



**ESCAP**

Economic and Social Commission  
for Asia and the Pacific

# Impact of climate change on Economic and Social Development in Asia-Pacific region

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**201<sup>st</sup> Scientific Meeting**

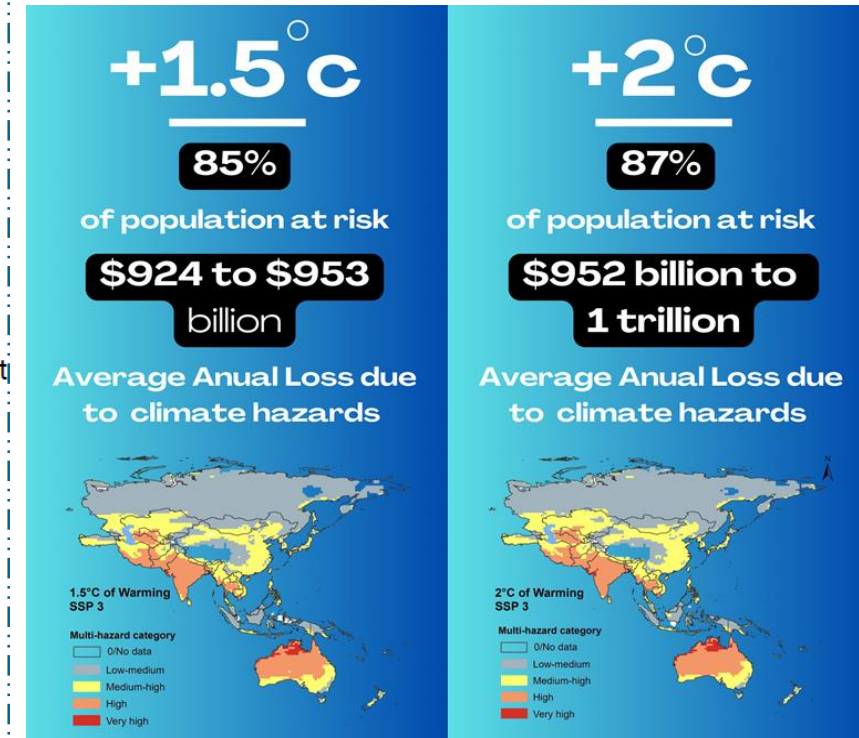
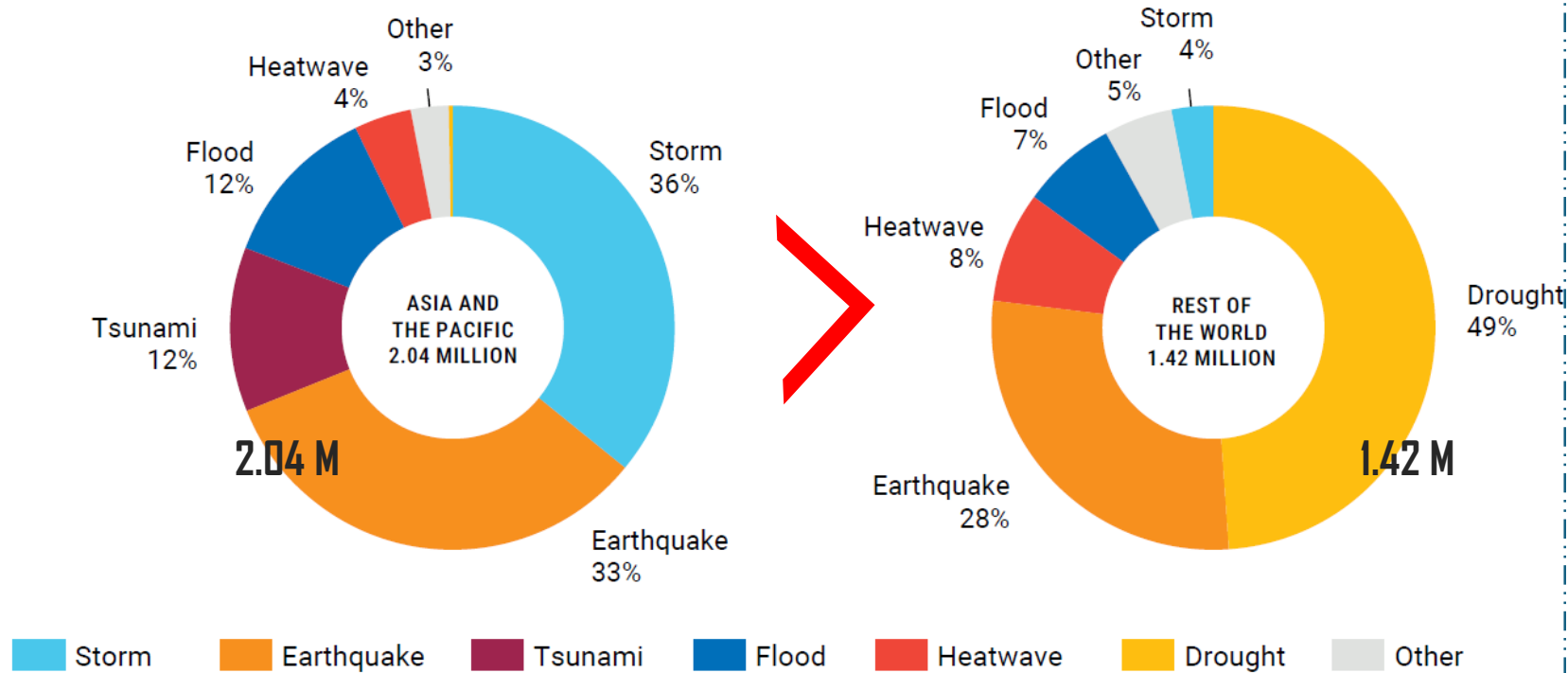
**Centre for Development and Research Foresight**

**Tehran, Islamic Republic of Iran**

**24 February 2025**

Asia and the Pacific remains the **most disaster-prone** region.

