

The World Adaptation Science Programme (WASP)

Science for Adaptation Policy Briefs

COP26, Glasgow

November 8, 2021
4:30-5:30pm GMT



Agenda

Introduction

Cynthia Rosenzweig, WASP Co-Chair

Welcome

**Youssef Nassef, Director of the Adaptation Programme,
UNFCCC and WASP Chair**

WMO Perspectives

**Ian Lisk, President of the WMO for Commission for
Weather, Climate, Water and Environmental Services**

**Launch of the Early Warning Systems for Adaptation
SAPB**

**Benjamin Sultan, Senior Scientist, French Research
Institute for Sustainable Development (IRD)**

Upcoming SAPB on Cascading Shocks and Stressors

**Kathryn Bowen, Deputy Director at Melbourne Climate
Futures and Professor, University of Melbourne**

Discussion and Next Steps

**Facilitated by Minpeng Chen and Cynthia Rosenzweig
(WASP Co-Chairs)**

Welcome by Youssef Nassef



Director of the Adaptation Programme, UNFCCC

WASP Chair

About WASP

Ensure that adaptation research gaps are filled,
focusing on policy-relevant scientific research and
prioritizing research needs in vulnerable developing countries

Three major components

Current research gaps

Future research gaps

Policy-relevant guidance



Anand Patwardhan



Johanna Nalau



Cynthia Rosenzweig

Co-Chairs Science Committee



Youssef Nassef

Chair



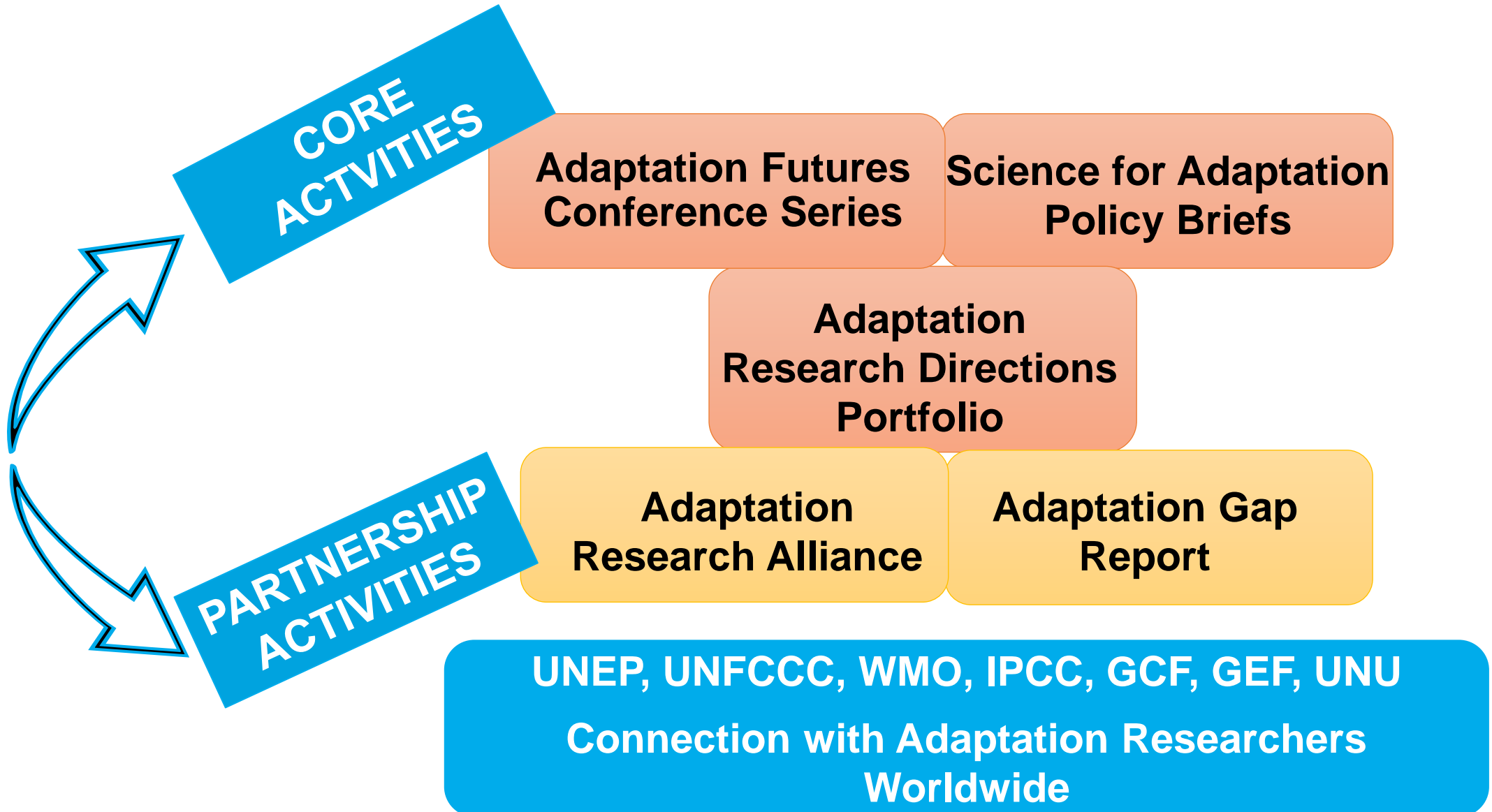
Minpeng Chen

Co-Chairs Policy and Finance Committee



Bruce Currie-Alder

WASP Core and Partnership Activities



WASP Science for Adaptation Policy Briefs

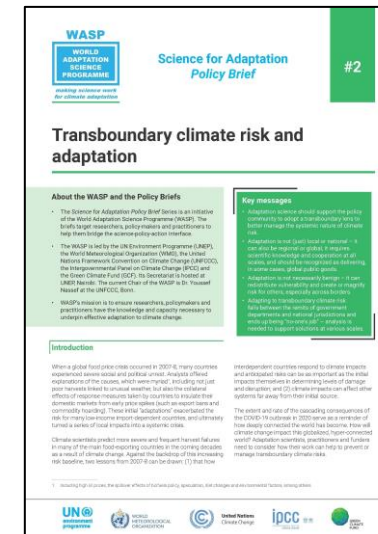
First Set (published November 2020)

- *Adaptation Decision-Support Tools and Platforms*
- *Transboundary Climate Risk and Adaptation*
- *High-End Climate Change and Adaptation*



New Set (November 2021 onwards)

