Technologies for Disaster Risk Reduction: ESCAP Risk & Resilience Portal

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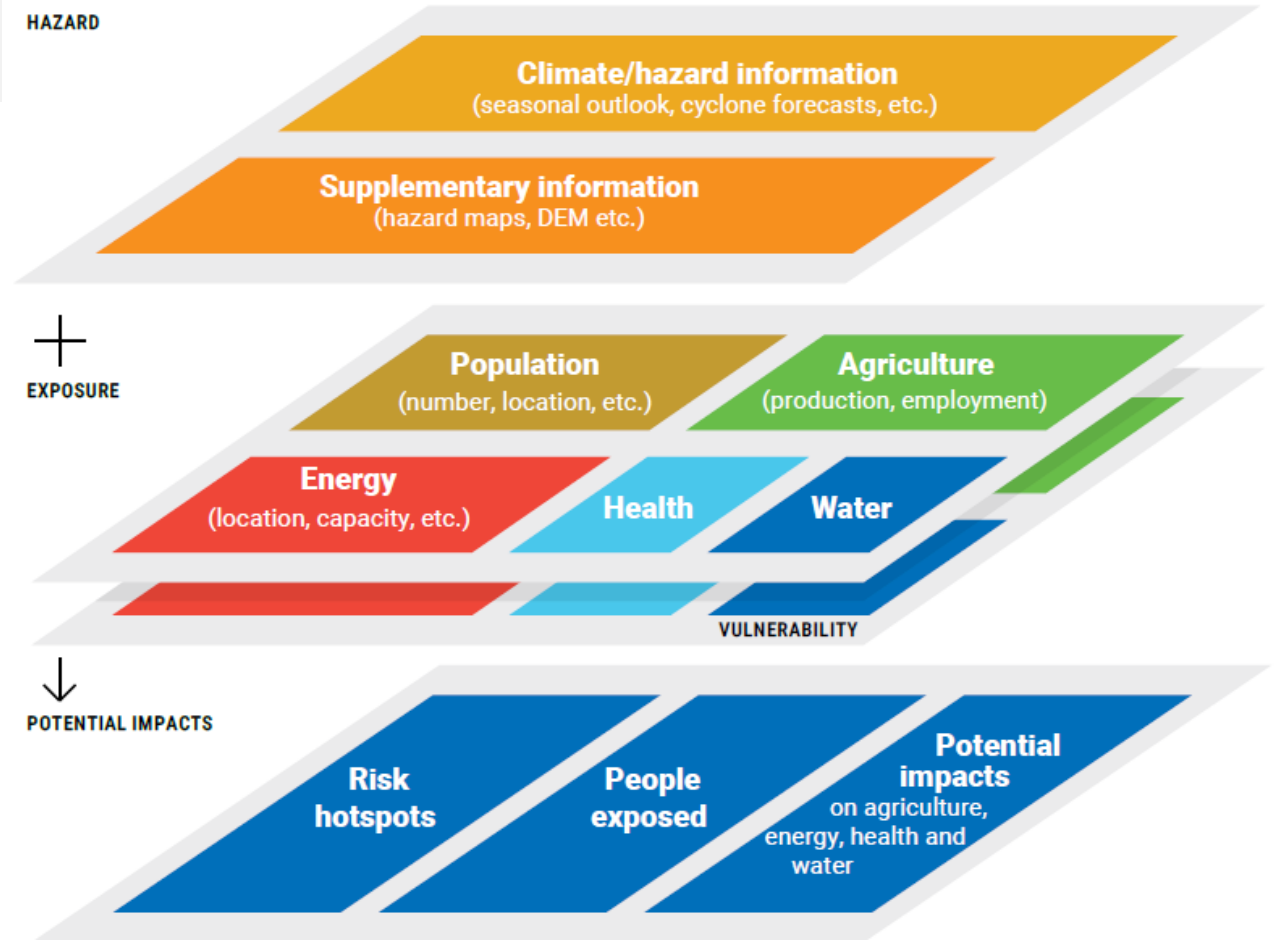
26 August 2025, Online