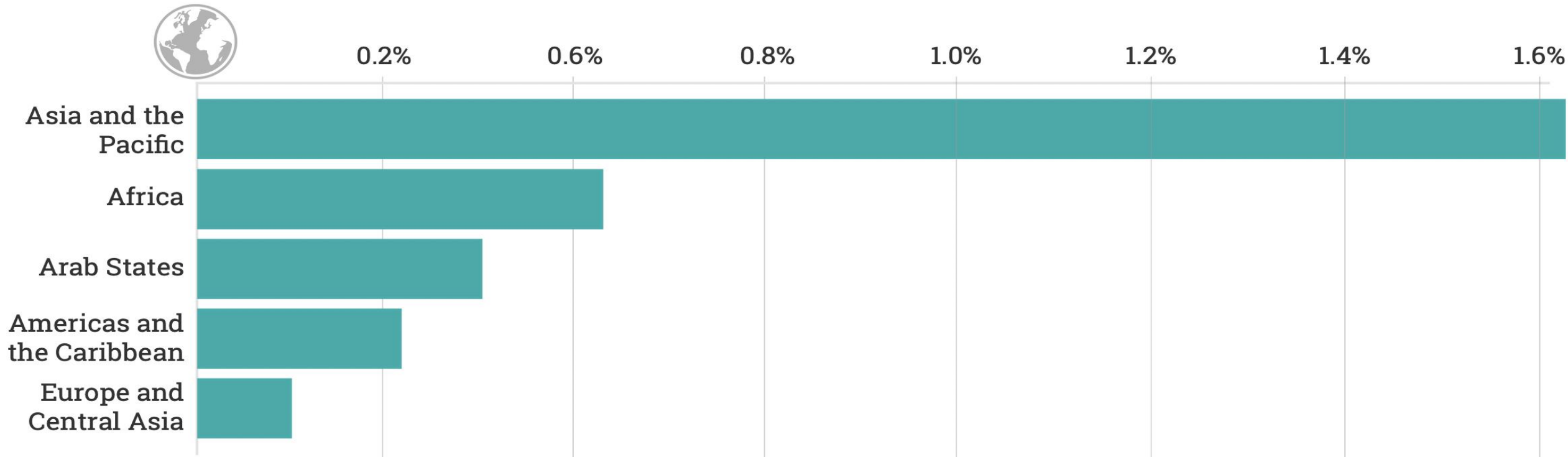
Number of fatalities from disasters in the Asia-Pacific region and the rest of the world, 1970-2022



Source: Asia-Pacific Disaster Report 2023

# Economic impact of disasters

The highest share of economic loss by region is borne within Asia Pacific, where countries lose on average **1.6%** of GDP to disasters.



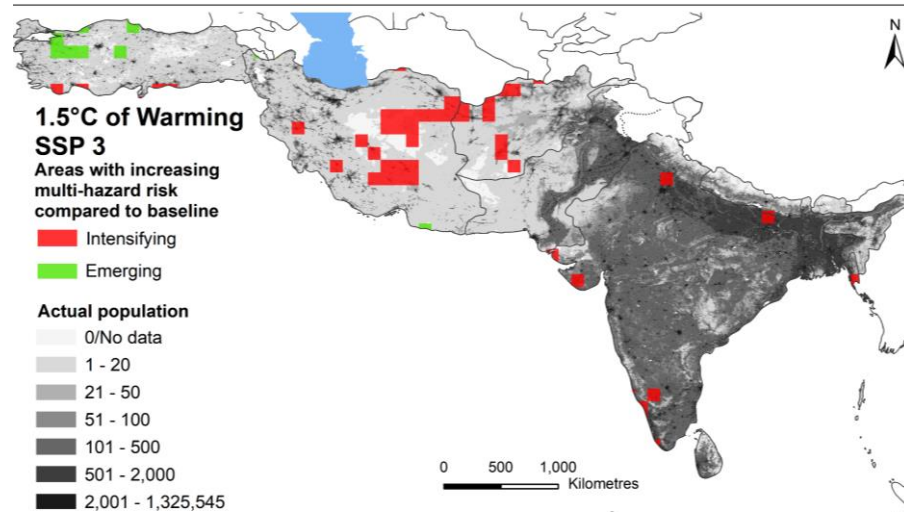
*(Source: GAR 2021)*

# Warming amplifies and expands multi-hazard risk hotspots

Escalating population risks under 1.5°C and 2°C warming scenarios in densely populated areas

Hotspots of emerging and intensifying multi-hazard risk hotspots of population under 1.5- and 2-degree warming SSP3 scenarios

## 1.5-degree warming (SSP3)



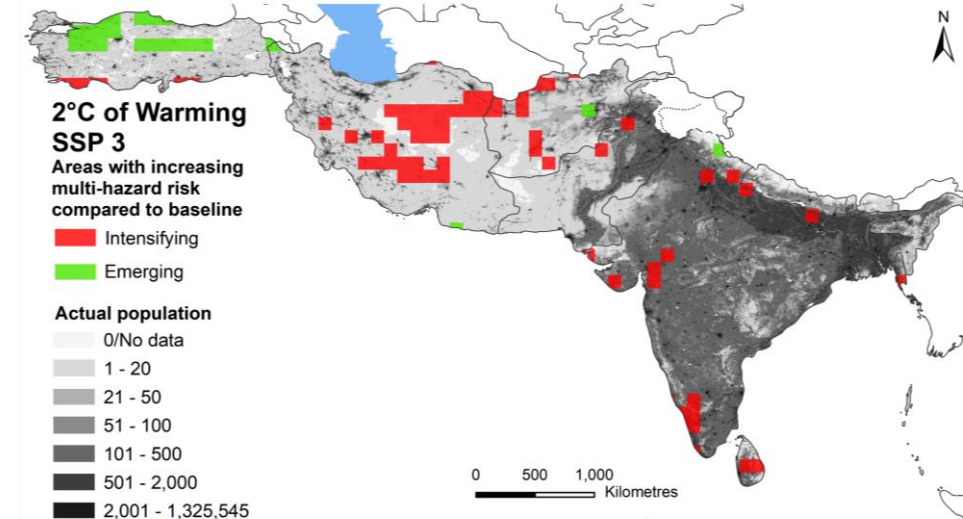
Sources : ESCAP calculations based on IPCC WGI Interactive Atlas - Coupled Model Intercomparison Project Phase 6 (CMIP6) 2021, WorldPop 2020 Population Estimates, and UN Geospatial.