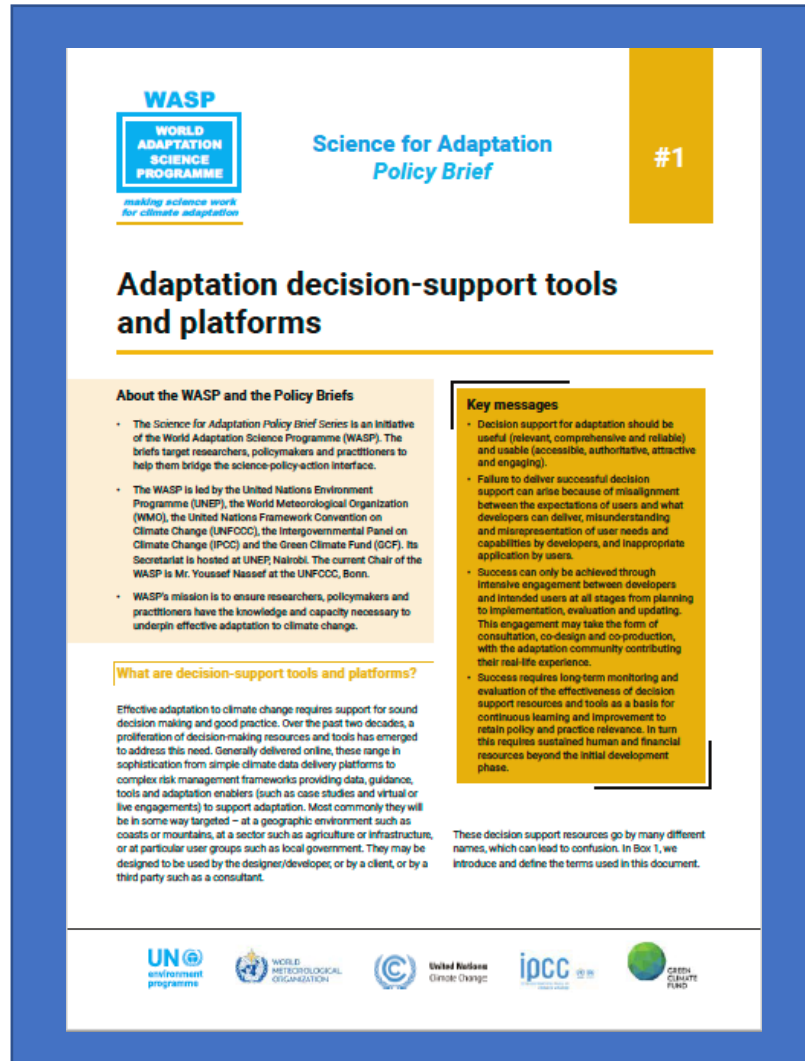
- *Early Warning Systems for Adaptation (Launch Today!)*
- *Cascading Shocks and Stressors (Upcoming)*
- *Global Goal on Adaptation (in preparation)*



Many thanks to

Ying Wang and Maarten Kappelle of UNEP

#1 Adaptation Decision Support Tools and Platforms



Adaptation decision support tools and platforms

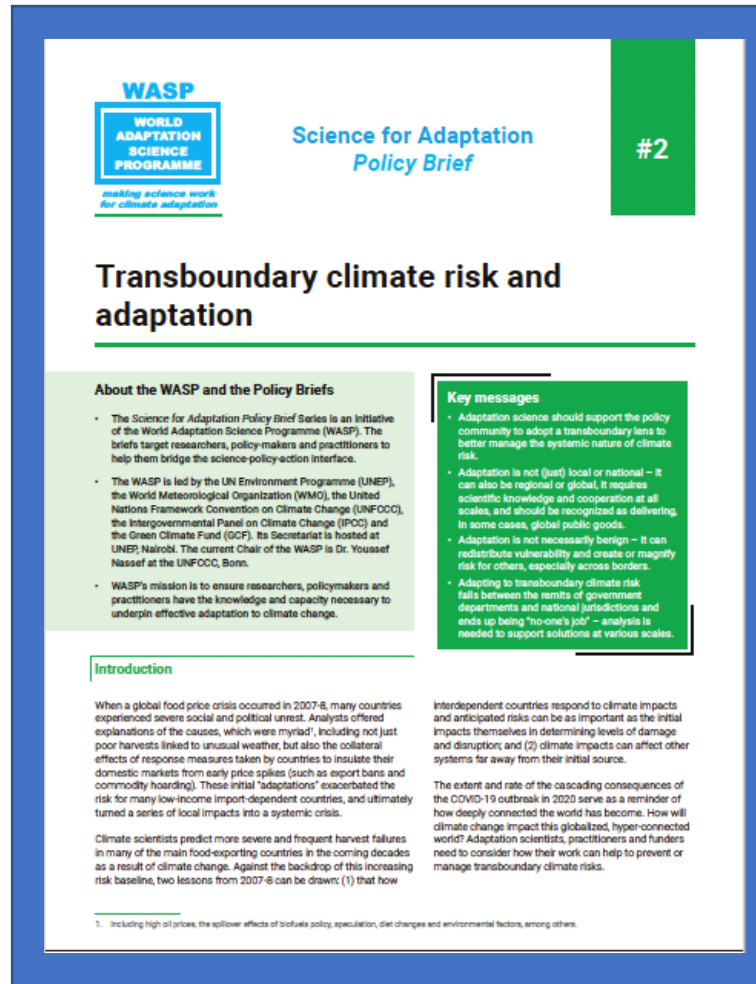
Roger Street, University of Oxford

Jean Palutikof, Griffith University

Development of successful tools for adaptation requires long-term engagement between developers and practitioners, effective programmes of monitoring and evaluation, and long-term resourcing

