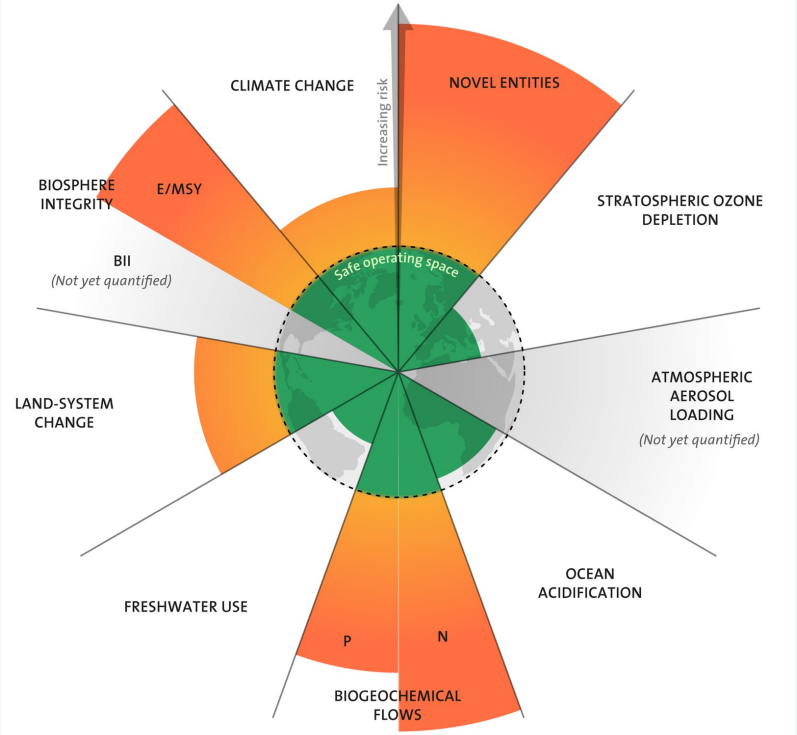
The Planetary Boundaries



The planetary boundaries concept presents a set of nine planetary boundaries within which humanity can continue to develop and thrive for generations to come

In 2009, former centre director Johan Rockström led a group of 28 internationally renowned scientists to identify the nine processes that regulate the stability and resilience of the Earth system.

Credit: "Azote for Stockholm Resilience Centre, based on analysis in Persson et al 2022 and Steffen et al 2015".

