

Showcasing transformative adaptation actions in Asia and the Pacific

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Regional NAP Expo - Songdo Korea, 28 August 2023



***"Death Better Than This"*: Himachal Landslide Victims After Rain Devastation**

• [India News](#) | [Press Trust of India](#) | Updated: August 25, 2023 5:17 pm IST



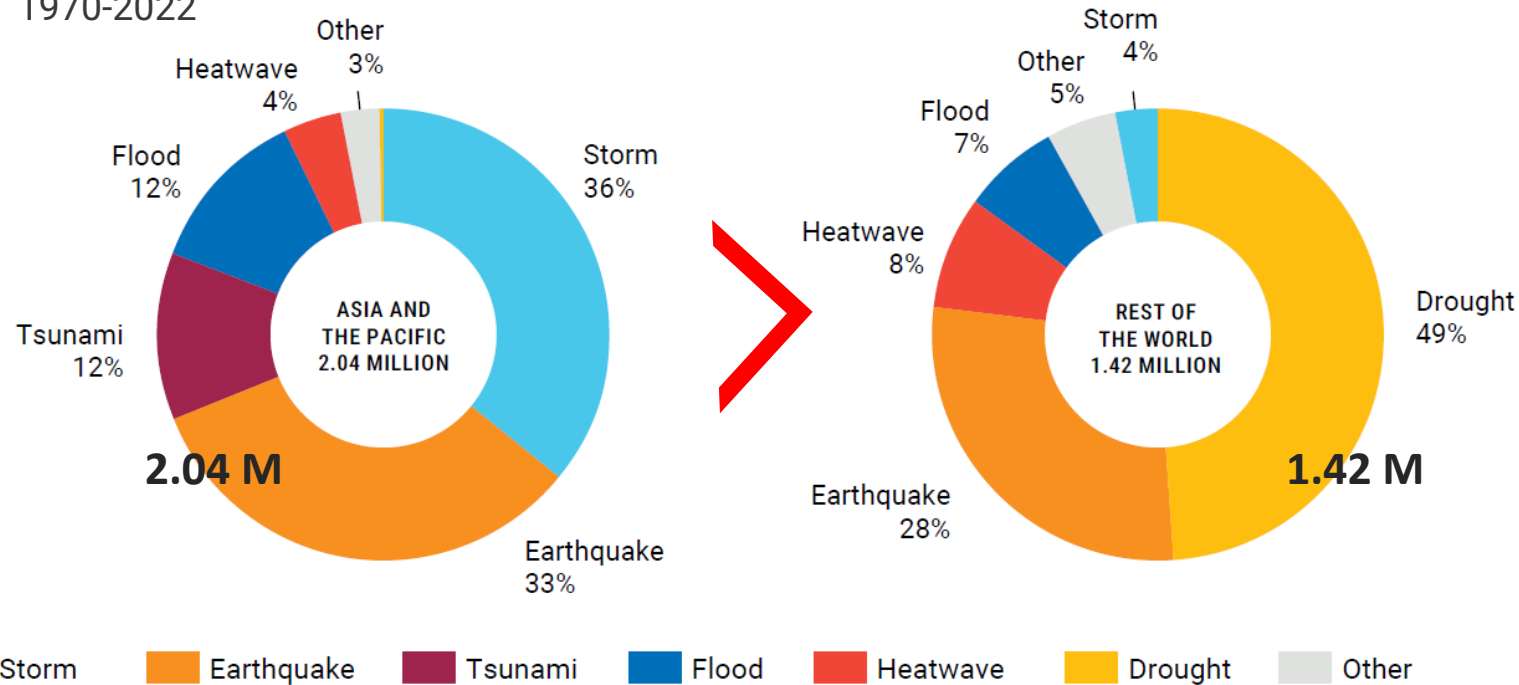
Seizing the Moment Targeting Transformative Disaster Risk Resilience

*Sanjay Srivastava, Chief of disaster risk reduction
UN Economic and Social Commission for Asia and the Pacific
(UNESCAP)*



Asia and the Pacific remains the **most disaster-prone** region since 1970.

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



In 2022..