Note : The baseline period is from 1995-2014.

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

Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties.

## 2-degree warming (SSP3)



Sources : ESCAP calculations based on IPCC WGI Interactive Atlas - Coupled Model Intercomparison Project Phase 6 (CMIP6) 2021, WorldPop 2020 Population Estimates, and UN Geospatial.

Note : The baseline period is from 1995-2014.

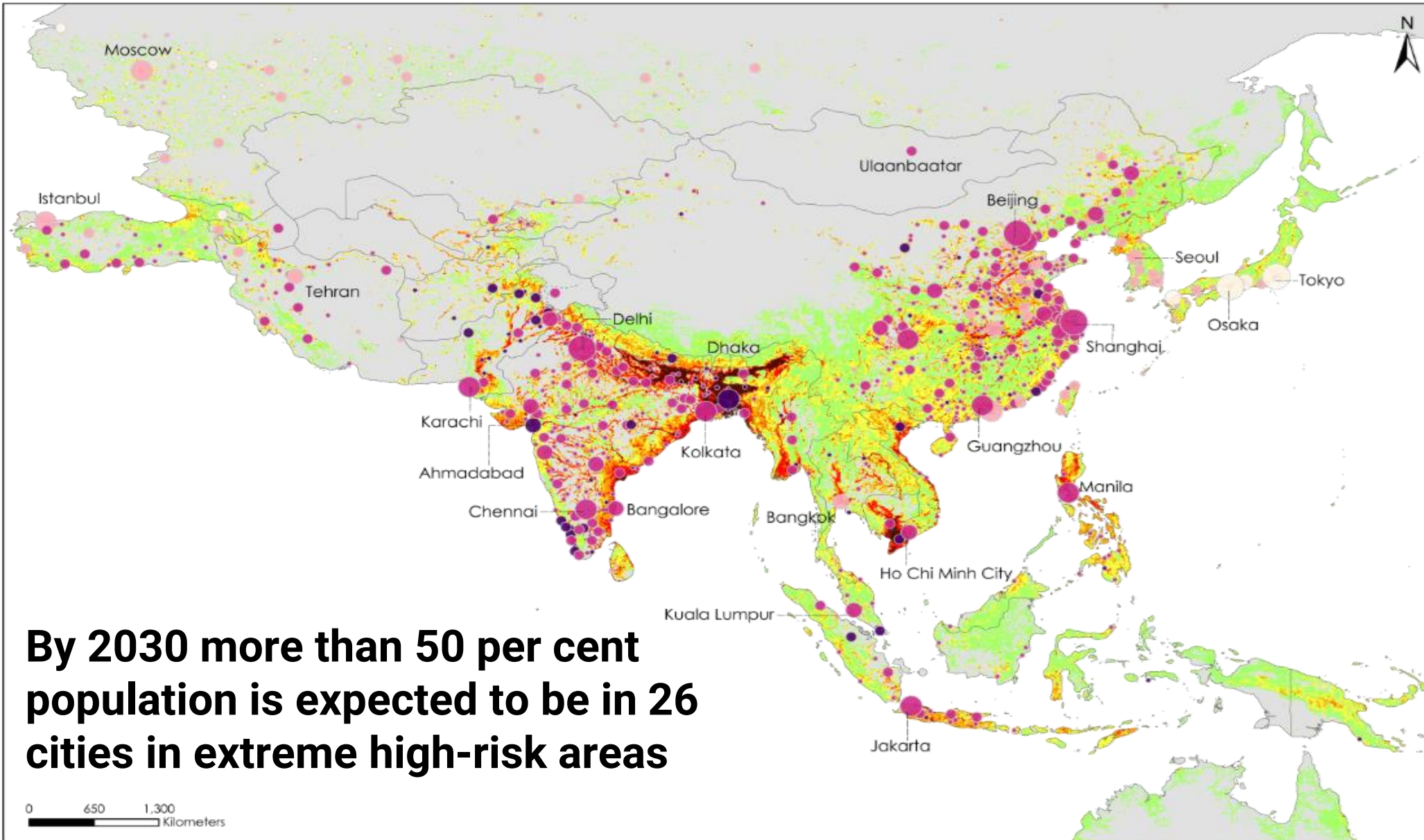
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# As Asia-Pacific urbanizes, risk accumulates