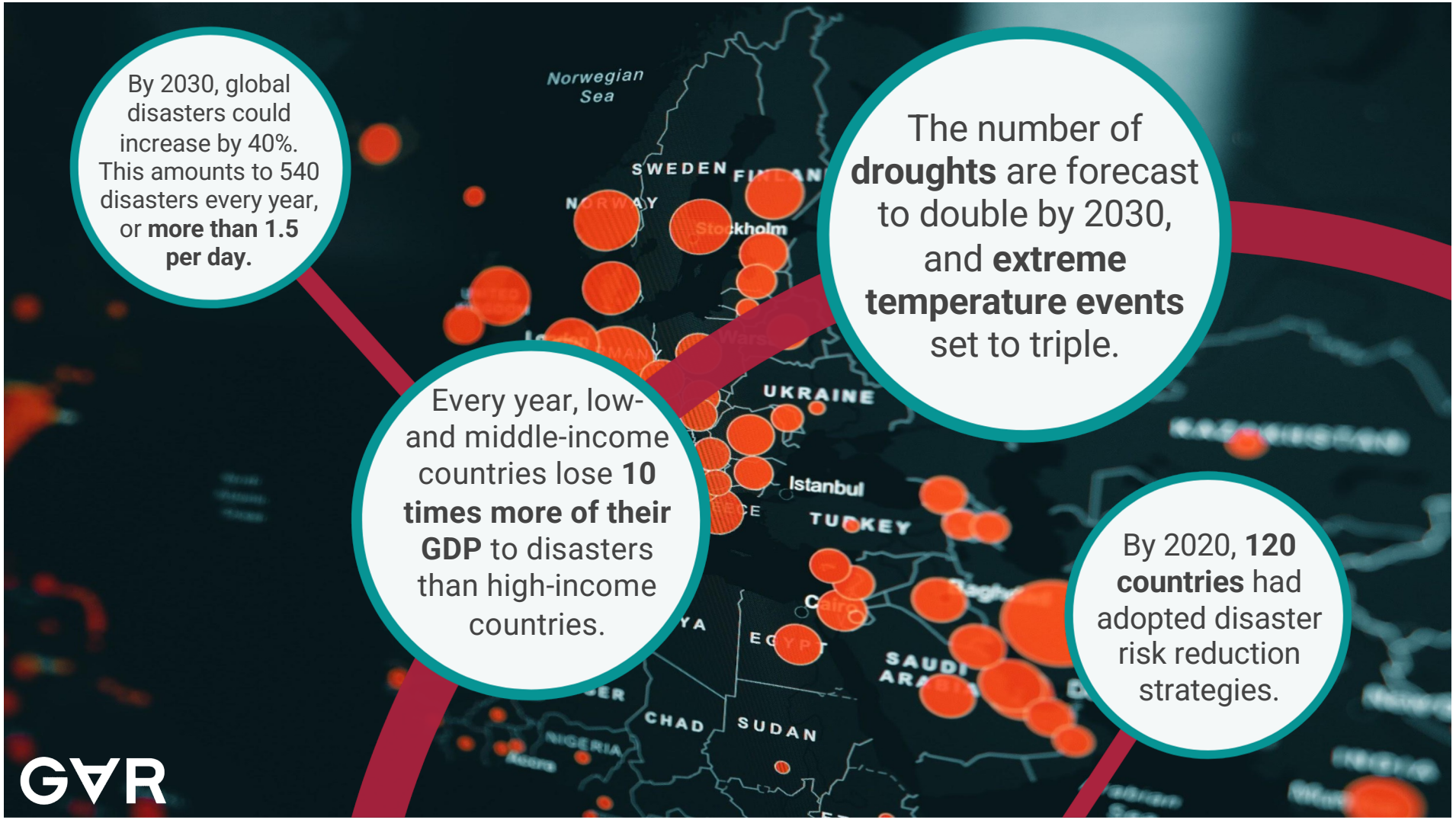
2022 Global Assessment Report

Disasters are rapidly increasing around the world due to climate change and inadequate risk management. Our societal, political and economic choices are contributing to an increase in disasters, with the world set to face 1.5 environmental disasters a day by 2030.

The **2022 Global Assessment Report** – the triennial flagship report of the United Nations on efforts to reduce disaster risk produced by the UN Office for Disaster Risk Reduction (UNDRR) – is a global call to action to better address systemic risk from disasters.


“Progress on disaster risk reduction must be urgently prioritized as a precondition for sustainable development.”
António Guterres
UN Secretary-General
GAR

PART I:
The challenge


By 2030, global disasters could increase by 40%. This amounts to 540 disasters every year, or **more than 1.5 per day.**
The number of **droughts** are forecast to double by 2030, and **extreme temperature events** set to triple.
Every year, low- and middle-income countries lose **10 times more of their GDP** to disasters than high-income countries.
By 2020, **120 countries** had adopted disaster risk reduction strategies.
Norwegian Sea
SWEDEN
NORWAY
Stockholm
UKRAINE
Istanbul
TURKEY
Cairo
EGYPT
SAUDI ARABIA
CHAD
SUDAN
NIGERIA
GAR

Systemic risks are undermining sustainable development

- COVID-19 and climate change are rapidly making it clear that, in today's crowded and interconnected world, disaster impacts increasingly cascade across geographies and sectors.
- Despite progress, risk creation is outstripping risk reduction. Disasters, economic loss and the underlying vulnerabilities that drive risk, such as poverty and inequality, are increasing just as ecosystems and biospheres are at risk of collapse.
- Without increased action to build resilience to systemic risk, the SDGs cannot be achieved. How can governance systems evolve to better address the systemic risks of the future?

Dhaka, Bangladesh - December 06, 2021: People fleeing their homes in an emergency are affected by the effects of the Cyclone Jawad.

Economic dimension of women's vulnerability during cyclones; common challenges or issues:

Immediate: increased unemployment, decreased livelihood options and increased poverty; increased food insecurity; loss of property;

Indirect and long lasting: girls dropping out of education; early marriage; migration; and long-term displacement

Credit: Sk Hasan Ali/shutterstock

Measure what we value

Balance sheets ignore key variables, particularly undervaluing climate change risk, costs to ecosystems and the positive social benefits of risk reduction. The real costs of extensive risk are especially undervalued, and this gap is widening as major climate change impacts such as sea-level rise gather pace.

Key actions:

- Rework financial systems to account for the real costs of risk particularly long-term risks, and rework investment and insurance systems to incentivize risk reduction.
- Adapt national fiscal planning and risk financing to consider risk and uncertainty.