A portal that assesses risks and their potential impacts

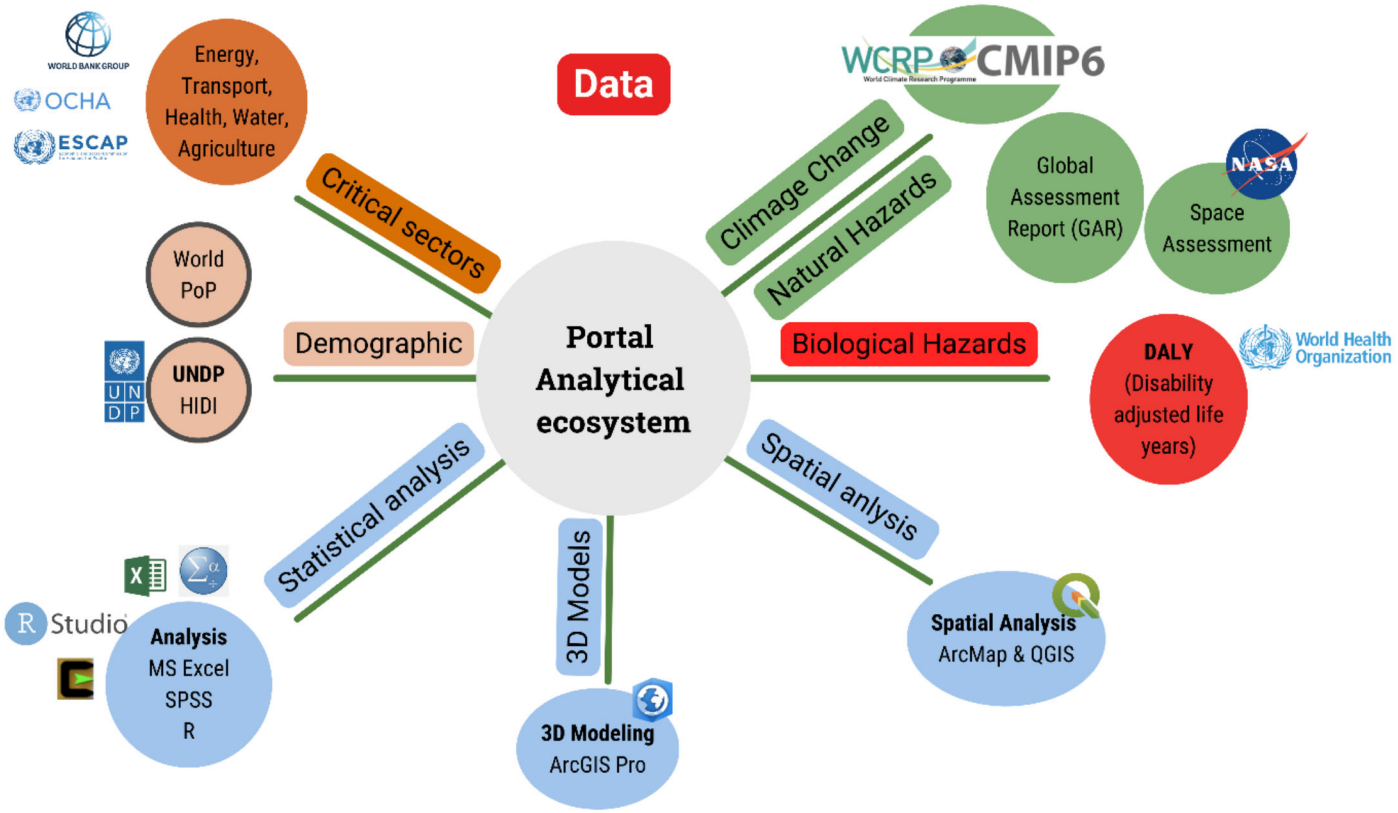


Methodology

- Combines hazard information with exposure information to assess potential impacts
- Hazard information:
  - Drought, flood, heatwave, tropical cyclone, etc. (under different climate scenarios)
- Exposure information:
  - Population, health facilities, power plants, agricultural production, etc.