Available from: <https://wasp-adaptation.org>

#2 Transboundary Climate Risk and Adaptation



Transboundary climate risk and adaptation

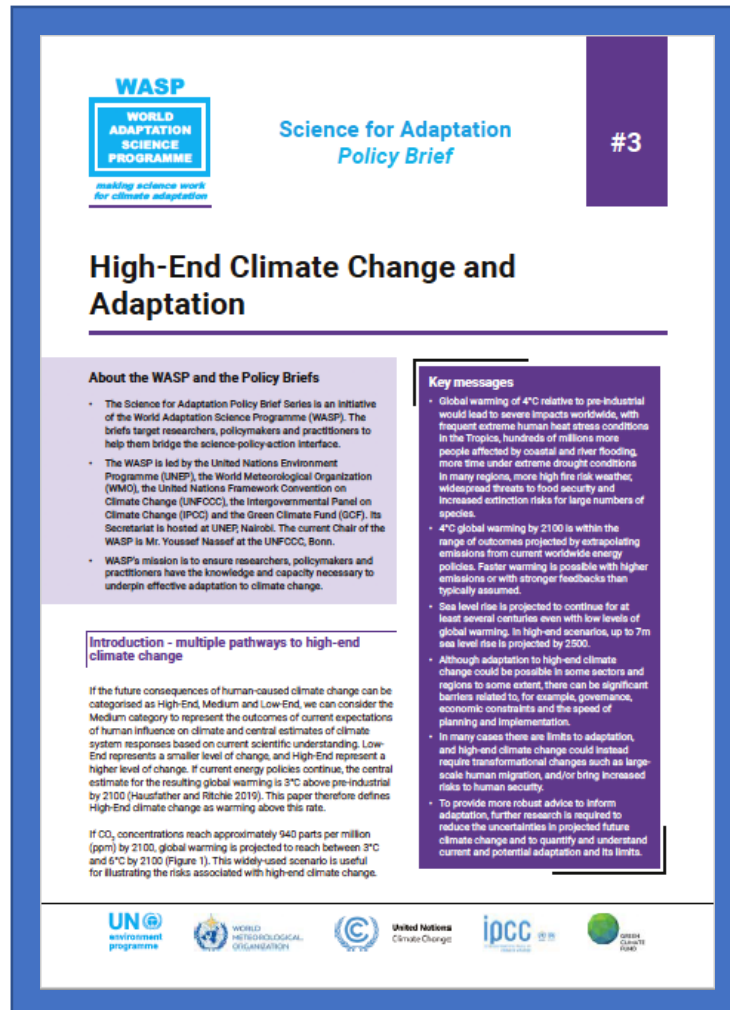
Magnus Benzie, Katy Harris

Stockholm Environment Institute, on behalf of the Adaptation Without Borders Initiative

Adaptation is not necessarily benign – it can redistribute vulnerability and create or magnify risk for others, especially across borders

Adaptation science should support the policy community to adopt a transboundary lens to better manage the systemic nature of climate risk

#3 High-end Climate Change and Adaptation



High-end climate change and adaptation

Richard Betts, UK Met Office

There are barriers and limits to adaptation, especially at high levels of warming, which may require transformational changes such as large-scale human migration, with knock-on implications for human security

WMO Perspectives by Ian Lisk



President of the WMO for Commission for Weather, Climate,
Water and Environmental Services