Barbados: analysts constructed a Category 5 hurricane scenario and estimated the expected direct and indirect economic impacts.

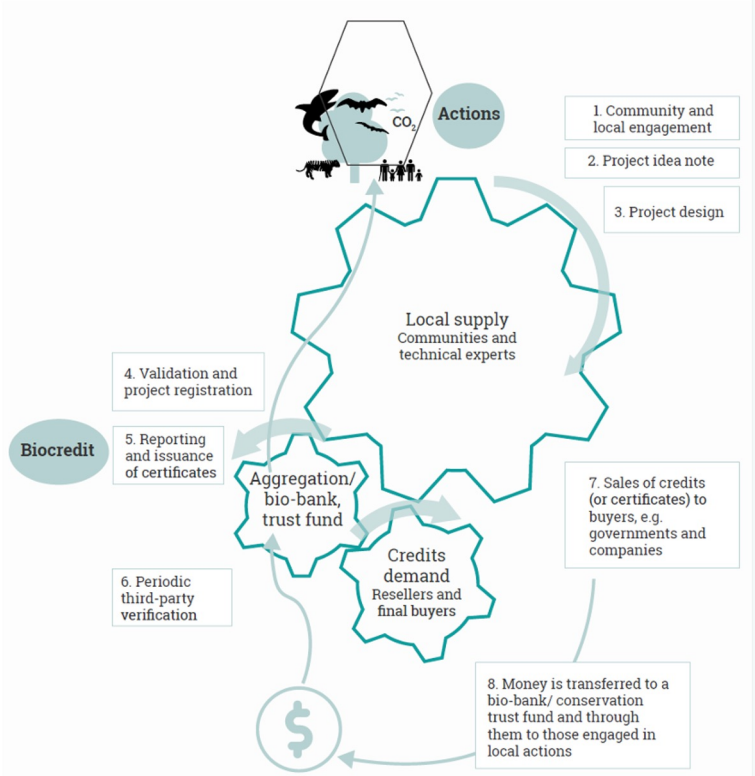
Under this scenario it was estimated that:

- 8.5% of hotels, residences, factories and distribution centres would be flooded and could not be used until extensive remediation work was done.
- 11.5% of the population would be displaced for at least 6 months, either fleeing internationally, or residing with friends and relatives – causing an effective average rate of 6% reduction in workforce availability.
- Several transit corridors would be damaged in this event, further limiting the ability for commerce and tourism on the island for a duration of 6–12 months.
- Government tax revenues would decline by between 6.8% and 13.3%, depending upon the tax stream.

Credit: Paul Dempsey/shutterstock

Current systems undervalue key assets, opportunities for learning including from indigenous knowledge

Figure 5.1. Example of an institutional set-up for biocredits founded on fair benefit-sharing principles



Source: Based on Porras and Steele (2020), using Plan Vivo Foundation's process for community-based biocredits

Measuring What We Value: The Netherlands

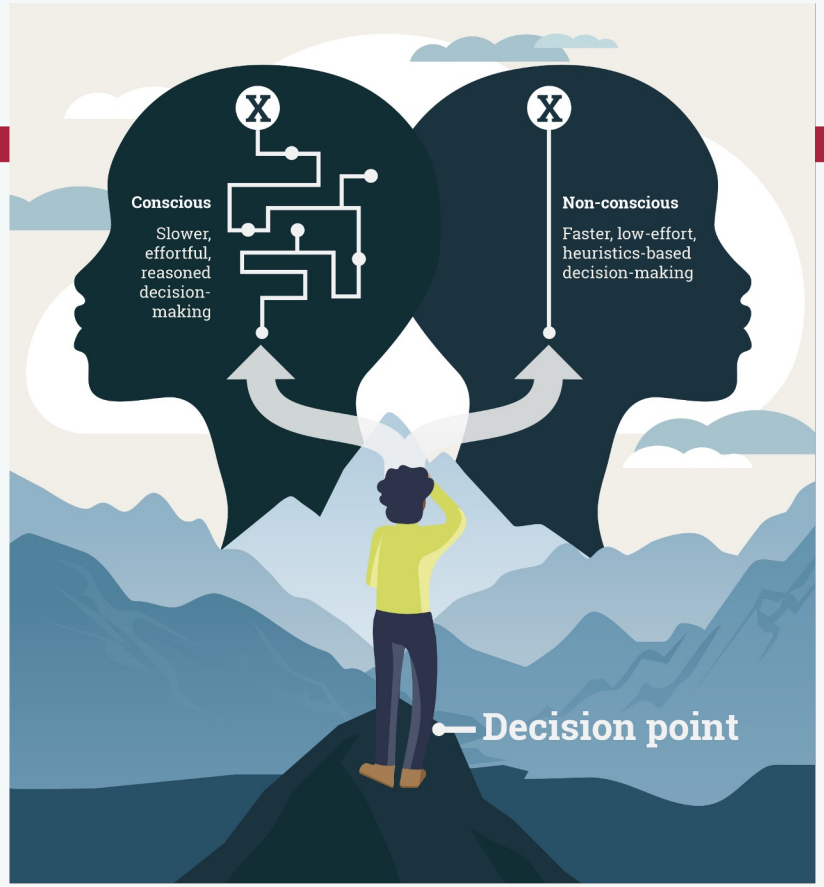
In 2020, the **De Nederlandsche Bank** became the first ever central bank to consider biodiversity a financial risk. The bank found that 36% of the portfolio values of the Dutch financial institutions were exposed to nature-related risks.