140 disaster cases



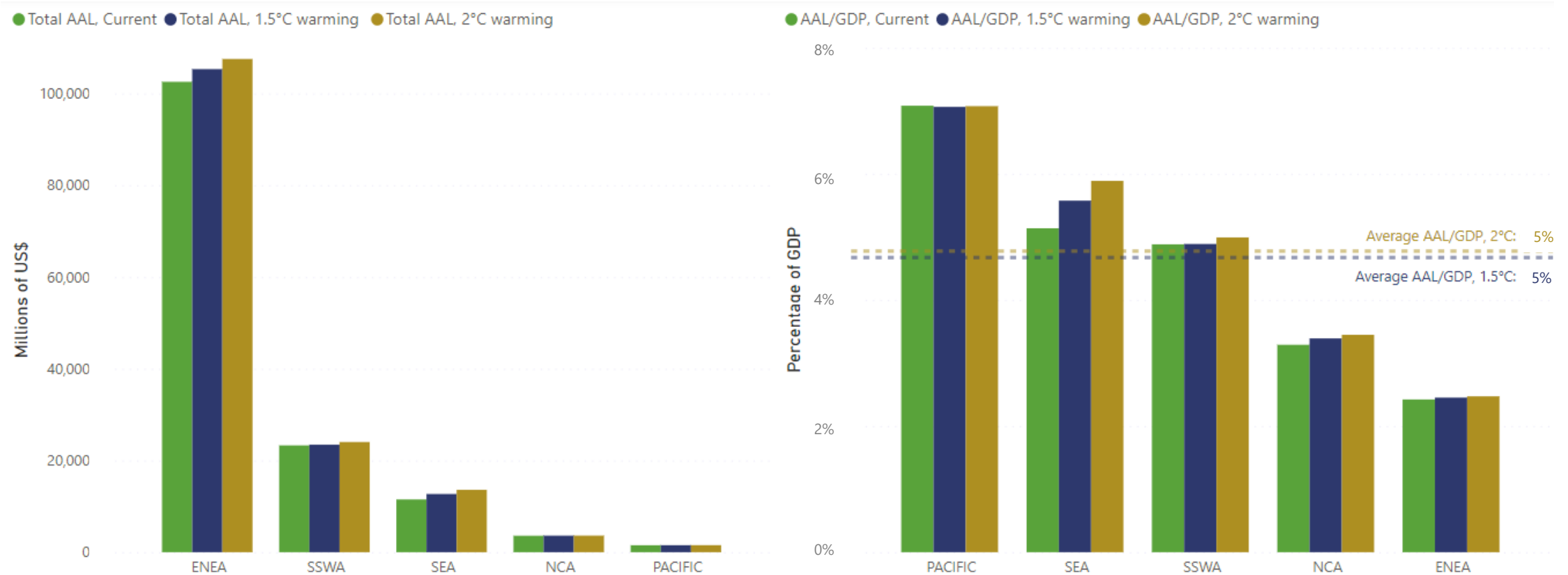
7,500 deaths and 64 million affected



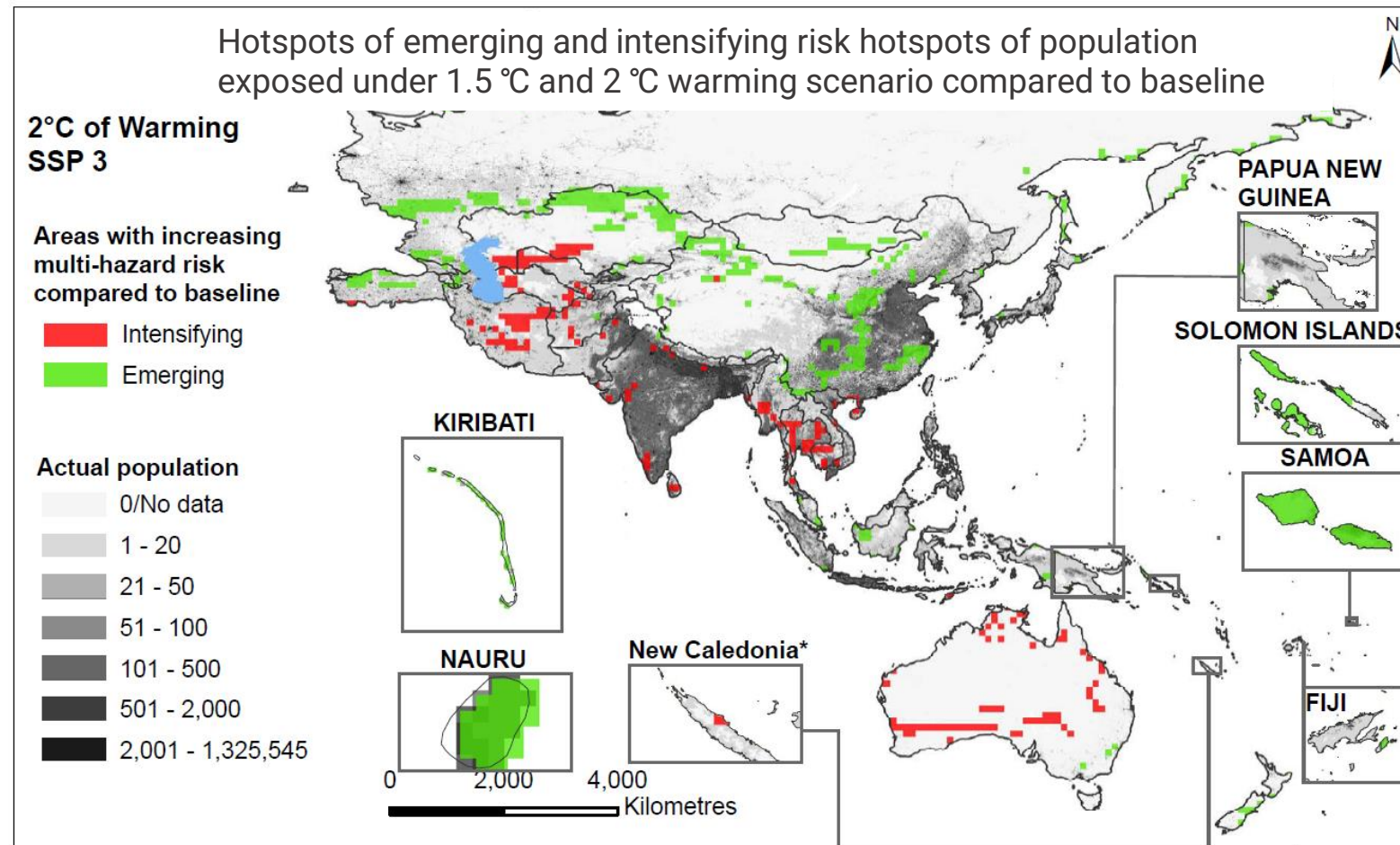
57 billion USD economic damage

Absolute Average Annual Loss (AAL) will increase up to a trillion of US\$, or 3% of regional GDP under 2 °C warming

Absolute Average Annual Loss (AAL) vs. AAL as a percentage of GDP under current scenario, 1.5 °C and 2 °C warming scenario

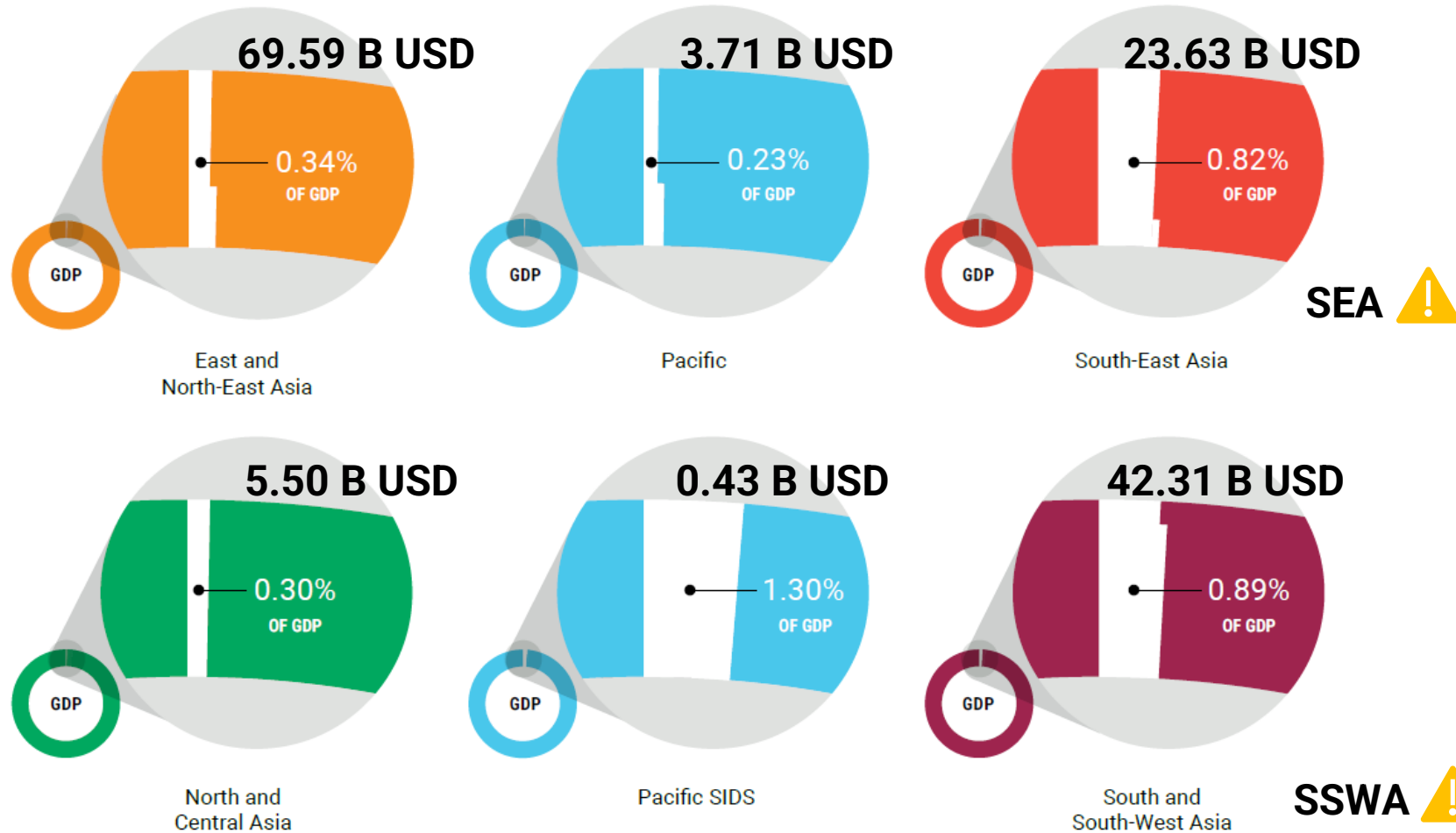


Riskcape in Asia and the Pacific is **intensifying** and **shifting**. Climate-induced disaster risk is outpacing the region's resilience.