Principal Strategic Relationships Advisor – UK Met Office

Launch of the Early Warning Systems for Adaptation SAPB

*Benjamin Sultan, Senior Scientist,
French Research Institute for Sustainable Development (IRD)*

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Early Warning Systems for Adaptation

Science for Adaptation

Policy Brief #4

Benjamin Sultan and Cynthia Rosenzweig

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“More extreme climate events caused by human activities” (IPCC 2021)



Extreme heat

More frequent

More intense



Heavy rainfall

More frequent

More intense



Drought

Increase in some
regions



Fire weather

More frequent



Ocean

Warming
Acidifying
Losing oxygen

Between 2010 and 2019, the percentage of reported disasters associated with weather, climate and water-related events increased by 9% compared to the previous decade – and by almost 14% compared to 1991-2000 (IFRC 2020)

A more acute problem in SIDS and in LDCs



Weather, climate- and water-related hazards in Small Island Developing States (SIDS) and Least Developed Countries (LDCs) :

- **US\$ 153 billion economic losses** since 1970 in SIDS
- **1.4 million deaths in LDCs** over the 1970-2019 period (70% of the total deaths over the World)

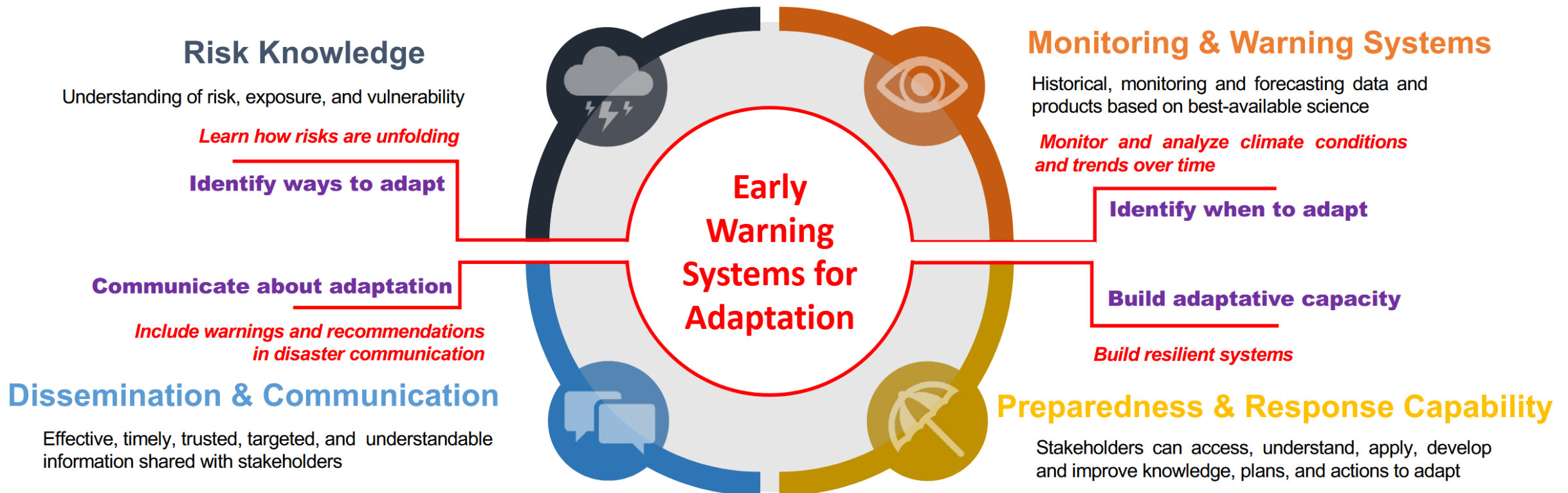
Early warning systems (EWS) are seen as key for reducing impacts of these hazards :

88% of LDCs and SIDS that submitted their Nationally Determined Contributions (NDCs) have identified **EWS** as a top priority.