The choices that we make can create new risk – but it can also build resilience. We must **better measure what matters to us**.

Photo: Wikimedia Commons/Pbech

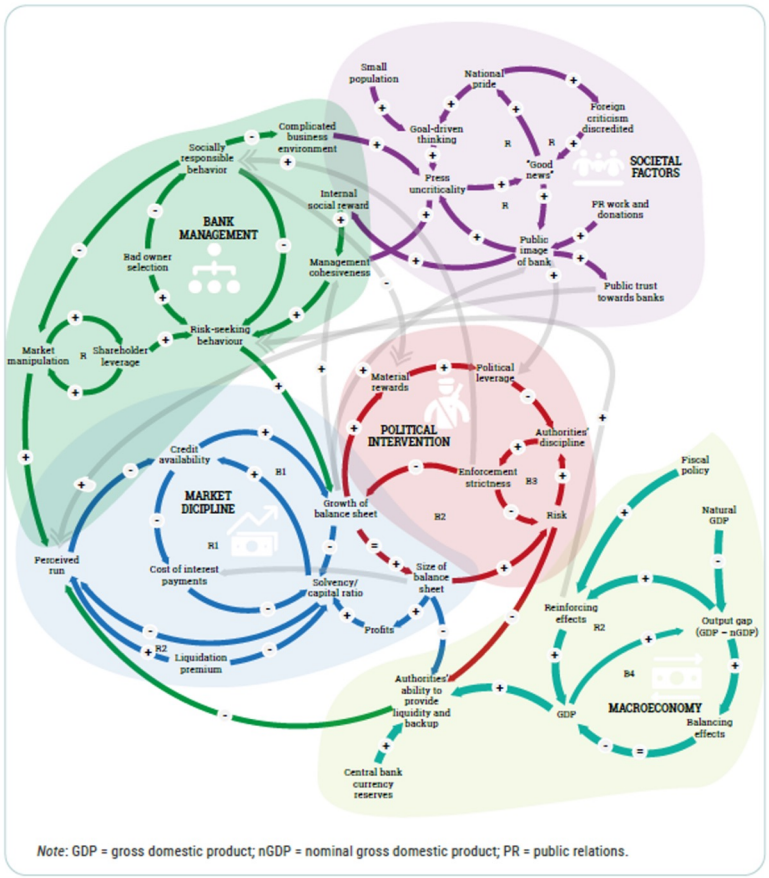
PART II:

The role of biases and communication in risk reduction



Human biases and decision-making impact risk reduction outcomes

Figure S.10. Systemic risk in the Icelandic financial system, 2007



Note: GDP = gross domestic product; nGDP = nominal gross domestic product; PR = public relations.

Plan with, not against, how people take decisions about risk

Design systems to factor in how human minds make decisions about risk

Policymakers and providers of disaster risk reduction products and services to households and communities continue to undervalue how risk perceptions, including cognitive biases, influence decision-making.

Key actions:

- Recognize the role of people's perceptions of risks and biases to close the gap between intention and action in reducing risk.
- Recognize the value of risk analytics as a tool but not a panacea.

Burial rites and risk during the Ebola outbreak in Liberia, 2014

Early in the response, local communities strongly resisted safe burials. Doubts about the reality of Ebola or its specific transmission pathways interacted with strong cultural norms about appropriate burial practices to generate significant resistance to implementing safe and dignified burials, which were directly in contradiction of cultural norms about how to treat the dead respectfully.