How much will transformative adaption cost?

Adaptation cost is 0.49% of regional GDP under 2 °C warming scenario



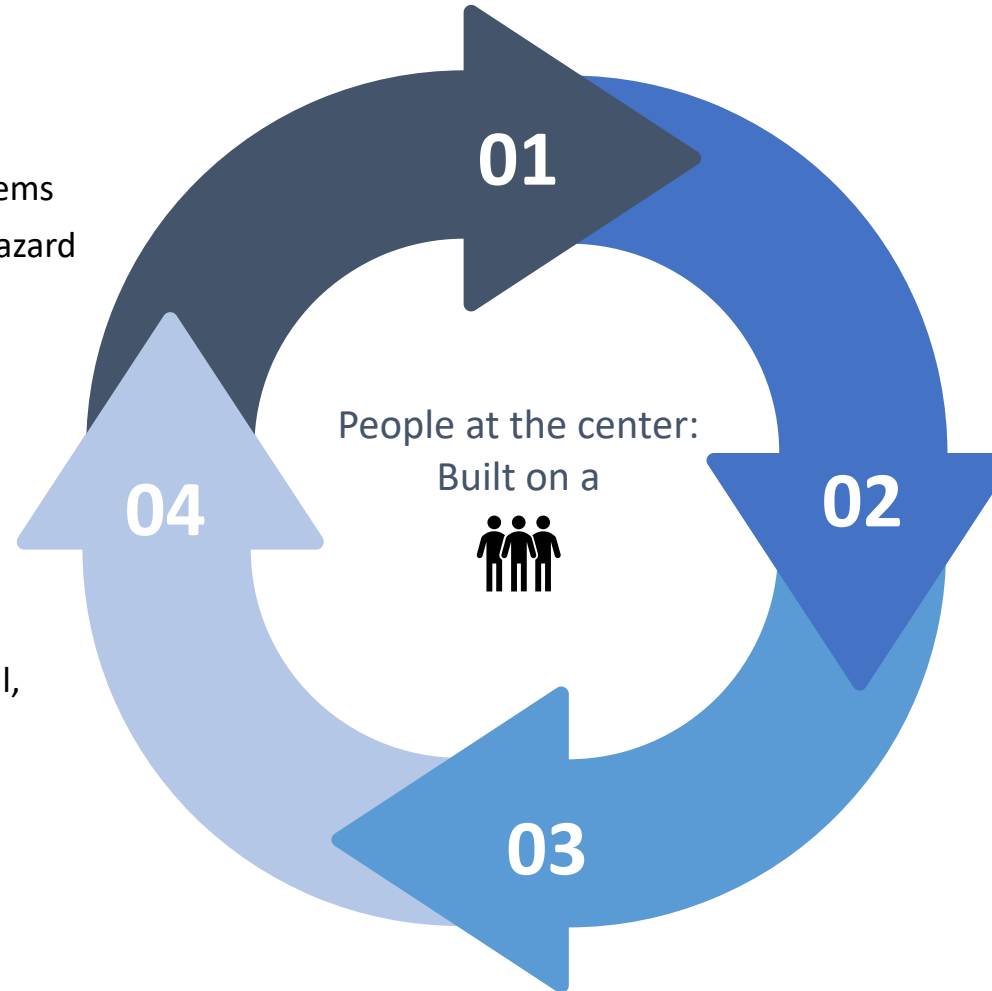
A framework of four transformative actions

Human necessities: Protect People

- People-centered early warning systems
- Focus on most vulnerable, multi-hazard risk hotspots

Environmental necessities: Nature-based solutions

- Eco-disaster risk reduction in coastal, arid/semi-arid and dryland, mountainous regions
- Grey and green infrastructure for reducing loss and damage
- Resilience-building



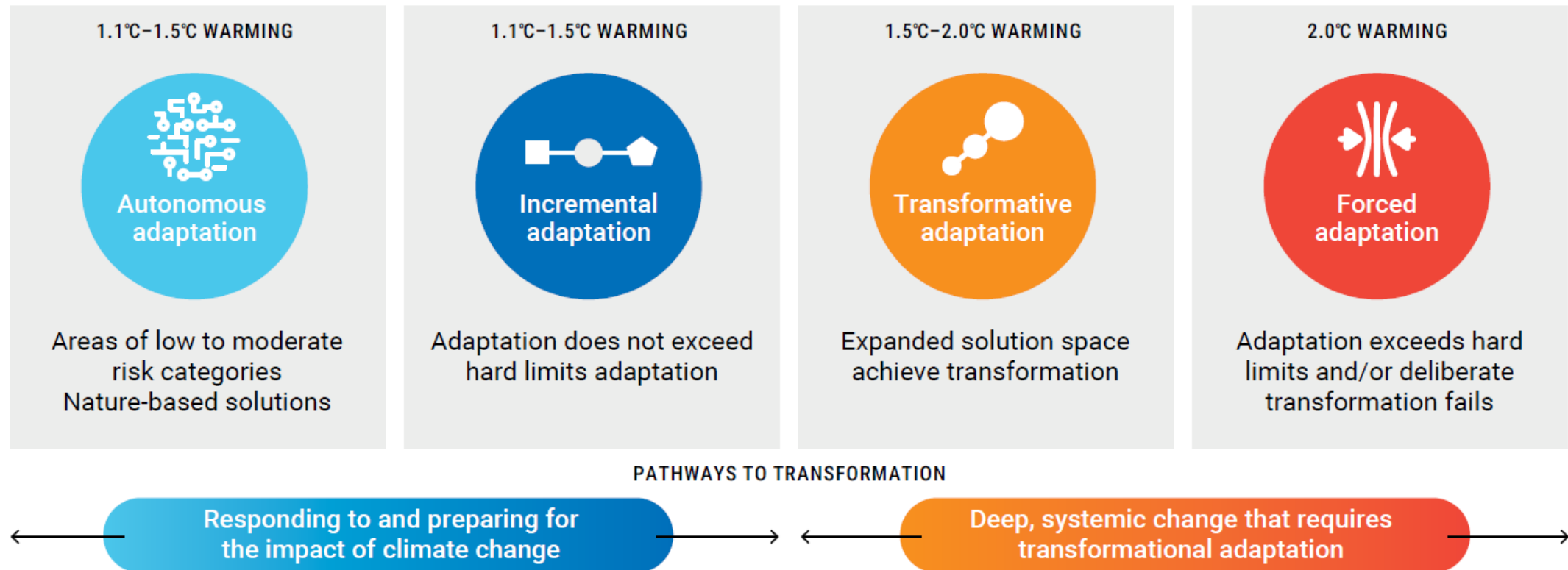
Economic necessities 1: Fit-for-purpose early warning systems