Early Warning Systems for Adaptation

Traditional EWS need to evolve to encompass climate change adaptation to better help communities prepare for the worst, now and in the future → **EWSA**

Building effective **EWSA** is an interdisciplinary task requiring an integrated systems approach that includes incorporating climate change and adaptation in their development and processes



Risk knowledge is key to getting us ready for climate-related event



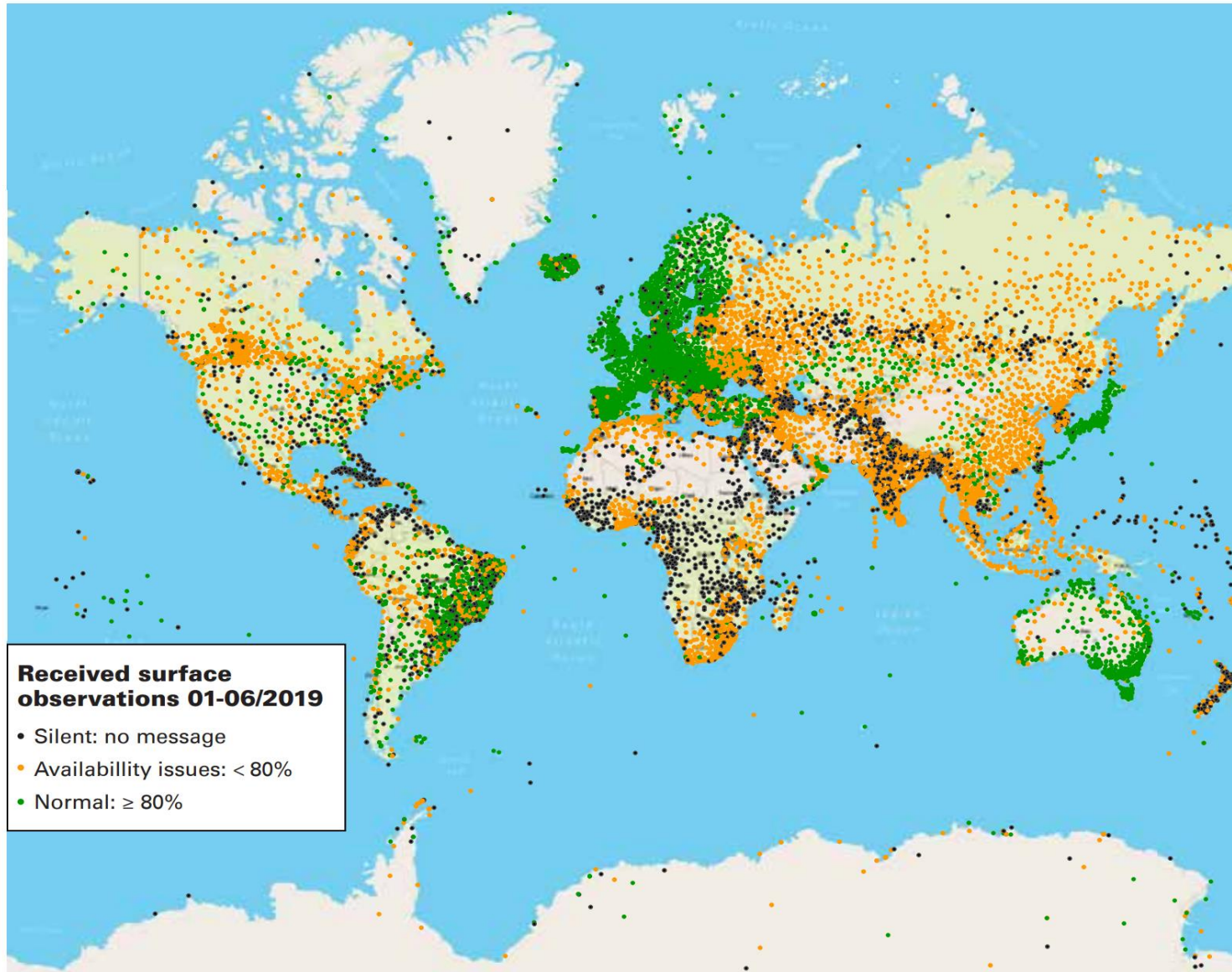
Learning how risks' exposure and vulnerability are shifting with climate change is key to improving preparedness for future hazards