## 170 Cities in extreme, 314 in high and 154 in medium risk categories

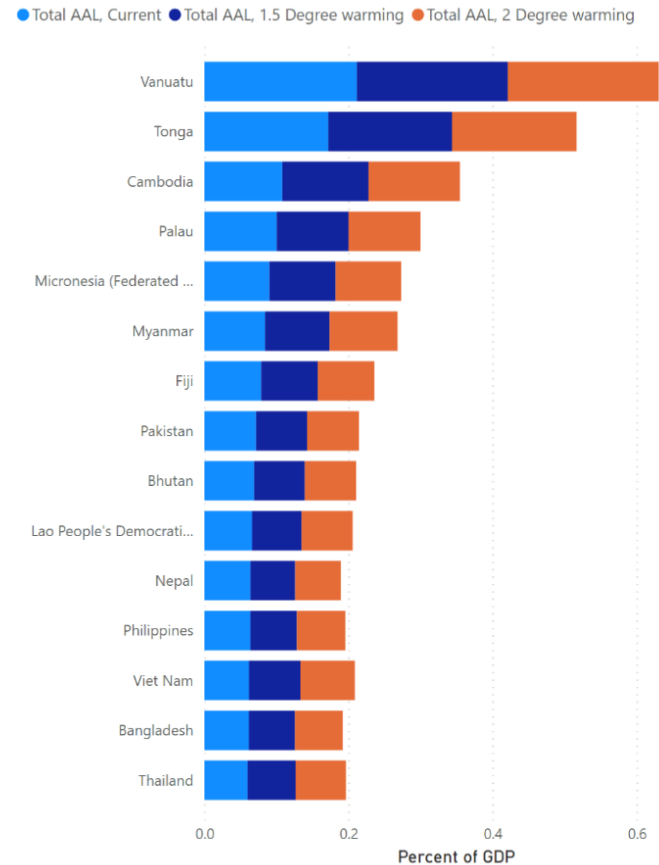
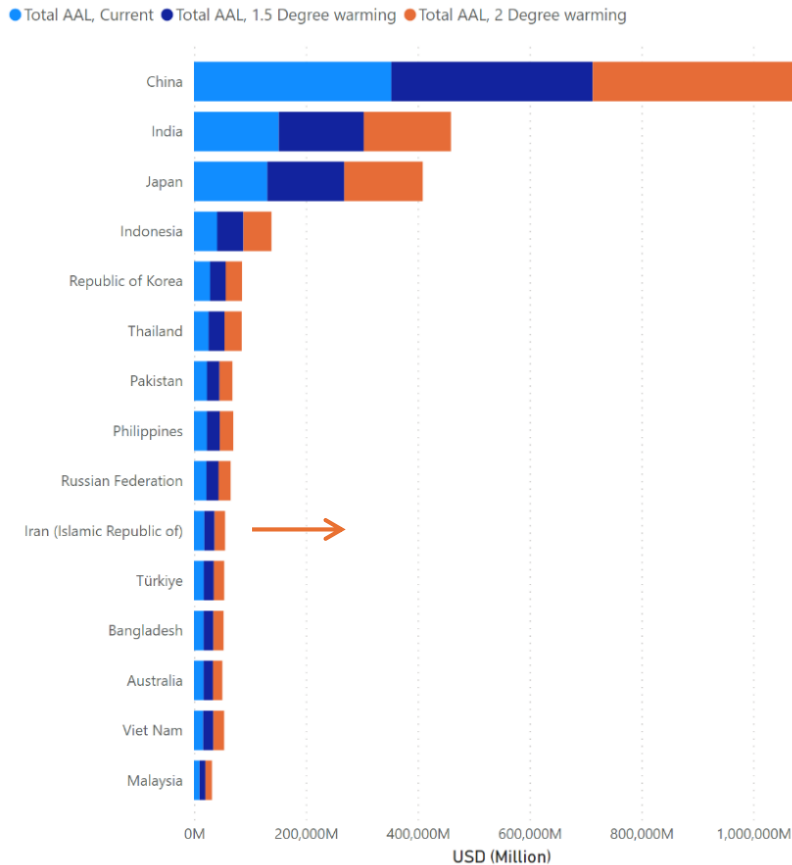


**By 2030 more than 50 per cent population is expected to be in 26 cities in extreme high-risk areas**

# The Economic Cost of climate change

Top 15 countries in Asia and the Pacific: Comparison of average annual loss (absolute) vs average annual loss (% of GDP) under current scenario SSP2-SSP3

Current annual losses from drought, floods, heatwaves and tropical cyclones and related biological hazards, and tsunamis and earthquakes, are estimated at **\$924 billion**.



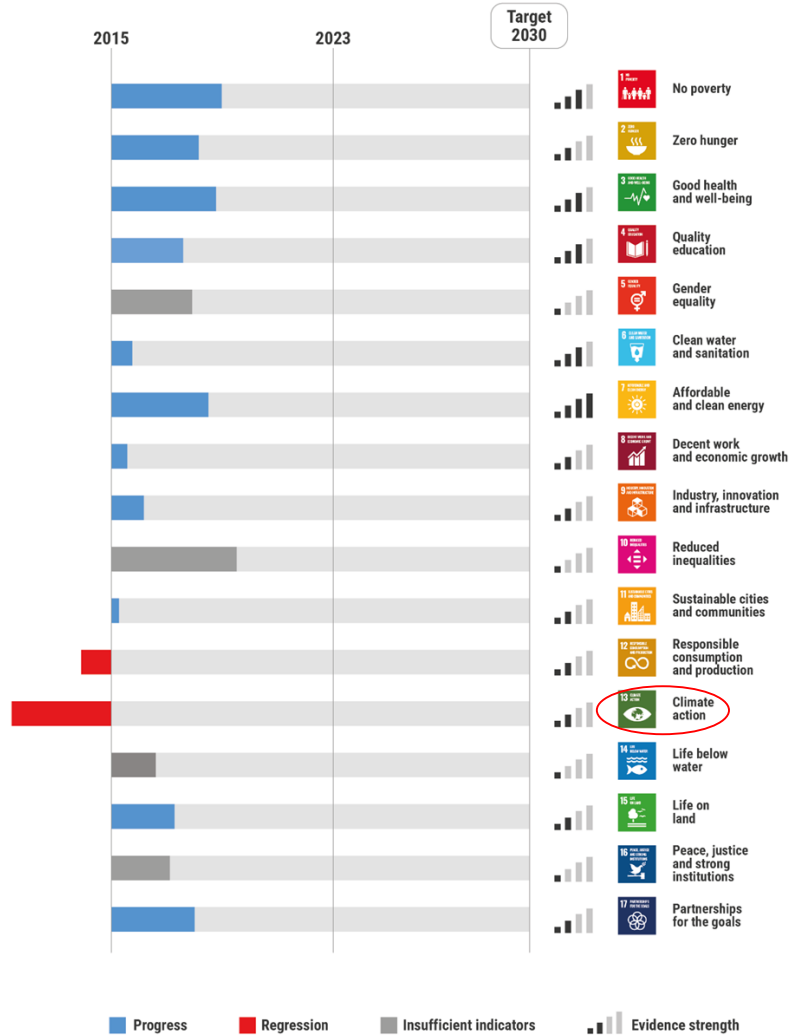
**China and India** suffer the highest absolute losses

**The Pacific SIDS countries** bear the most significant losses as a percentage of their GDP

# Disaster and Climate Risks contribute to regressing SDG 13

## South and South-West Asia

Snapshot of SDG progress in South and South-West Asia, 2023



- **50 %** of population exposed to multi-hazard risks under 2°C warming scenarios.
- SDG targets related to **disaster and climate resilience** are **regressing**