- Economic returns of early warning around one to ten

Economic necessities 2: Early warning systems for food and energy systems

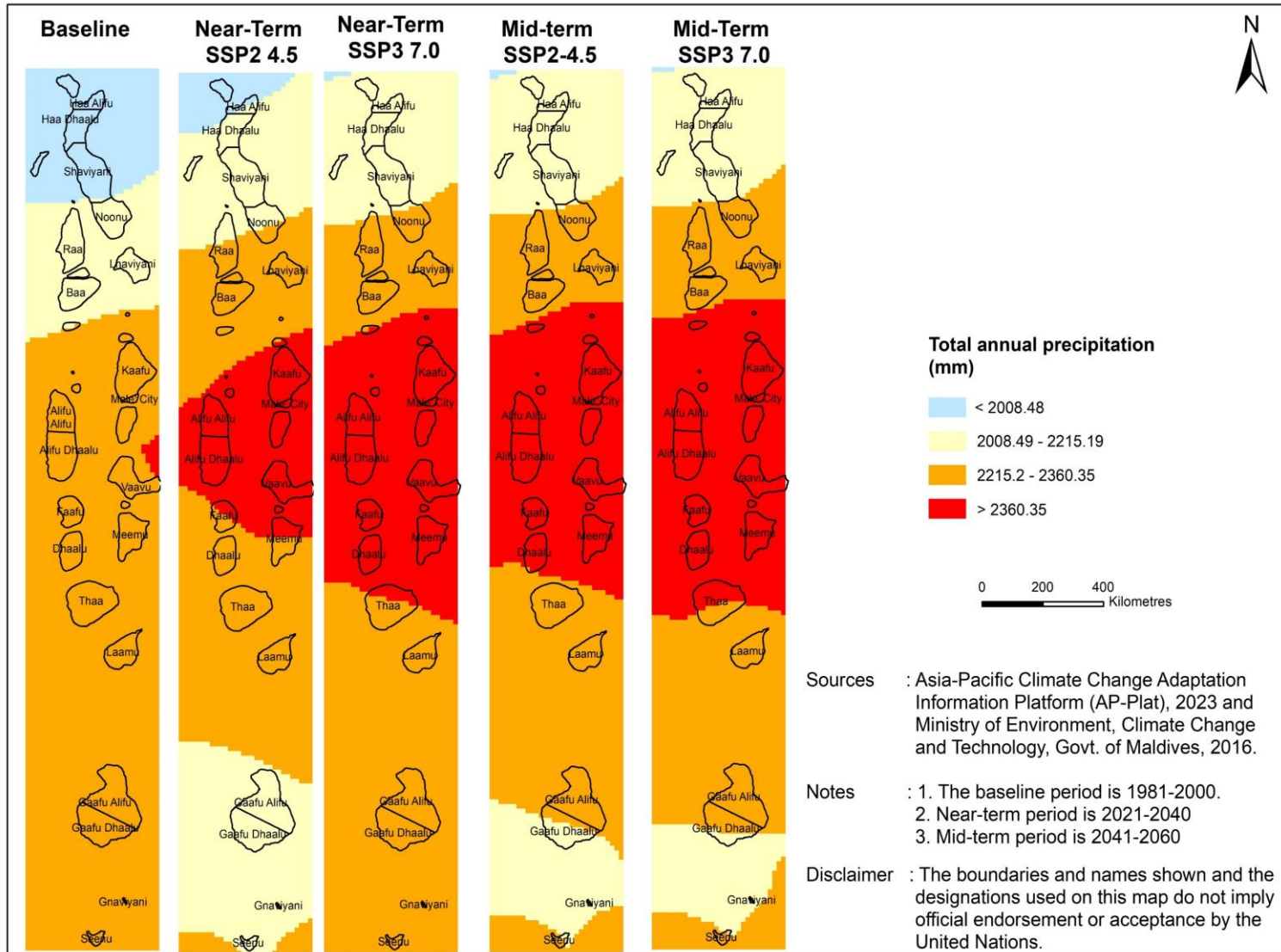
- Early warning and early actions for managing risk in food and energy systems