What worked in the past is no longer sufficient for **addressing today's and future risks**

Important changes in extreme are expected even for the lowest warming scenarios

See IPCC AR6 WGI Report 2021

Monitoring and warning systems help anticipate climate risks



Reliable monitoring capability is a fundamental prerequisite for EWSA and effective climate actions.

However, there are **still significant data gaps** in basic weather observations in some parts of the world such as Africa, the southwestern Pacific, South America and Antarctica

See WMO State of Climate Services 2020

Response capability requires significant improvement to build resilience

Response capability for adaptation urgently needs to expand by improving:

- **the capacity of climate information providers** to generate data and tools based on the best available science, understanding of sectoral needs and vulnerability, and improved communication and tailoring of information,
- **the capacity of disaster risk reduction practitioners, policymakers and vulnerable communities** to appropriately understand, access and use climate information at different timescales and communicate their climate-sensitive needs.

This **two-way capacity-building** is essential to support transdisciplinary collaboration on the co-production of EWSA by climate information providers and the meaningful participation of practitioners, policymakers and those at risk.

Dissemination and communication are critical to ensure an effective and proactive response

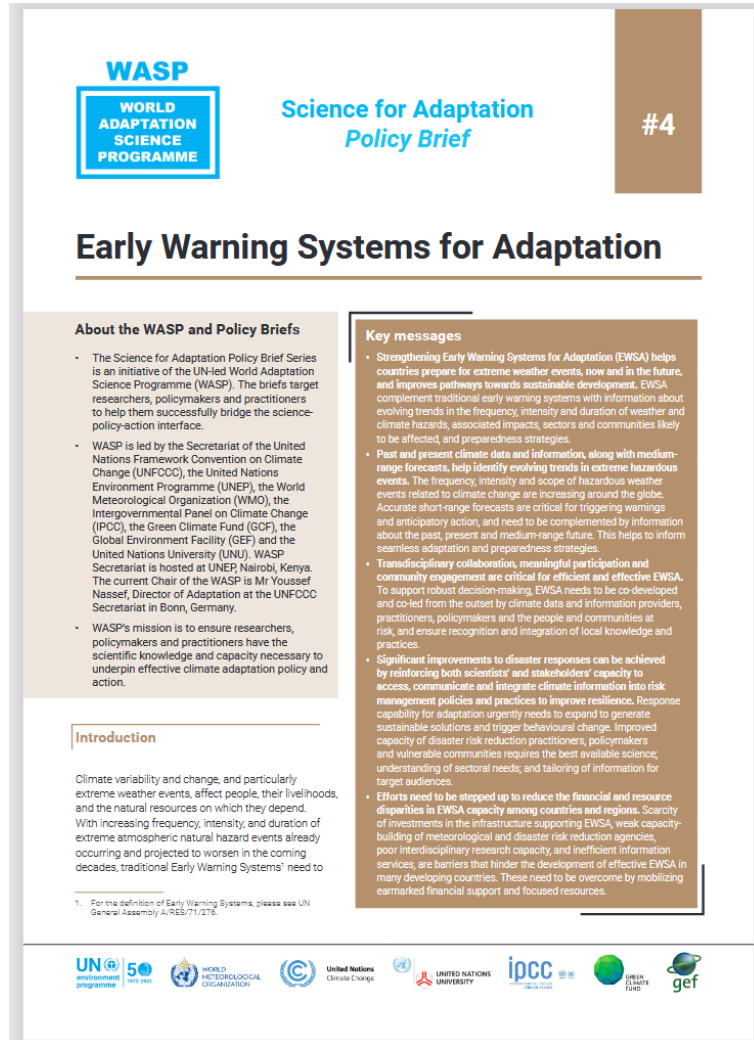


Warning dissemination and communication are **consistently weak in many developing countries** :