A Red Cross burial team member disinfects her hands after taking a sample from the body of a suspected Ebola fatality in Paynesville, Liberia

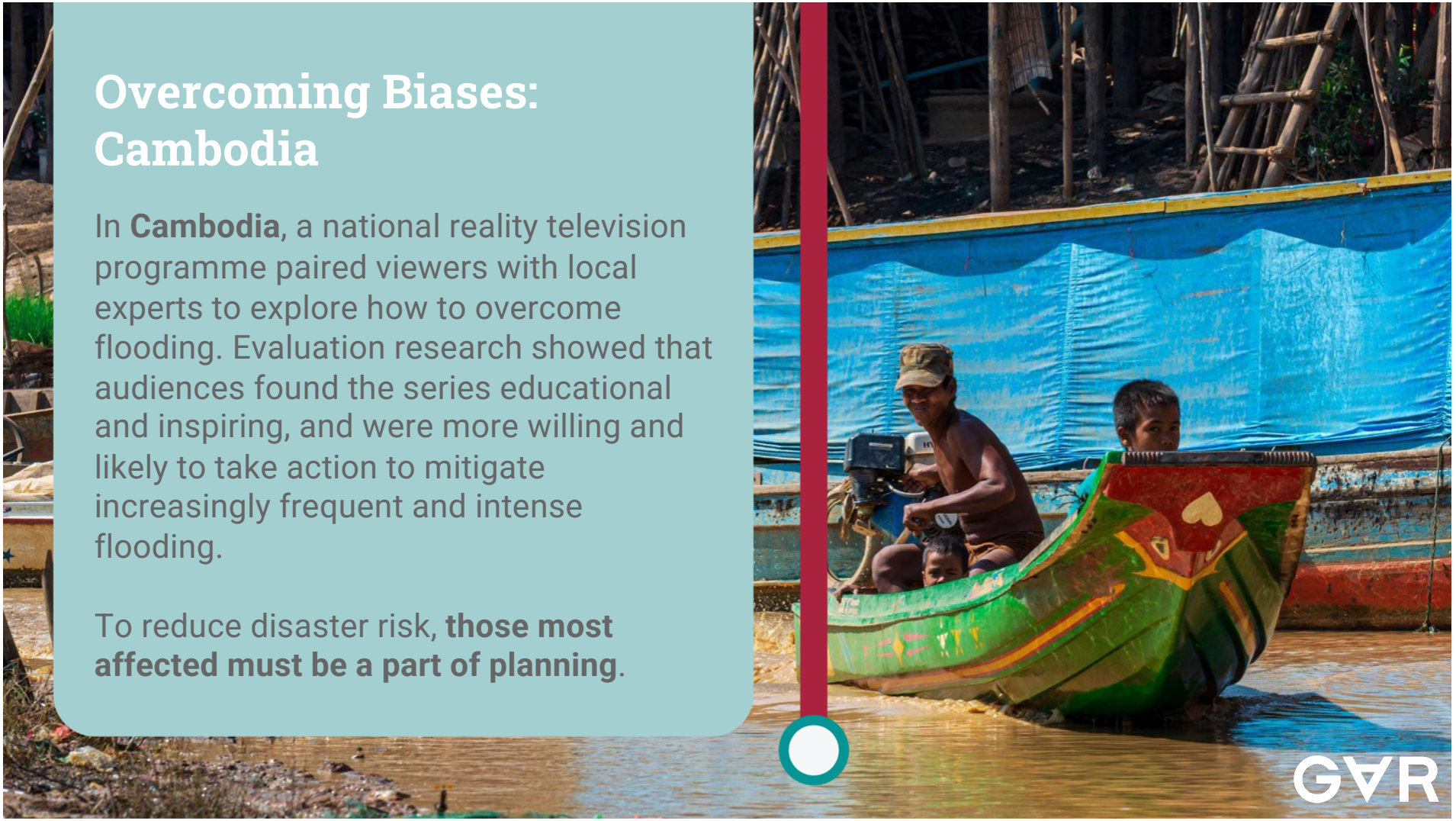
Credit: © Victor Lacken/IFRC

GAR

Overcoming Biases: Cambodia

In **Cambodia**, a national reality television programme paired viewers with local experts to explore how to overcome flooding. Evaluation research showed that audiences found the series educational and inspiring, and were more willing and likely to take action to mitigate increasingly frequent and intense flooding.

To reduce disaster risk, **those most affected must be a part of planning**.