Adaptation in a warming world

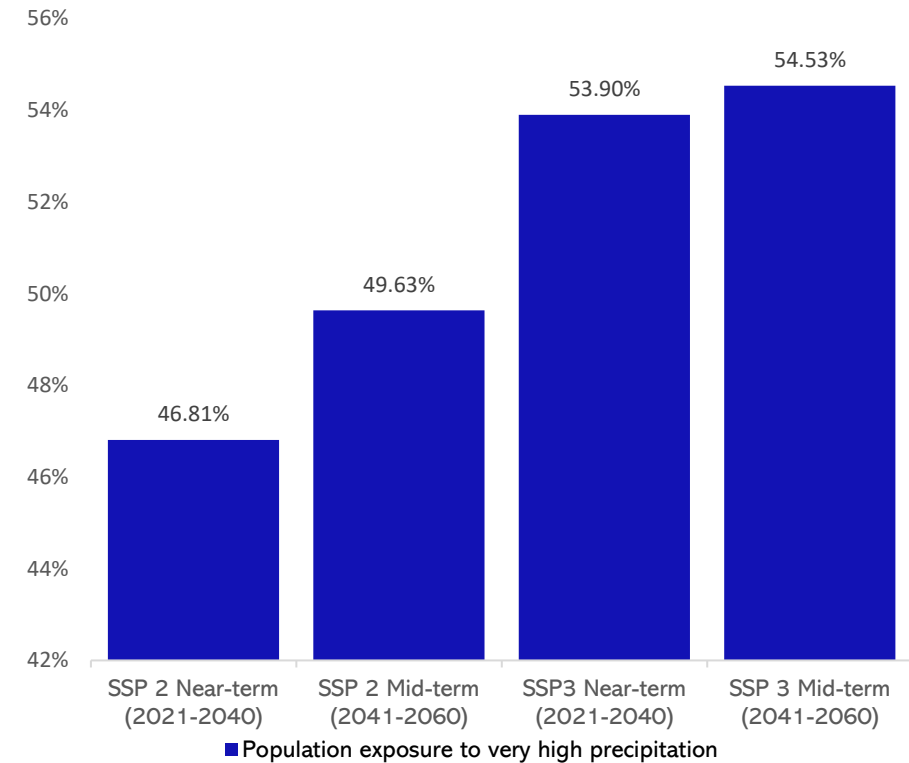


Why act now? Before it's too late

Maldives climate risk scenarios



Population exposure to high precipitation

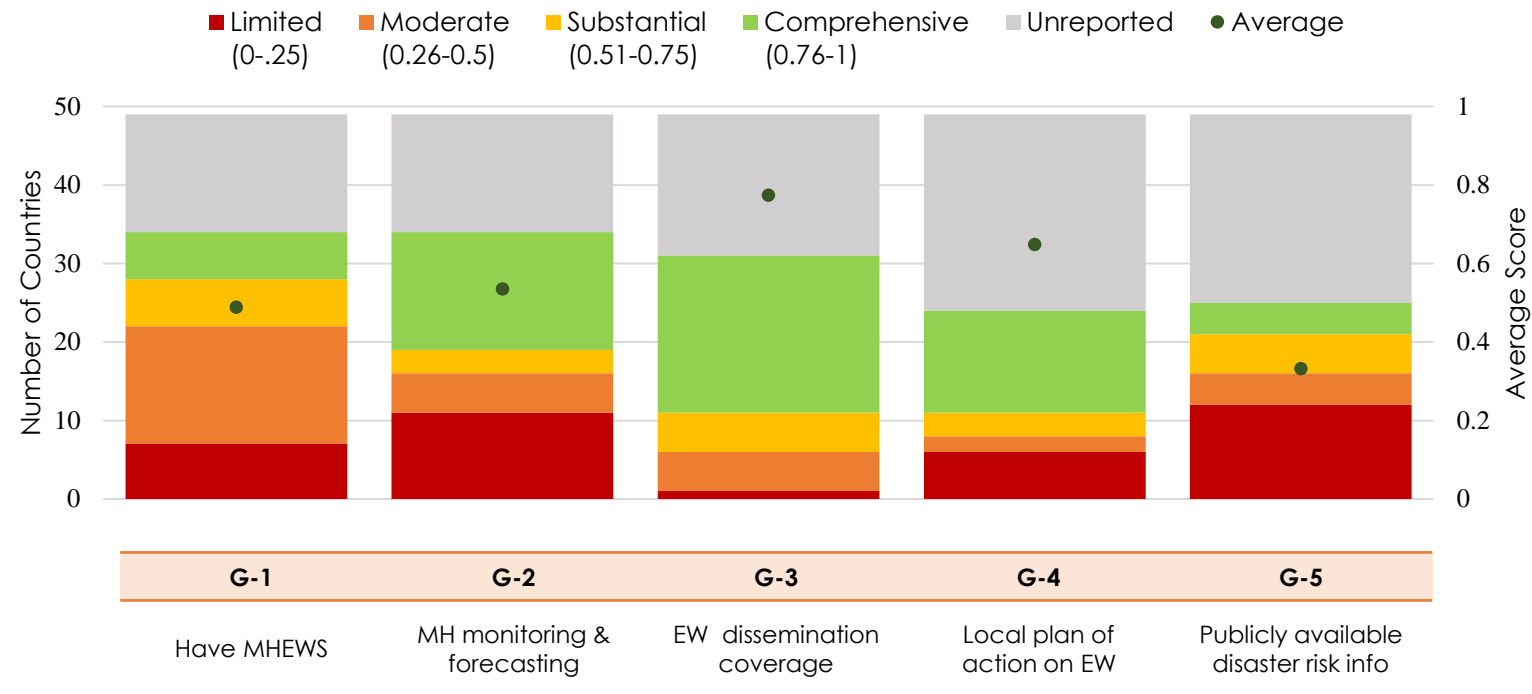


A key transformative adaptation action

Closing early warning, early action capacity gaps in high risk, LDCs, SIDS for ensure **'a just transition in adaptation'**

Multi-hazard early warning capacity

Sendai Framework Target G - Asia and the Pacific

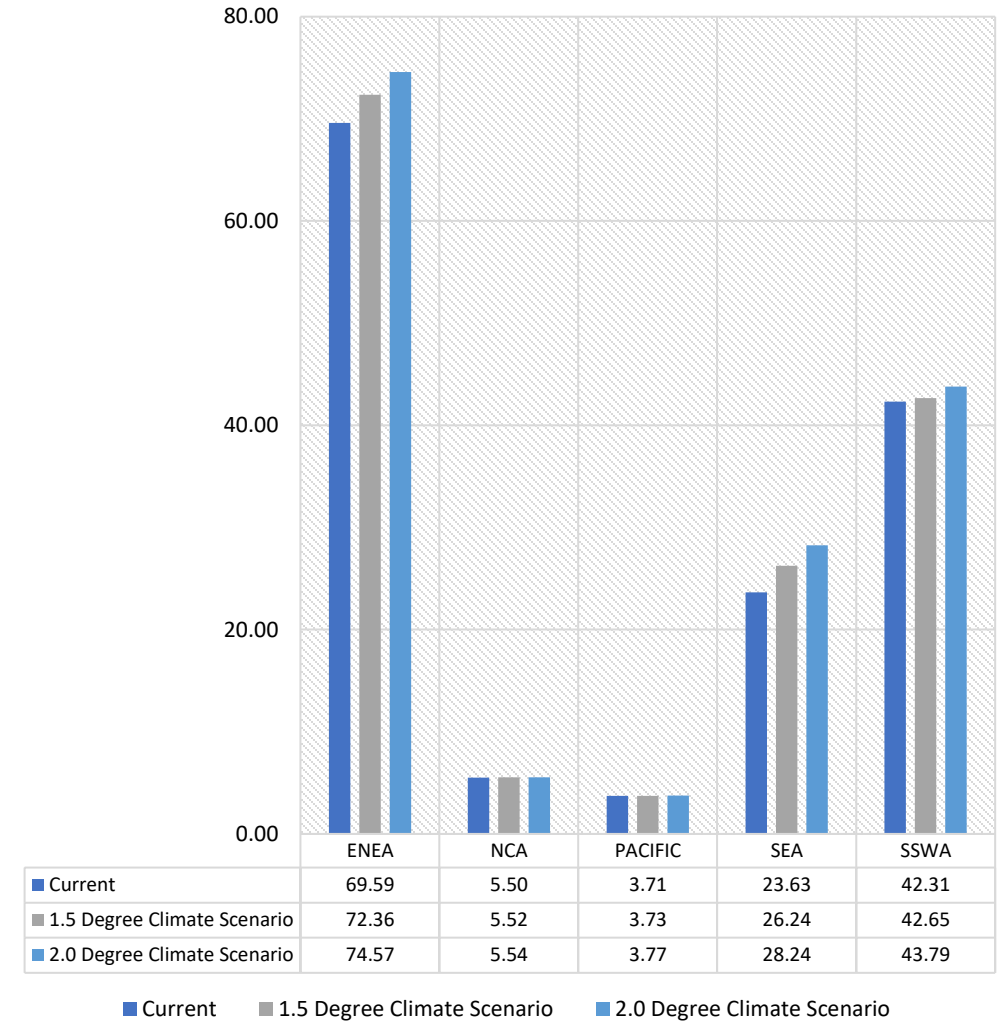
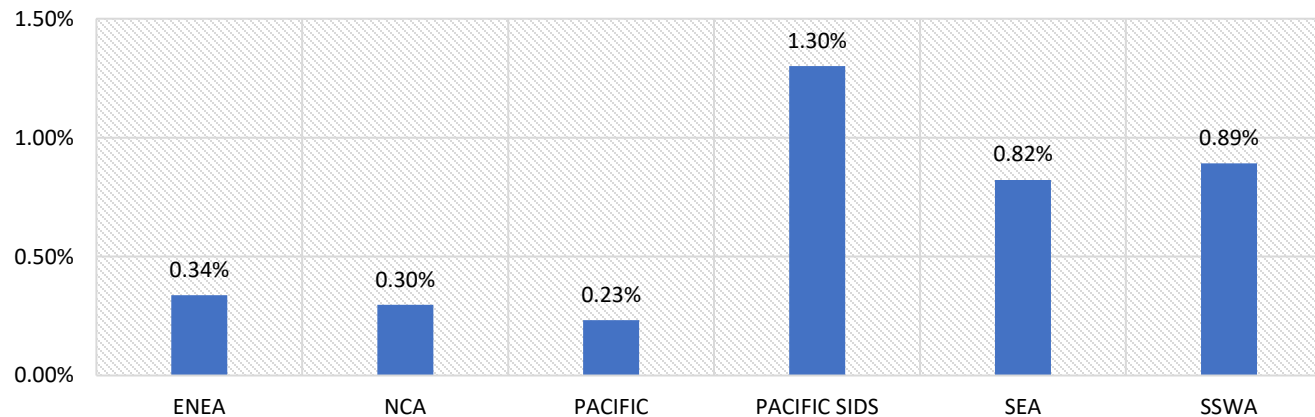


- Access # 25% countries to multi-hazard early warning systems; 20 to 'actionable' risk information
- A comprehensive risk management approach to ensure resilient food and energy systems
- A **'think resilience'** approach by practitioners across the **whole infrastructure lifecycle**.