**1 NO POVERTY**

**GOAL 1: NO POVERTY**

- 1.1 International poverty
- 1.2 National poverty
- 1.3 Social protection
- 1.4 Access to basic services
- 1.5 Resilience to disasters
- 1.a Resources for poverty programs
- 1.b Poverty eradication policies

**11 SUSTAINABLE CITIES AND COMMUNITIES**

**GOAL 11: SUSTAINABLE CITIES AND COMMUNITIES**

- 11.2 Public transport systems
- 11.5 Resilience to disasters
- 11.1 Housing and basic services
- 11.3 Sustainable urbanization
- 11.4 Cultural and natural heritage
- 11.7 Urban green and public spaces
- 11.a Urban planning
- 11.c Sustainable and resilient buildings

**13 CLIMATE ACTION**

**GOAL 13: CLIMATE ACTION**

- 13.1 Resilience and adaptive capacity
- 13.2 Climate change policies
- 13.3 Climate change awareness
- 13.a UNFCCC commitments
- 13.b Climate change planning and management

**15 LIFE ON LAND**

**GOAL 15: LIFE ON LAND**

- 15.8 Invasive alien species
- 15.1 Terrestrial and freshwater ecosystems
- 15.2 Sustainable forests management
- 15.4 Conservation of mountain ecosystems
- 15.5 Loss of biodiversity
- 15.3 Desertification and land degradation
- 15.6 Utilization of genetic resource
- 15.7 Protected species trafficking
- 15.9 Biodiversity in national and local planning
- 15.a Resources for biodiversity and ecosystems
- 15.b Resources for forest management
- 15.c Protected species trafficking (global)

MAINTAIN progress to achieve target

ACCELERATE progress to achieve target

REVERSE trend to achieve target

CANNOT be measured

Source: ESCAP

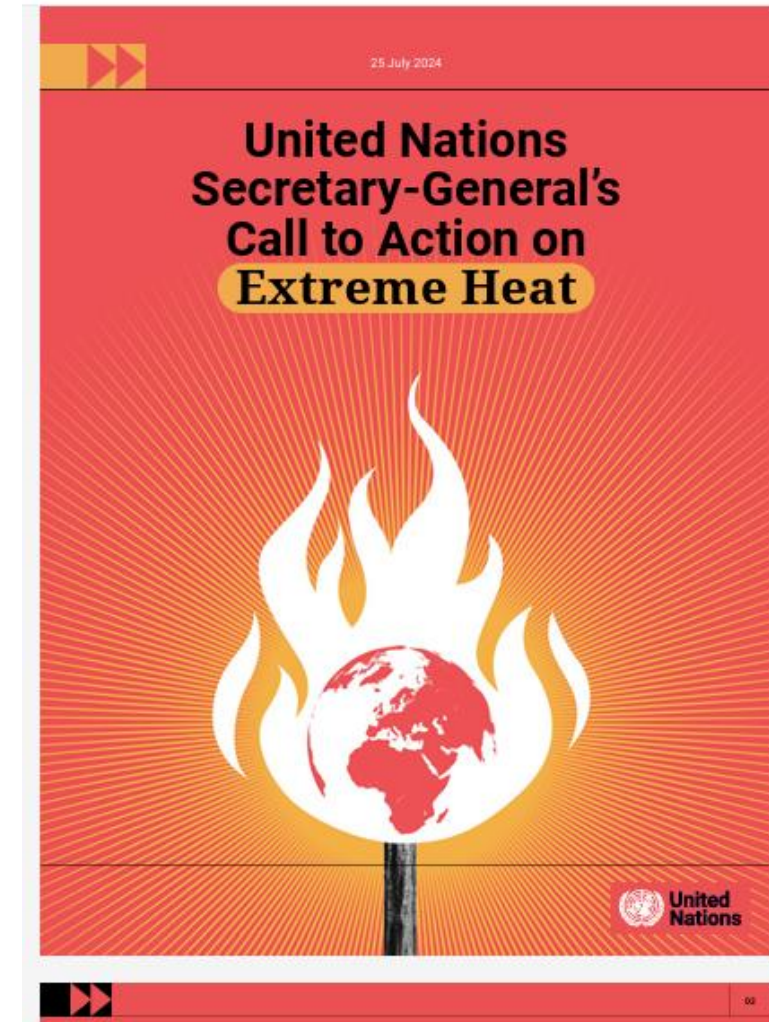
Source: ESCAP

***“Earth is becoming hotter and more dangerous for everyone, everywhere,”***

- Extreme heat is increasingly tearing through economies, widening inequalities, undermining the Sustainable Development Goals and killing people.
- Model estimates that almost **half a million people** are killed a year; that's about **30 times** more than tropical cyclones, with Asia accounting for **45 per cent**.

**The Call to Action on Extreme Heat** - a concerted effort to enhance international cooperation to address extreme heat in four critical areas:

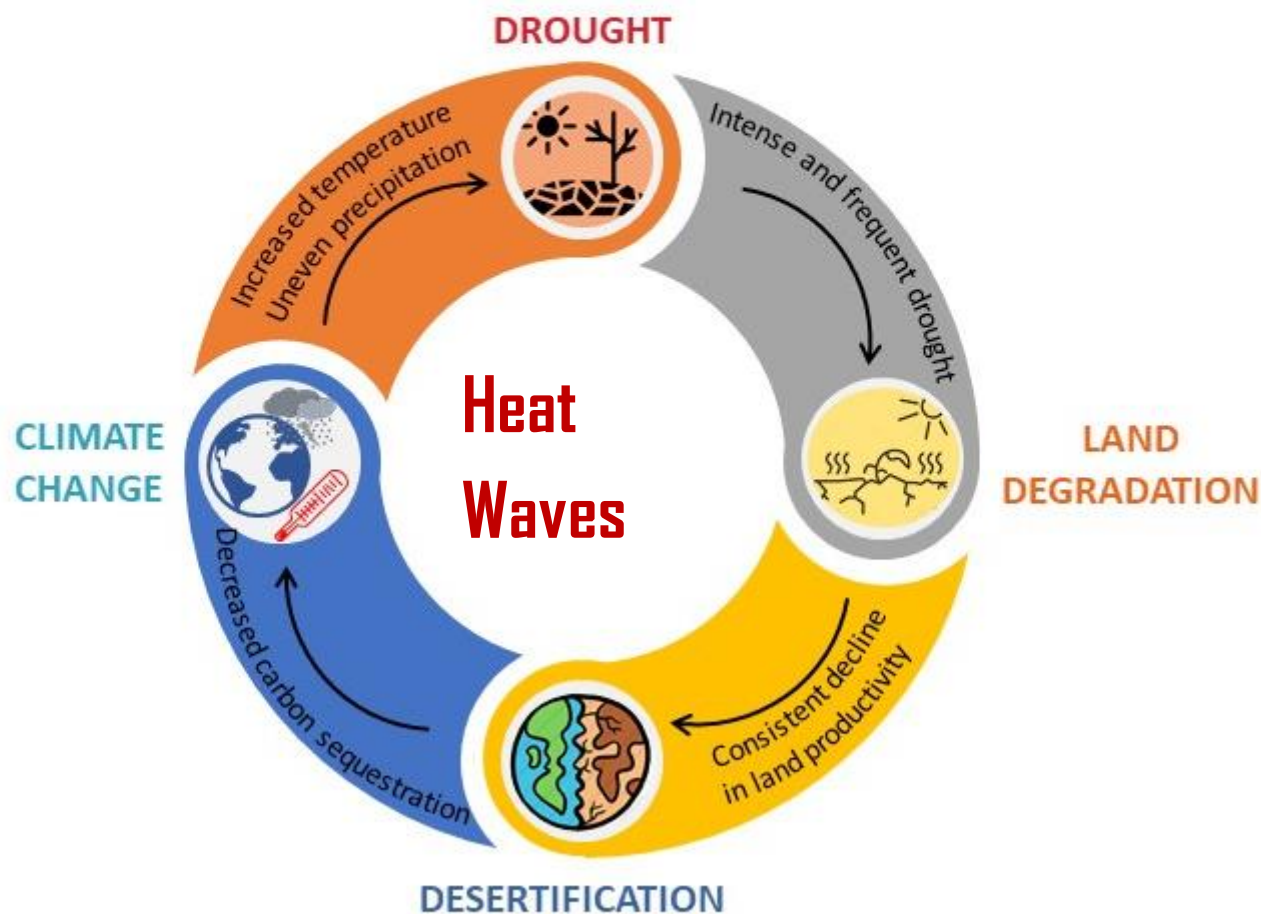
- **Caring for the vulnerable**
- **Protecting workers**
- **Boosting the resilience of economies and societies using data and science**
- **Limiting temperature rise to 1.5°C.**





## Heat waves:

Cascading, compound hazard that creates health and well-being risks



Workers in many low-latitude locations experience heat exposure that makes physical labor unsafe

Labor productivity losses associated with reductions in work rate due to heat exposure can be as high as ~280–311 billion \$US per year,

It is heterogeneous across space, consistently showing GDP impacts beyond 1% in more vulnerable regions.

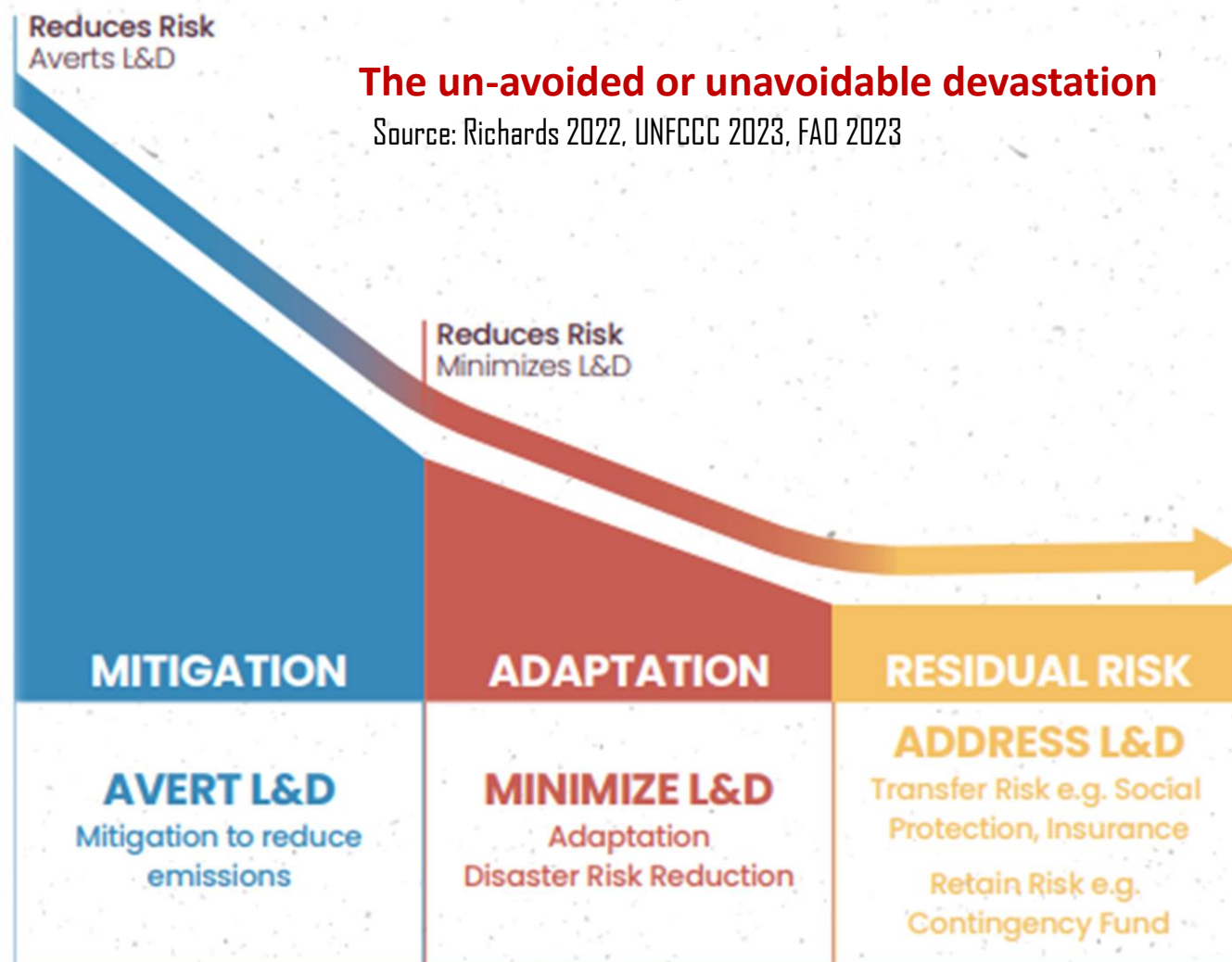
Most of the losses are in low- and middle-income countries associated with heavy manual labor in agriculture and construction

Source:

•Luke A. Parsons et al *Nature Commun* 12, 7286 (2021).