Data sources



Main data sources include:

- CMIP6 (precipitation, temperature)
- CDRI GIRI (flood, drought, cyclone, landslide)
- WorldPop (population)
- UNDP (HDI)
- ESCAP Asia-Pacific Energy Portal (power plants)

ESCAP's offerings for Early Warnings for All (EW4All)



❝ Today, one third of the world's people, mainly in least developed countries and small island developing states, are still not covered by early warning systems... This is unacceptable, particularly with climate impacts sure to get even worse. Early warnings and action save lives. To that end, today I announce the United Nations will spearhead new action to ensure every person on Earth is protected by early warning systems within five years."

— UN Secretary-General António Guterres on World Meteorological Day 23 March 2022

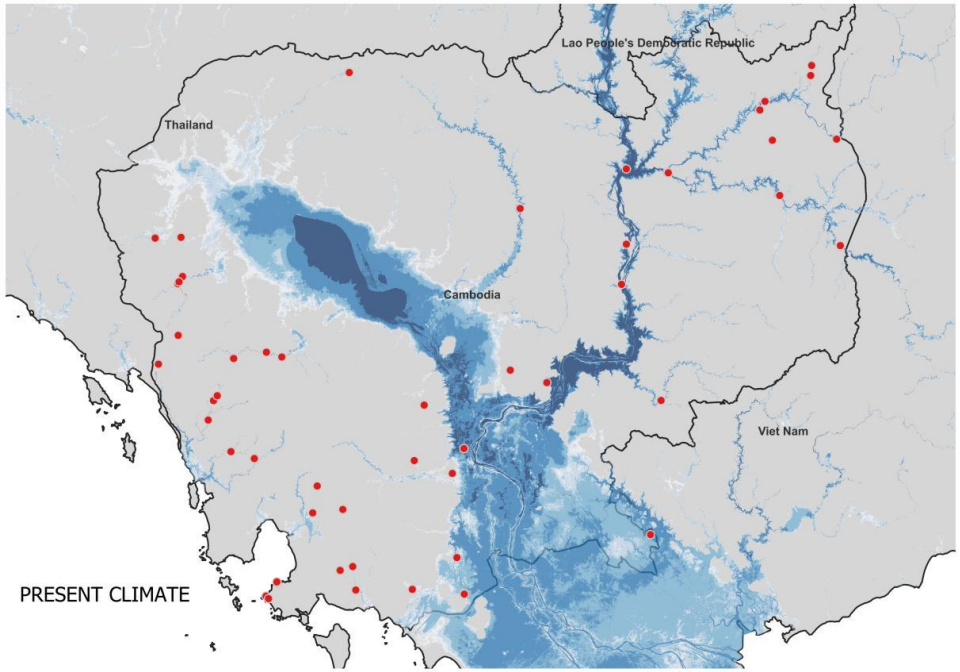
Pillar 1: Disaster risk knowledge

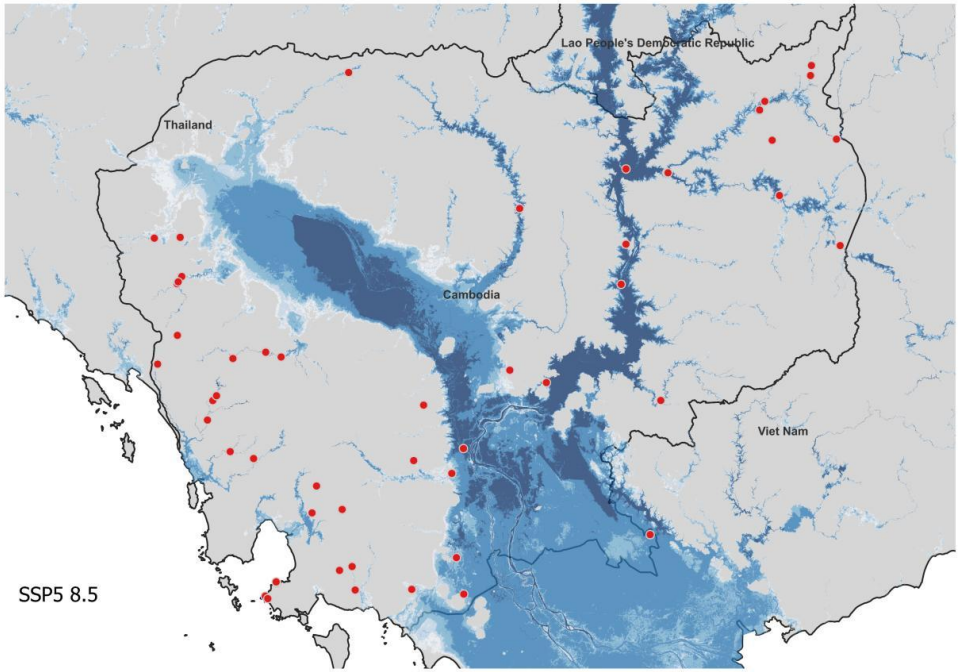
- Analyze disasters' expected impacts on exposures (population, infrastructure, agriculture, etc.) under different climate scenarios