How much transformative adaptation costs? Raising Financing Ambitions

- Asia-Pacific has less than 10% adaptation cost needed and access to **affordable** and **adequate** finance is critical.
- The **private sector** is also an **indispensable player** in adaptation financing.
- Building **capacities**, promoting **regional cooperation** and **knowledge exchange**, adaptation.

Adaptation Costs as % of GDP

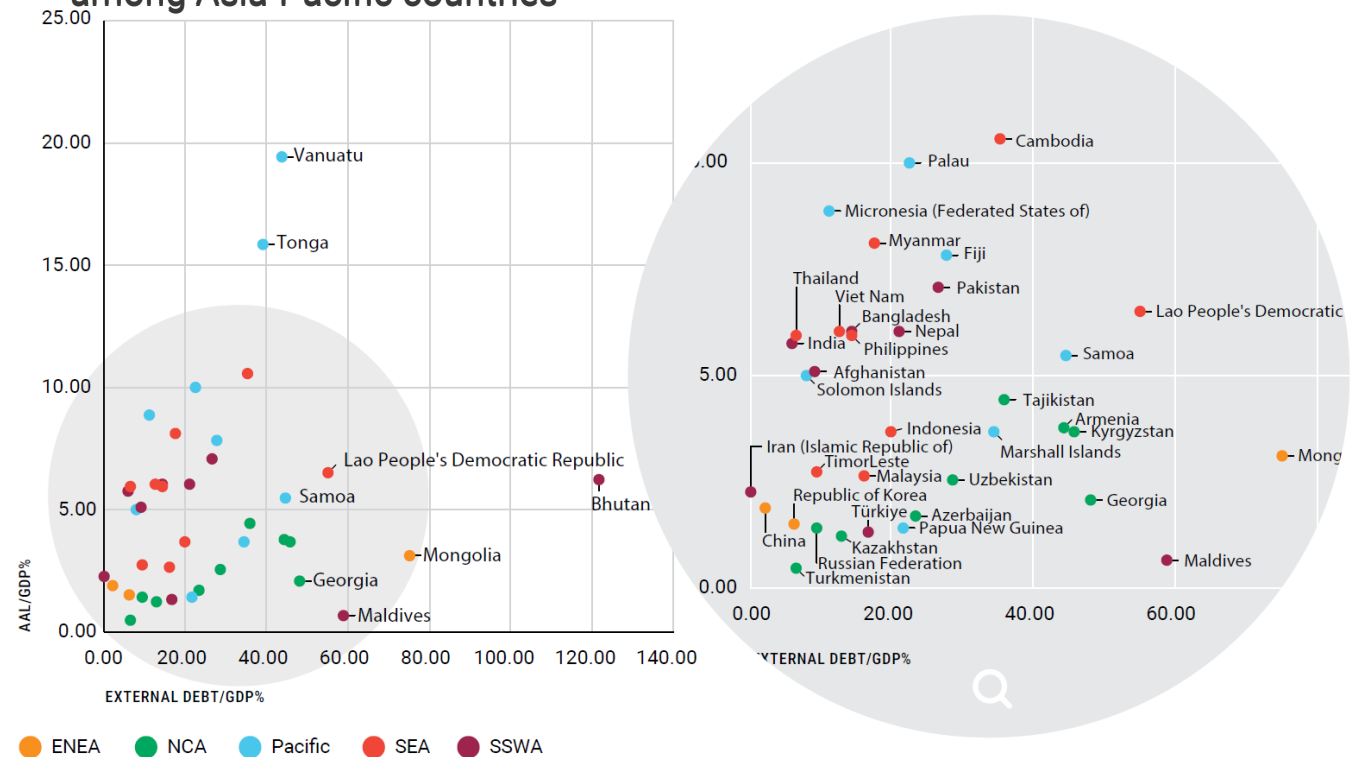


Innovative financing mechanisms

- 1 **Debt for resilience**
Augmented debt sustainability approach
- 2 **Payment for ecosystem services**
- 3 **Biodiversity credits**
- 4 **Restoration Insurance Service Company (RISCO)**

Current level of financing does not cover **91%** of the adaptation cost of the region and **97%** for the Pacific

Multi-hazard losses (AAL/GDP%) vs. External debt status (external debt/GDP%) among Asia-Pacific countries