# Disproportionate climate induced 'loss and damage'

- **Avoided loss and damages** refers to impacts that have or could be averted or minimised through climate change mitigation, adaptation and/or DRR measures.
- **Unavoided loss and damages** are those impacts that could not or have not been avoided due to resource and capacity constraints but for which avoidance options do exist.
- **Unavoidable loss and damages** refers to those impacts that go beyond existing adaptation and mitigation measures – for example, the irreversible impacts of glacier melt and sea-level rise that are beginning to materialise as the limits of adaptation are reached.



# What counts as Loss and Damage?

## 1 Loss and damage (L&D)

**Extreme weather events**: cyclones, droughts, heatwaves, floods..

**Slow-onset changes** : sea level rise, desertification, glacial retreat, land degradation, ocean acidification and salinization

## 2 Economic L&D

Those affecting resources, goods and services that are commonly traded in markets, such as damage to critical infrastructure and property or supply chain disruptions.

## 4 Non-economic L&D

The incalculable toll of losing family members, the disappearance of cultures and ways of living, or the trauma of being forced to migrate from ancestral homes.

## 5 IPCC AR 6 (2022)

Likelihood of exceeding adaptation limits- “soft” limits — when adaptation options exist but communities don’t have the financial resources needed — and “hard” limits, where “there are no reasonable prospects for avoiding intolerable risks.”

## 6 Research area

- Understating the limits of climate adaptation, L&D across the communities and ecosystems.
- Climate plans and policies to account for loss and damage alongside mitigation and adaptation.



## Too Little, Too Slow

Climate adaptation failure puts world at risk

Adaptation gap report 2022

*Climate adaptation failure puts world at risk finds that the world must urgently increase efforts to adapt to these impacts of climate change.*



## Underfinanced. Underprepared.

Inadequate investment and planning on climate adaptation leaves world exposed

Adaptation gap report 2023

*Inadequate investment and planning on climate adaptation leaves world exposed finds that progress on climate adaptation is slowing when it should be accelerating to catch up with these rising climate change impacts.*



## Come hell and high water

As fires and floods hit the poor hardest, it is time for the world to step up adaptation actions

Adaptation gap report 2024

*Come hell and high water finds that nations must dramatically increase climate adaptation efforts, starting with a commitment to act on finance.*

# What to do for disaster loss prevention?



## Residual risk

The disaster risk that remains in unmanaged form for which emergency response must be maintained



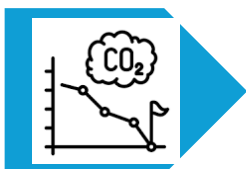
## Loss and damage

When mitigation and adaptation efforts are unsuccessful or impossible to implement



## Adaptation

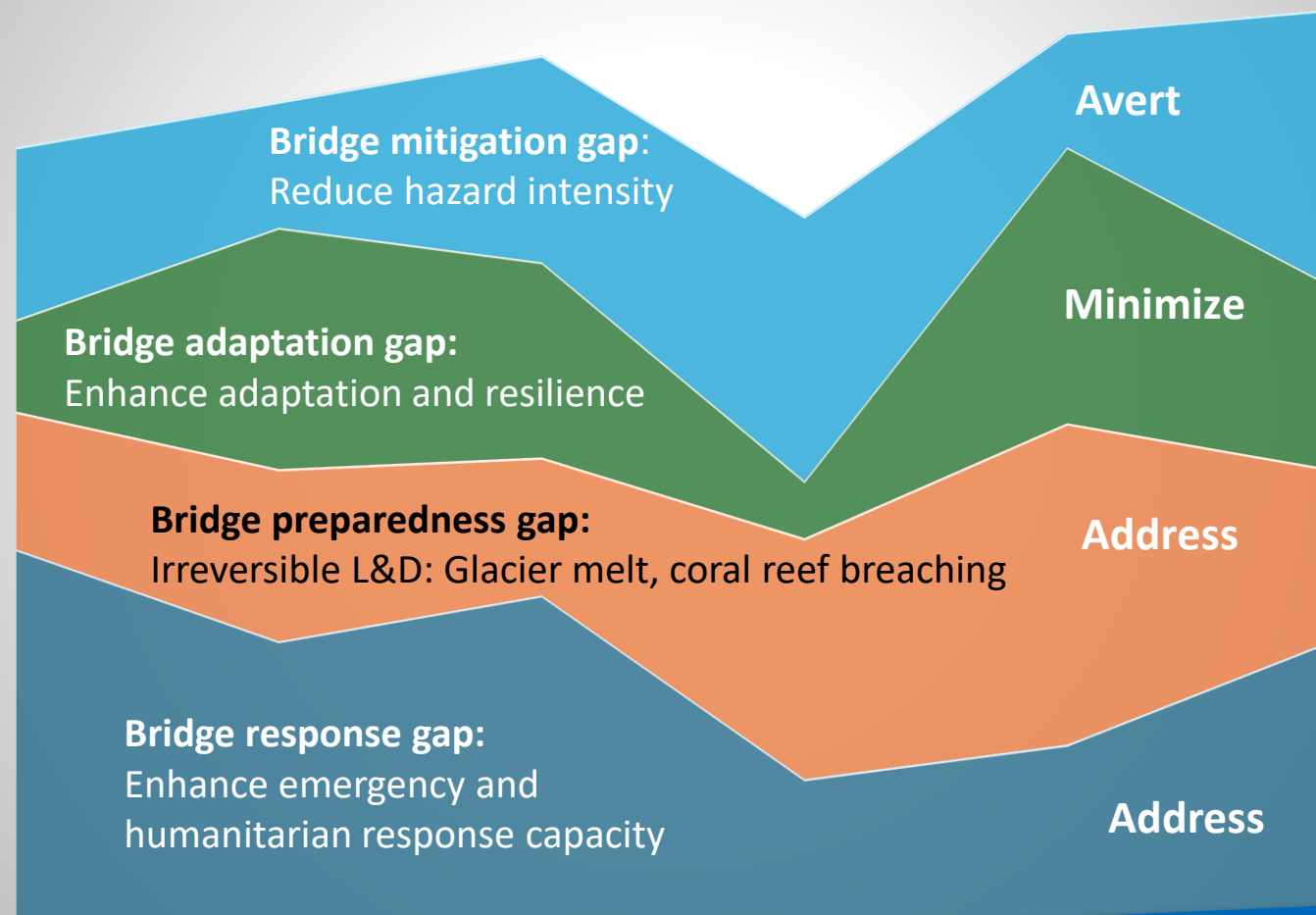
Investing in early warning systems, resilient food-water- energy systems, nature-based solutions..