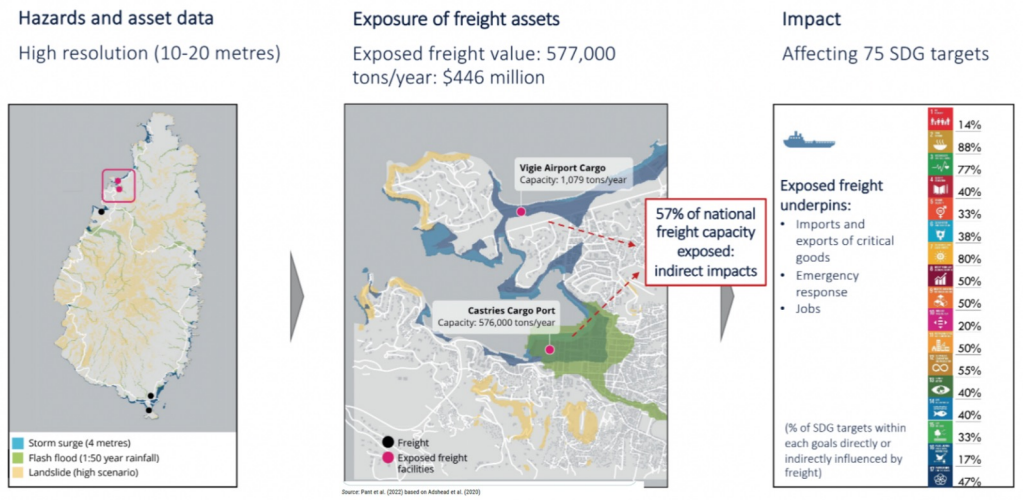
PART III:
Towards a more resilient future

Towards a more resilient future

New methods to assess emerging systemic risks and impacts do not enable prediction of the exact tipping points, such as on which day the stock markets will crash, when supply chains will cease to function or when the 1.5°C safe global climate change target is breached.

However, they do allow prediction, given a trigger event, of what the consequences will be throughout the system. Models can also show how cascading systemic risk affects wider sustainable development.

Figure S.12. Analysis of port and freight exposure to climate-related hazards in Saint Lucia and interdependent impacts on SDG targets



The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations

Source: Pant et al. (2022) based on Adshead et al. (2020)

Reconfigure governance and financial systems to work across silos and design in consultation with affected people

Governance and financial systems are not yet embracing transdisciplinary approaches and tend to take top-down approaches.

Key actions:

- Embrace a new "risk language" that cuts across multiple disciplines.
- Step up participation, transparency and citizen dialogue in risk decision-making to accelerate learning and necessary adjustments.
- Enhance multi-scale risk management

GAR 2022 Case Study: Australian Aboriginal cultural burning and wildfire management

In an ongoing debate about how to manage forests to reduce these human and ecological impacts, which has focused on the binary options of:

(a) planned burning by fire authorities to mitigate wildfire risk by reducing fuel load in forests or

(b) preserving the forests in their natural state, knowing they will be devastated by spontaneous fires (e.g. due to lightning) every few years.

Government authorities have also recently begun to consider a third way – that of Aboriginal fire management.

After the Black Summer fires, Aboriginal techniques of “mosaic burns” or “cultural burning” were promoted strongly as an effective measure to reduce the risk of recurrence.

Minyawu Miller, an elder in the Punmu Aboriginal Community, lights fires in the Great Sandy Desert in Australia

Credit: Gareth Catt/Kanyirninpa Jukurrpa

Inclusive Communication: Nepal

In **Nepal**, early flood warning systems resulted in a reduction in the annual number of deaths due to flooding. However, research indicated that women and marginalized people were less likely to receive information and be engaged in preparedness and evacuation activities.

Communication must be co-designed with communities and tailored to meet diverse needs.

GAR

Photo: SIM Central and South East Asia

Recommendations

The 2022 GAR report explores how a range of sectors, including the financial, governmental, development, insurance and risk management sectors, can achieve the goal of transforming governance for a resilient future for all.

It makes three broad recommendations for policymakers:

1. Measure what we value by reworking financial systems to account for the real costs of climate risks and incentivize risk reduction.

1. Design systems to factor in how human minds make decisions about risk by overcoming people's perceptions of risks and biases.

1. Reconfigure governance and financial systems to work across silos, and design in consultation with affected people by embracing a transparent and inclusive language that cuts across disciplines.

GAR
Global Assessment Report
on Disaster Risk Reduction

Full report available at
https://www.undrr.org/gar2022/

Check-out: #StoptheSpiral