Pillar 2: Detection, observation, monitoring, analysis, and forecasting

- Provide impact based forecasting tool that provides **5-day forecast of flood** based on AI models and its impact on exposures in collaboration with Google's Flood Hub

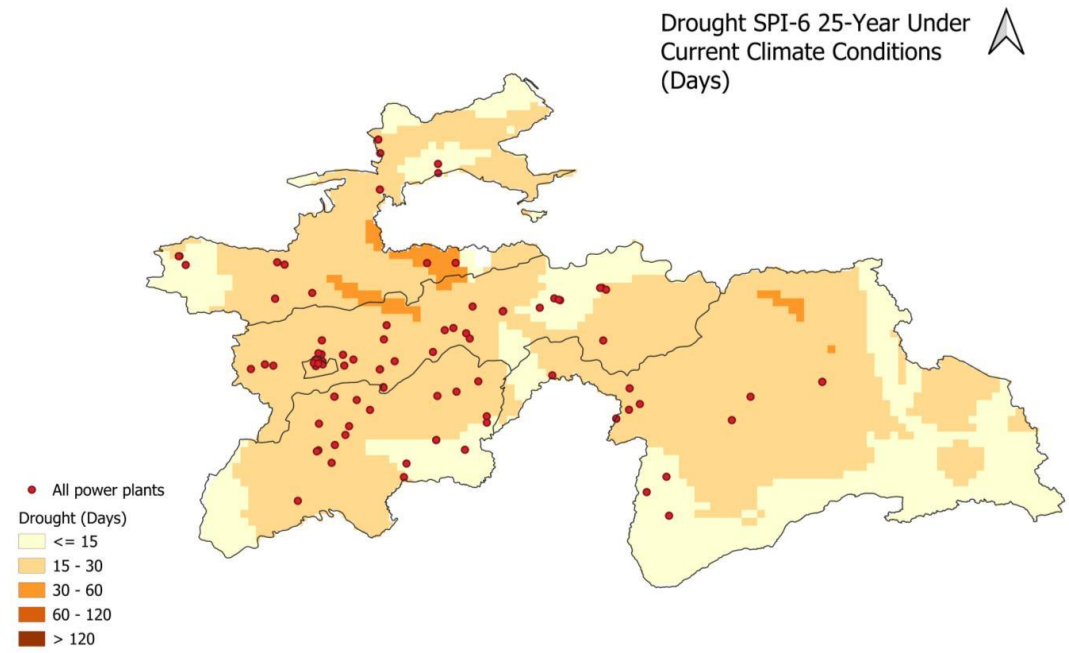
Pillar 1: Flood climate projection x power plants (Cambodia)