## Mitigation

“Averted” and “minimized” disaster risk by curbing greenhouse gas emissions

## Policy actions to address gaps in mitigation, adaptation, preparedness and response



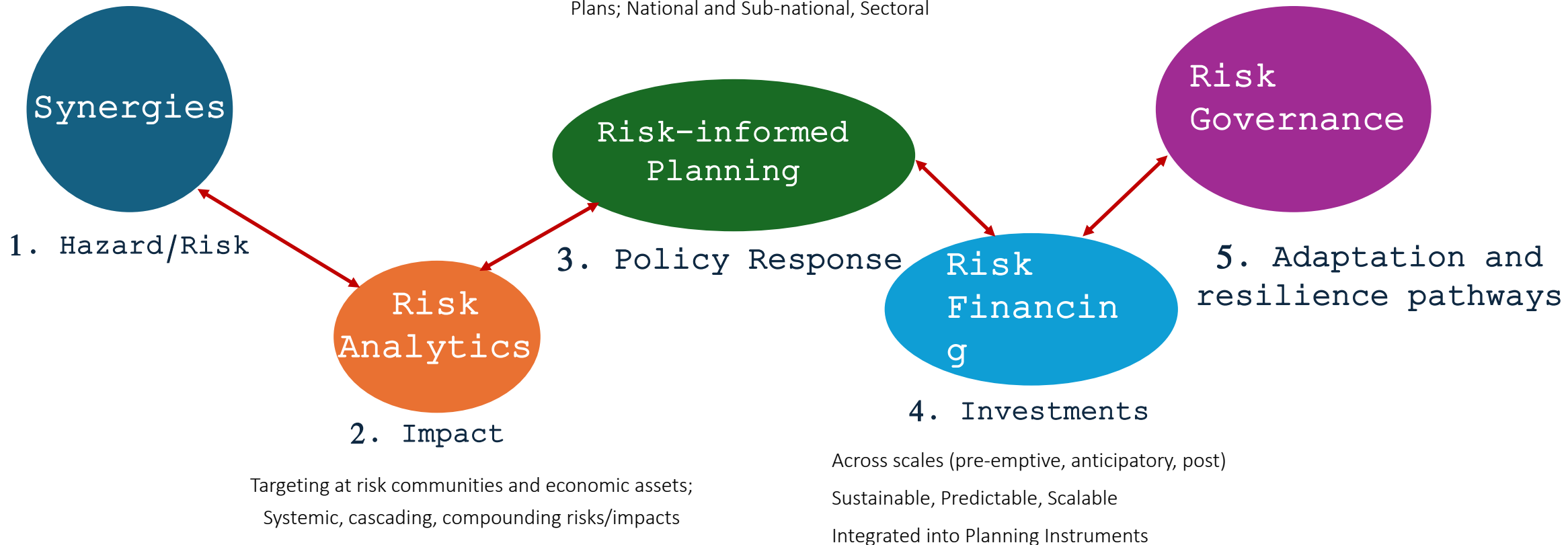


# Pathway for a comprehensive disaster risk management solution

Access to risk information: past and future, scientific projections and trends, weather and climate data, disaster loss database

EWS, DRR Strategies, National Adaptation Plans; Nature-based Solutions, Development Plans; National and Sub-national, Sectoral

Whole of society – all ages, different sectors/specializations – National Disaster Management Organizations



# Islamic Republic of Iran: Opportunities tapping for L&D Fund

## Financing instruments

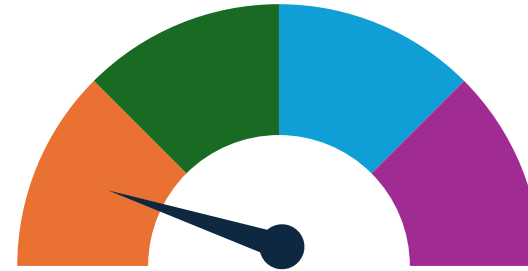
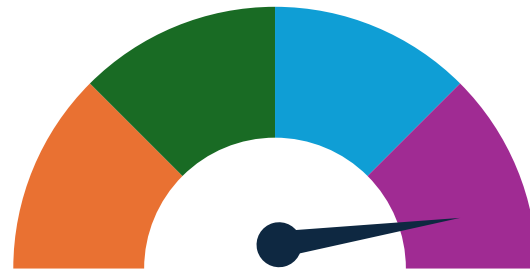
### Adaptation Finance

Preventing and building resilience



### Emergency Finance

Humanitarian response, emergency assistance .



### L&D Finance

For unavoidable and partly losses and damages

*Contributions from Fund for responding to loss and damage*



### Ex Ante and Ex Post Finance


Preparedness, Early Warnings, Response, Recovery and Reconstruction

# Thank you

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