Estimation of L&D for rapid onset disasters needs to incorporate climate factors

Spectrum of actions in responding to climate impacts for rapid-onset disasters

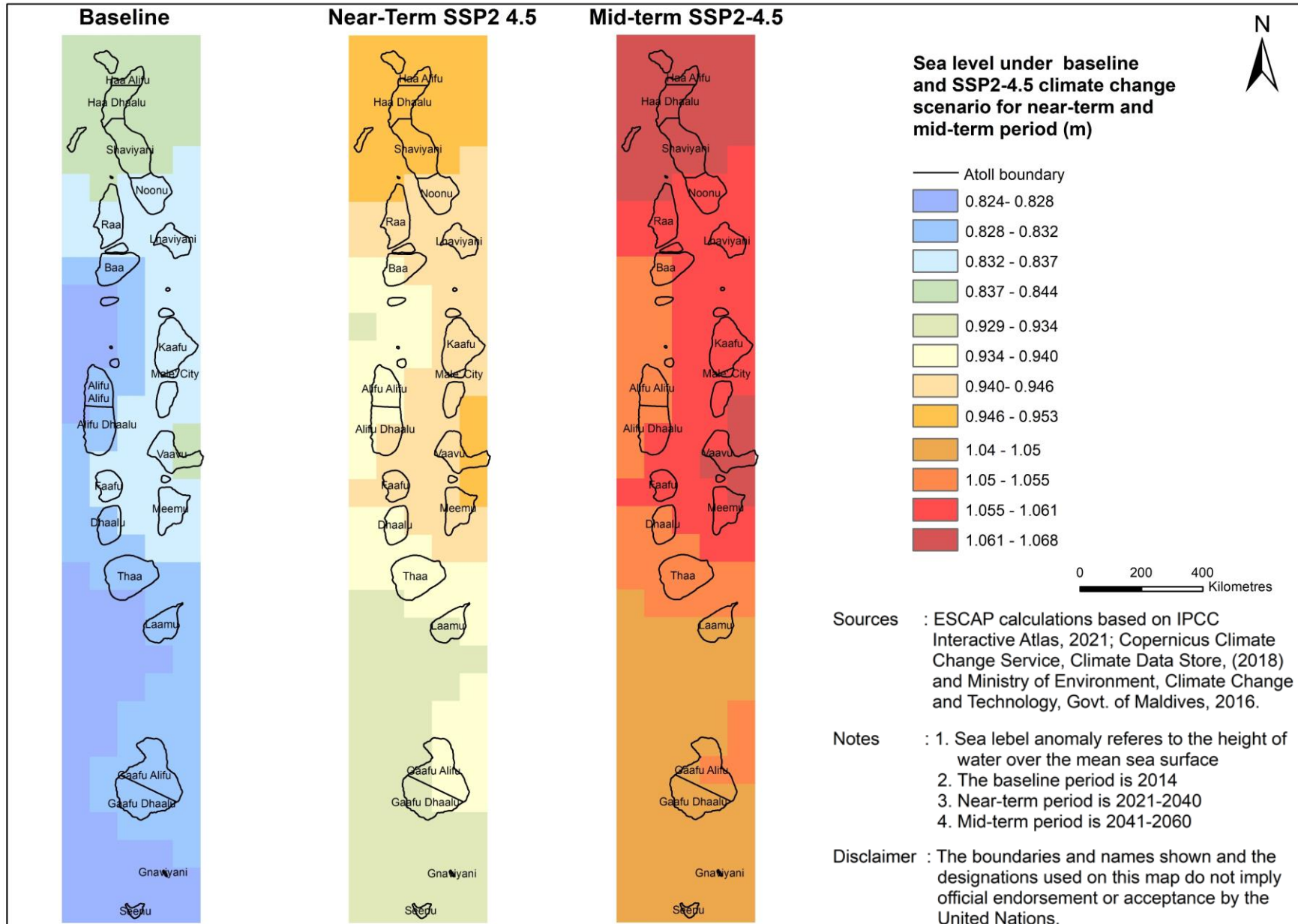


Advance quantification of slow onset disasters continues to be challenging

Spectrum of actions in responding to climate impacts for slow-onset disasters



Sea Level Rise (Maldives): Permanent loss



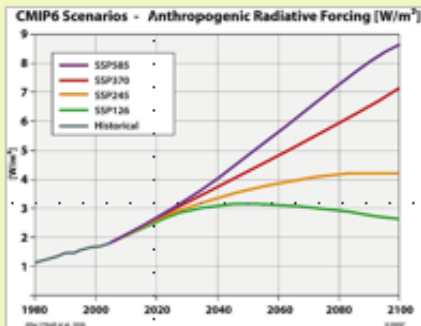
Baseline Data and Elements at Risk

What are spatial and non-spatial data required & what are the Elements of Risk?

- Historical Climate Data
- Hazard Data (Floods, Cyclones, etc.)
- Terrain and DEM
- River Systems
- Land Cover/Land Use
- Administrative Boundaries
- Road Network
- Population and Human Systems
- Elements at Risk Power System Assets (generation, transmission, distribution including stations/sub-stations and other assets)

Future Climate Change Projection Development

Current climate and future projections for SSP scenarios (CMIP6) for 2030-2100 period

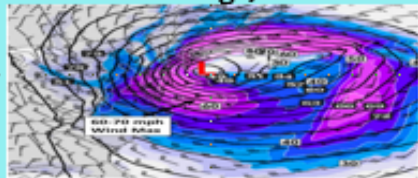


Hazard Assessment

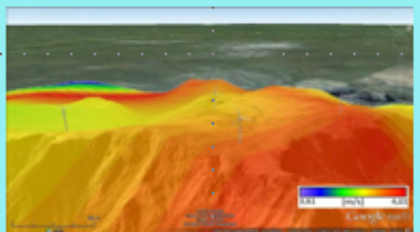
For which hazards expose to ?



Floods (Fluvial and pluvial flood risk including considerations of glacier melt, sea level rise, storm surge)



Strong Winds (Including representations of cyclone/storm intensities)

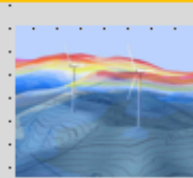


Extreme Temperature (Considering amplitude, duration and time)

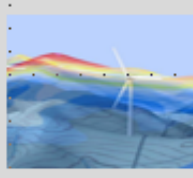
Hazard maps at different projected climate scenarios (to be climate inclusive)

Exposure Assessment

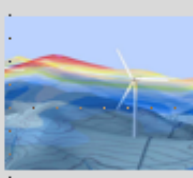
What elements are exposed to hazards?



Assessment of elements of the power system assets exposed to **Floods**



Assessment of elements of the power system assets exposed to **Strong Winds**



Assessment of elements of the power system assets exposed to **Extreme Temperature**

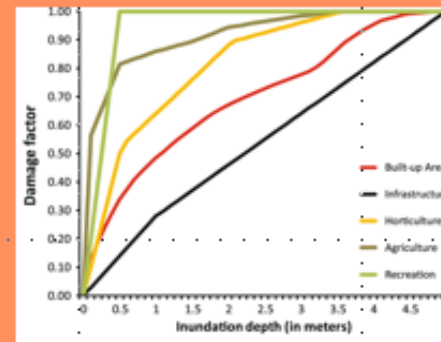
Assessment including cascading effects for e.g. cyclone – strong winds, extreme rainfall and coastal floods

Identification of assets with highest exposure, zones & districts, asset types/ownership

Vulnerability Assessment

What will be the probability of damage/loss (physical vulnerability) and the vulnerability of the Power Sector?

Development of hazard intensity and damage relationship based on expert knowledge or derivation from existing damage/fragility curves for various physical elements



Identification of sensitivity and adaptive capacity of the power system assets including sensitivity and adaptive capacity of Power Sector institutional capacities, redundancy, investments, existing policies

Risk Assessment

Risk = f (Hazard, Exposure, Vulnerability)