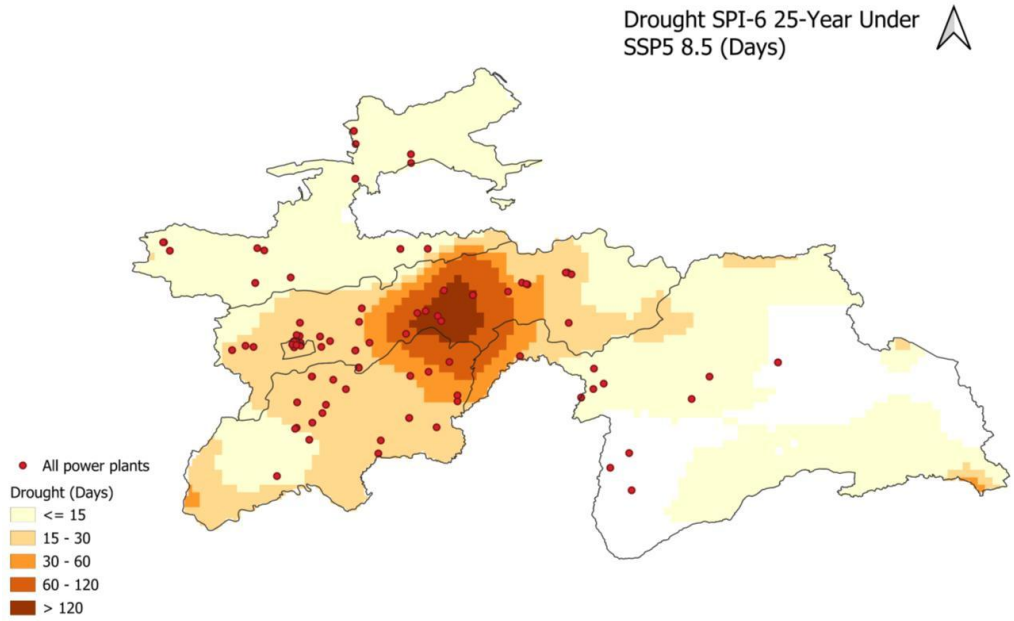




Disclaimer: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.
Sources: ESCAP calculations based on IPCC WGI Interactive Atlas - Coupled Model Intercomparison Project Phase 6 (CMIP6) 2021; GIRI CDRI (2023); and UN Geospatial.

Pillar 1: Drought climate projection x power plants (Tajikistan)



