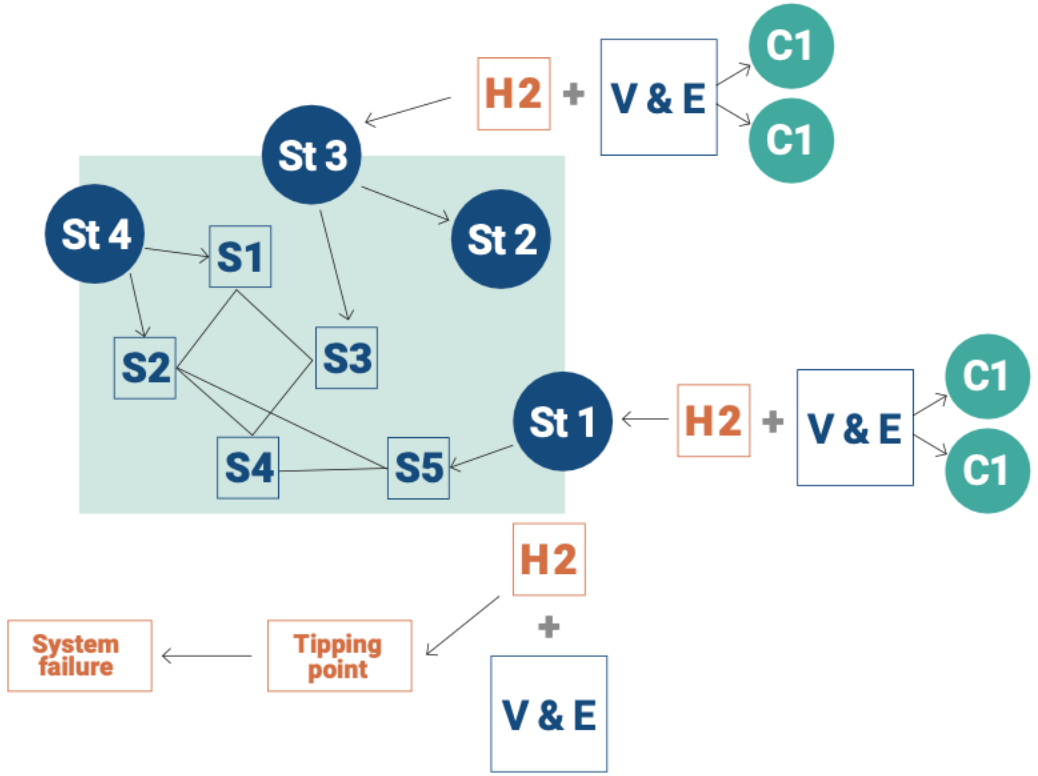
(Source: UNDRR 2019)

SYSTEMIC RISK

Key characteristics



Understanding systemic risk



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UNDRR GAR 2019

KEY GAPS IDENTIFED IN RELATION TO CASCADING AND SYSTEMIC RISKS

1. Definition and scope of these risks are under-studied
2. Lack of established scientific approaches for assessment and management
3. Limited record of events and impacts in disaster databases
4. Inadequacy of institutional and financial mechanisms
5. Limited stakeholder awareness
6. Inadequate resilience standards and their compliance in critical infrastructures
7. Insufficient integration of climate change action and DRR measures

UNDRR, 2022

KEY KNOWLEDGE & DATA GAPS IN TRANSBOUNDARY SETTINGS

UNIDENTIFIED GAPS

Lack of knowledge regarding what knowledge and information is needed, and what already exists

MISSING INFORMATION

Information has not been measured, collected, and/or analyzed

DATA INCOMPATIBILITY

- Definitions or conceptualization of resource processes
- Spatial or temporal scales used for organizing data and information
- Methods for sampling, data collection or analysis

QUALITY CONTROL

Variation across countries in technical abilities and resource availability leads to inconsistencies in data collection and analysis

GAPS IN SCIENTIFIC UNDERSTANDING

In some places, bio-physical processes and flows are poorly understood

NEED TO THINK MORE BROADLY ABOUT ADPATATION

BOTH CLIMATE RISKS AND ADAPTATION RESPONSES, CAN CASCADE

Transboundary climate risk = "wicked problem" = "no-one's job"

Climate impacts in one country may spillover into others

Adaptation in one country may change or increase vulnerability in others

Adaptation in one country may provide benefits to others

NATIONAL ADAPTATION POLICIES AND PLANS NEED TO BE MORE EXPLICIT ABOUT TRANSBOUNDARY CLIMATE RISKS

THANK YOU

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