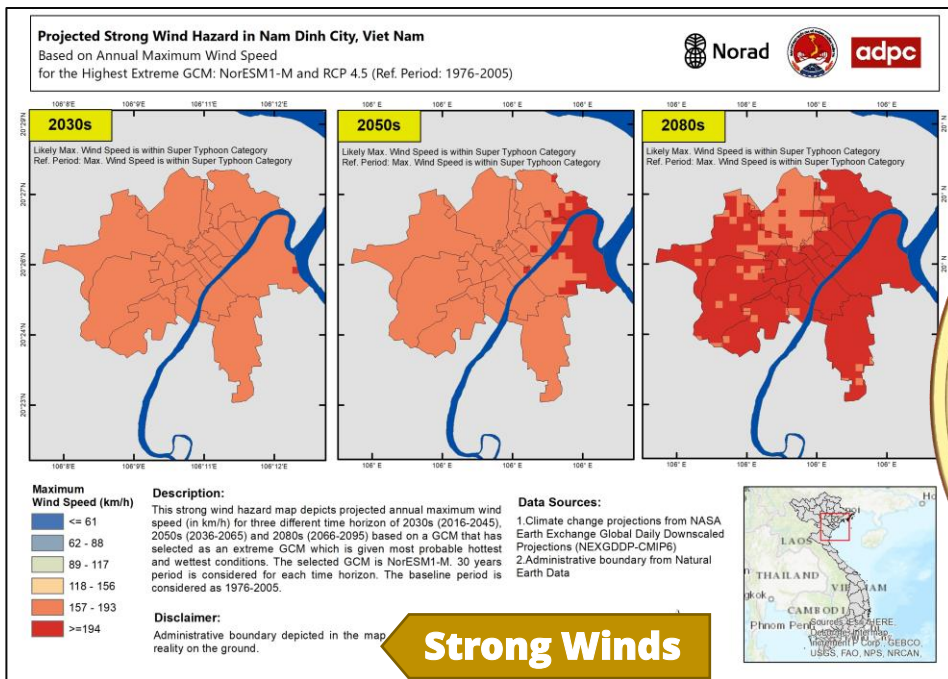
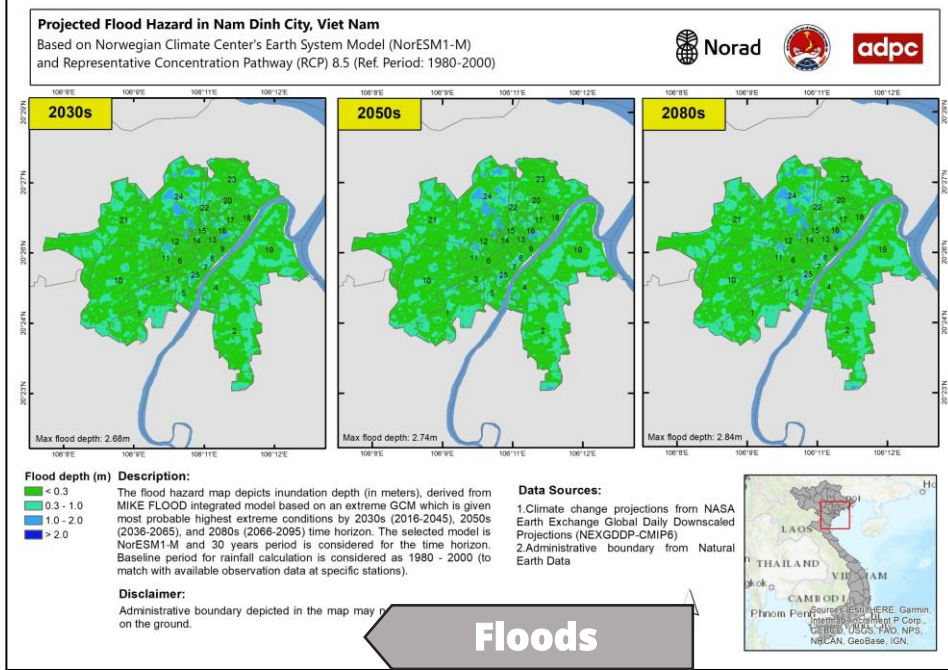
Risk profiles for near and far future for assessing potential risks to generation, distribution and transmission assets and the Power Sector),

Identification of feasible options to avert, minimize and address potential losses and damages

Support to:



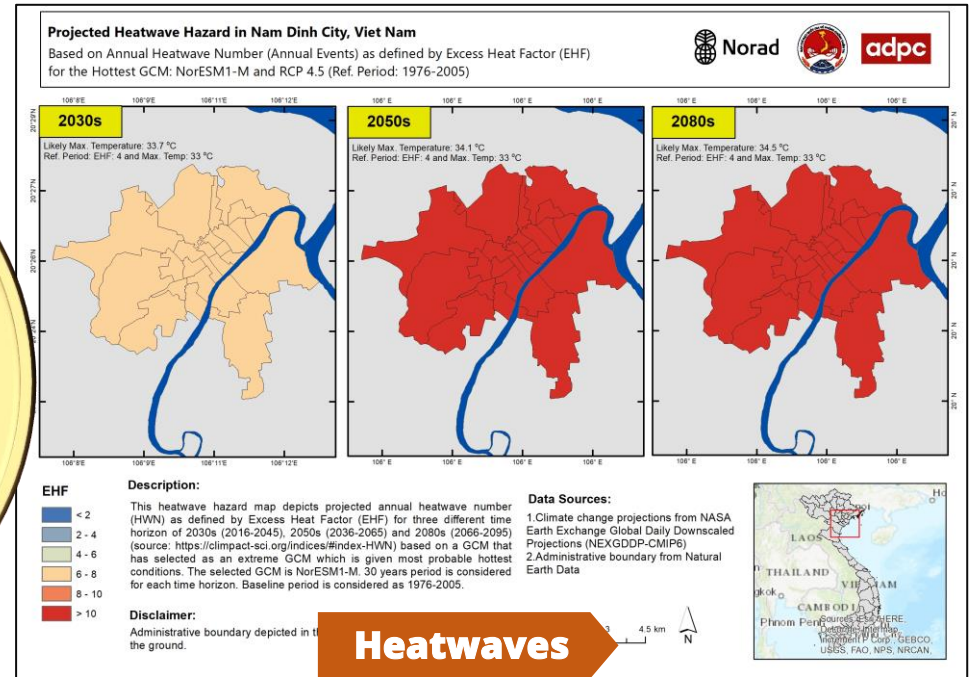
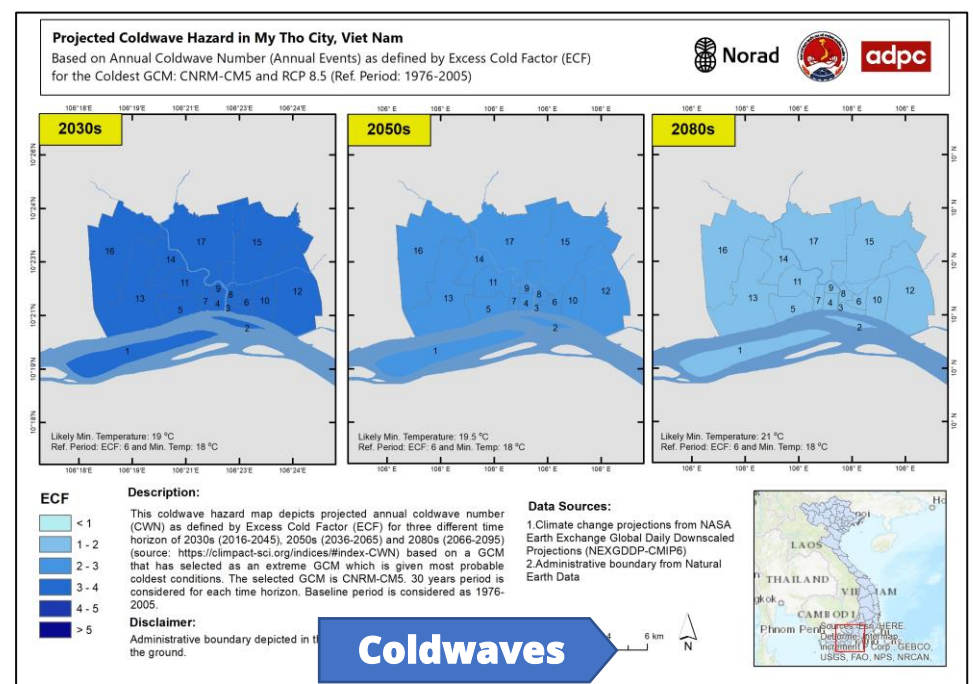
Power sector agencies with resources to facilitate assets and systems-level resilience planning to cope up with future climate extremes



Use of Climate information for improving urban resilience

Vietnam

Climate Inclusive Hazard Assessments



- Strengthen **early warning systems for all** to reduce losses and leave no one @ risk behind.
- A **regional strategy** for addressing transboundary DRR issues and interoperability of country systems
- Invest in **nature-based solutions** for long-term, cost-effective protection of people and the environment.
- **Build resilient infrastructure** - Think resilience: data-driven, technology-enabled and systems based
- Raise **financing ambitions**: use augmented debt sustainability approach together with a growing array of blended finance options can speed up race to resilience.



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