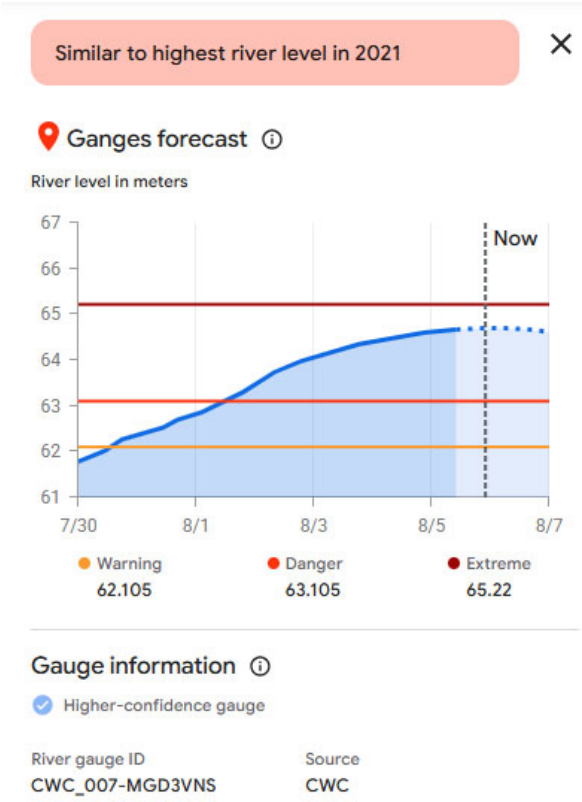


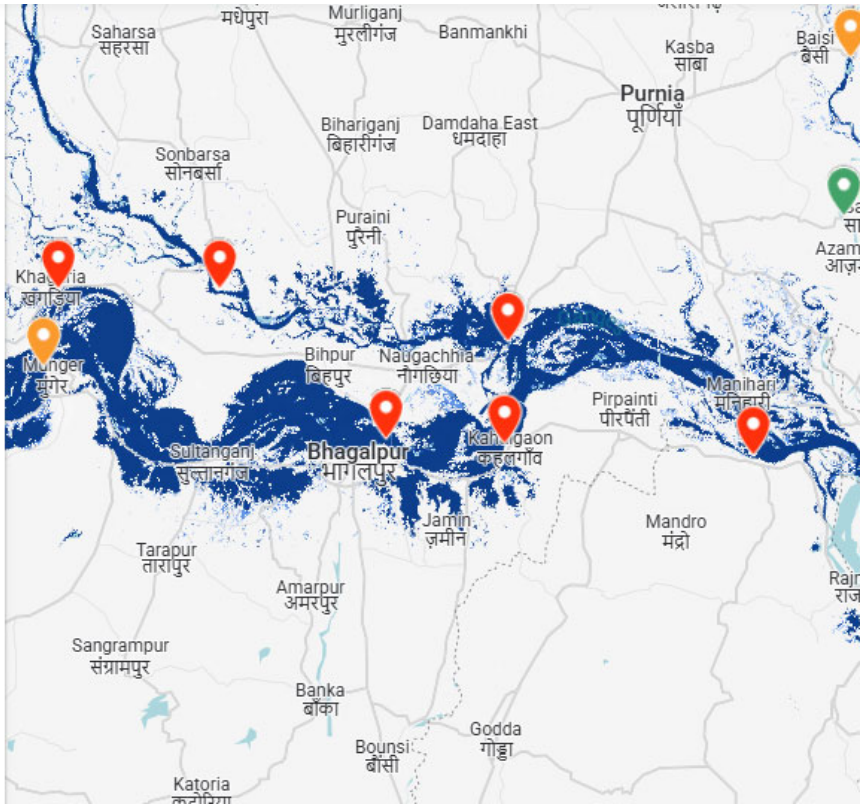
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Pillar 2: Impact based forecasting using Google Flood Hub

In collaboration with [Google's Flood Hub] platform which uses AI models for flood forecasting, ESCAP can also provide impact based forecasting tool that uses **5-day flood forecast** to estimate the impact on exposures (agriculture, infrastructure, population, etc.)

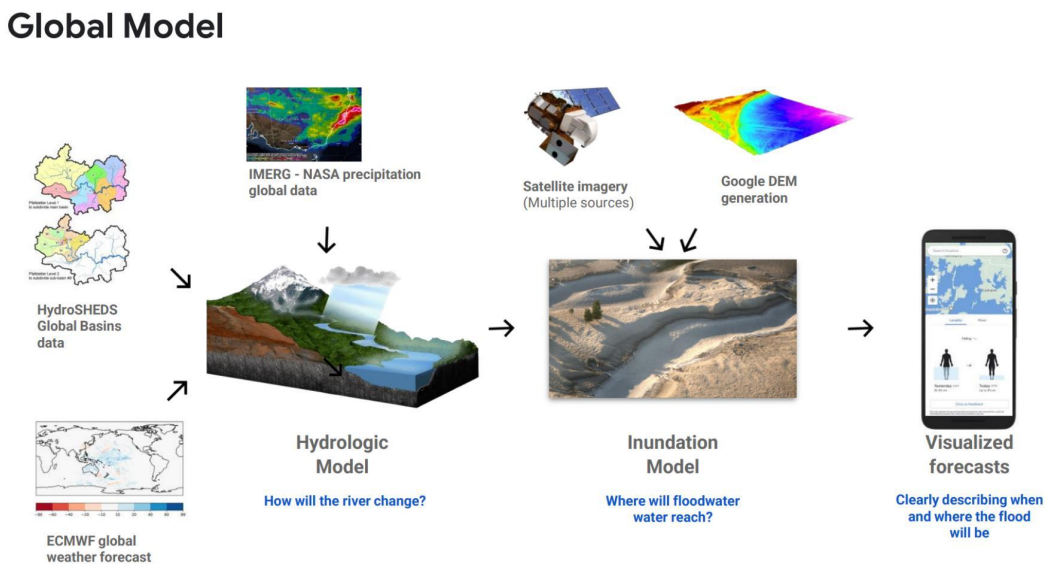
*Integration of exposure layer is upcoming in 2025





Pillar 2: Google Flood Hub's comparative advantage

- **AI-Driven Models:** Utilizes machine learning for accurate flood predictions.
- **Data Integration:** Combines global weather data, satellite imagery, and river gauge measurements.
- **Real-Time Adaptability and Daily Updates:** Continuously processes new data for updated predictions and provides real-time, daily forecast updates.
- **Superior Accuracy:** AI models analyze vast datasets for precise forecasts.
- **Scalable to data-scarce locations**: Can infer from data-rich to data-scarce locations, enabling to provide wider coverage.



THANK YOU

https://rrp.unescap.org/