There, *“one person in three is still not adequately covered by early warning systems and risk-informed early approaches are not at the scale required.”* António Guterres, Secretary-General of the United Nations, January 2021

Improved and more readily available communications media need to be fully exploited so that EWSA can reach as many at-risk people as possible

Concluding remarks



EWSA urgently needs **interdisciplinary and intersectoral collaboration** between policymakers and scientists, sectoral experts, humanitarian/disaster risk management actors and vulnerable communities.

This collaboration, **coupled with financial support**, will enable the co-development of impact-based climate risk assessment and forecast-based early actions that can inform local strategies to effectively and efficiently respond to the increasing risks due to the changing climate.

Thank You !

Upcoming SAPB on Cascading Shocks and Stressors

*Kathryn Bowen, Deputy Director at Melbourne Climate Futures
and Professor, University of Melbourne*

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WASP Science for Adaptation Policy Brief #5: The risks of cascading climate change shocks and stressors

WASP Science Committee

Author Team Leads: Prof Kathryn Bowen, Prof Anand Patwardhan

What are cascading shocks and stressors?

1. Multiple hazardous events occurring in quick succession

- E.g. Fires, followed by floods

2. Linked impacts from changes in the climate – e.g. ‘coupled events’ such as heatwaves and droughts

3. Adverse impacts on various systems - e.g. economic damages from extreme weather events leading to transboundary impacts on dependent economies

With an increase in intensity and frequency of extreme weather events, we expect to see these cascading effects to be more pronounced

Example: Severe famine in Madagascar

- 2021 – severe famine in Madagascar resulted from 4 years of drought which led to almost total wipeout of food resources
- Madagascar's drought not only led to famine but also produced lasting substantial cascading shocks affecting the country's agricultural sector which in turn led to economic impacts
- Intensified support is urgently required as the hunger crisis in Madagascar worsens in scale, location and generations



Key messages

- Cascading impacts of climate change amplify human vulnerabilities and risks, and further challenge the success of our sustainable development trajectories
- There are increasingly small windows of time to build back from each shock and stressor
- Impacts are exacerbated for those most at risk (e.g. women, children, the elderly and marginalized groups)
- Responding to cascading risks and impacts requires working in a transdisciplinary way. This collaboration is key to identify the linkages in the cascades and develop ways to build adaptive capacity and resilience

Key messages

- Cascading risks with transboundary and multisystem impacts (e.g. food, health, migration, water), together with uncertainties about future manifestations make risks harder to project and act upon
- A focus on equity and justice is essential for effective responses. The complexity of interconnected risks requires comprehensive governance responses, transdisciplinary collaboration and integration, and collective decision-making at multiple scales
- There is insufficient financing to be able to support communities to develop locally-led resilience activities in order to respond to increasing cascading risks and impacts
- COVID-19 stimulus packages unlock the potential to tackle climate change in a systematic way – assurance of sustained natural environments, provision of basic livelihoods, and access to green skills and jobs will help build adaptive capacity, resilience and ameliorate future risks

Discussion and Next Steps

Facilitated by Minpeng Chen and Cynthia Rosenzweig

1. How can WASP Science for Adaptation Policy Briefs (SAPBs) be useful?
2. What topics should WASP tackle for the next set of policy briefs?
3. What research is needed to move the implementation of adaptation forward?

World Adaptation Science Program Session:

Research Directions and Learning Agendas for Adaptation - Science Pavilion

November 9 (Tue), 6:00-7:00 pm

Chaired by Bruce Currie-Alder and Cynthia Rosenzweig

Broadcast - <https://youtu.be/8tIVuxwZKZM>

Thank You

<https://wasp-adaptation.org>

Email: secretariat@wasp-adaptation.org

