

ESCAP RISK AND RESILIENCE PORTAL 2.0

Supporting Transformative Adaptation and Early Warning for All

Asia Pacific Risk & Resilience Portal 2.0

Bridging the science policy gap for informed action

🔗 Data Explorer

700+
Datasets

100+
Policy documents

100+
Policy documents

100+
Datasets

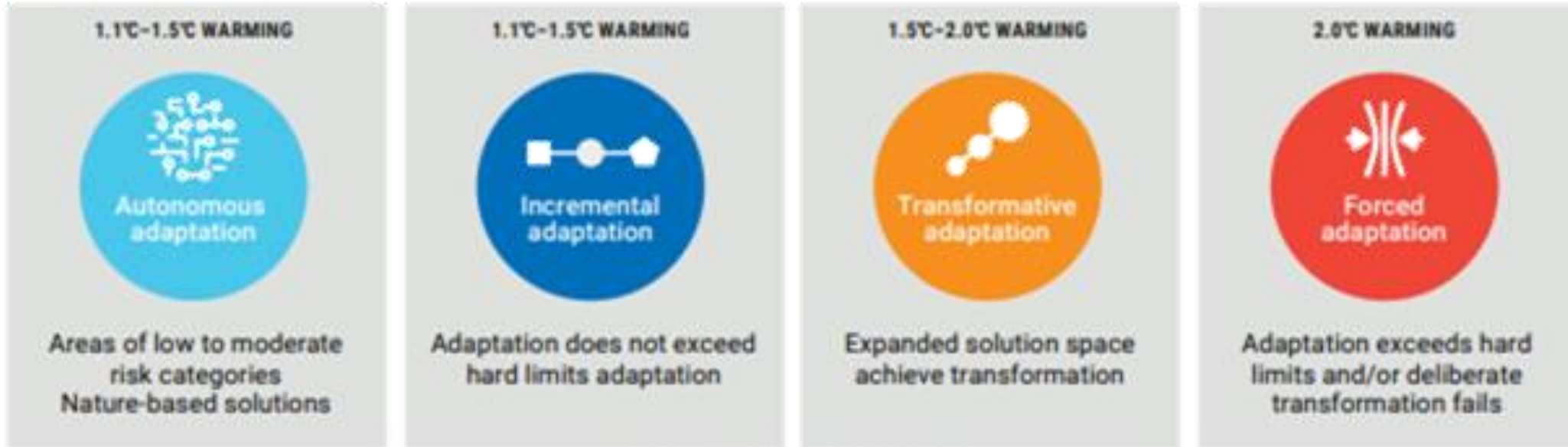


rrp.unescap.org

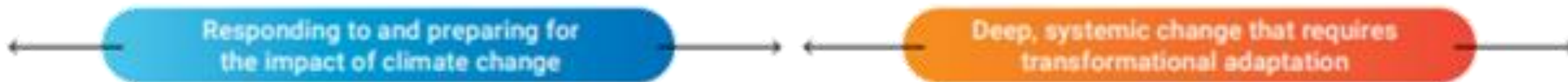
Madhurima Sarkar-Swaigood
Economic Affairs Officer

Objective: To support an agenda of Transformative Adaptation in Asia Pacific

Adaptation in a warming world: Adapting to further warming requires action at national and sub-national levels can mean different things to different people



PATHWAYS TO TRANSFORMATION



Leave no one @ risk behind

Sector to system approach

Comprehensive risk management

Knowledge and innovations

Early warning for all- Key to implement transformative adaptation

The Risk and Resilience Portal can support:

1



DISASTER RISK KNOWLEDGE

SYSTEMATICALLY COLLECT DATA AND UNDERTAKE RISK ASSESSMENTS

- Are the hazards and the vulnerabilities well known by the communities?
- What are the patterns and trends in these factors?
- Are risk maps and data widely available?

2



DETECTION, OBSERVATIONS, MONITORING, ANALYSIS AND FORECASTING OF HAZARDS

DEVELOP HAZARD MONITORING AND EARLY WARNING SERVICES

- Are the right parameters being monitored?
- Is there a sound scientific basis for making forecasts?
- Can accurate and timely warnings be generated?



PREPAREDNESS AND RESPONSE CAPABILITIES

BUILD NATIONAL AND COMMUNITY RESPONSE CAPABILITIES

- Are response plans up to date and tested? Are local capacities and knowledge made use of?
- Are people prepared and ready to react to warnings?



WARNING DISSEMINATION AND COMMUNICATION

COMMUNICATE RISK INFORMATION AND EARLY WARNINGS

- Do warnings reach all of those at risk? Are the risks and warnings understood? Is the warning information clear and usable?

Four components of early warning systems



Early Warnings for All

1

Develop early warning systems for all at the regional level
ESCAP Resolution 79/1: Accelerating climate action for sustainable development (May 2023)

2

Further develop and implement a regional strategy in support of the global and country-level implementation of the four pillars of multi-hazard early warning systems
ESCAP Committee on Disaster Risk Reduction (July 25-27, 2023)

Maldives spearheaded ESCAP Resolution 79/1 to accelerate climate action and the call for a regional strategy to achieve Early Warnings for All.



Huda Ali Shareef former Permanent Representative to ESCAP launching the theme study in 2023



Fazna Shakir, former Minister of State for Gender, Family and Social Services at the 79th Session of ESCAP calling for 79/1



Khadeeja Haseem, former Minister of State for Climate Change, Environment and Energy opening Disaster Resilience Week

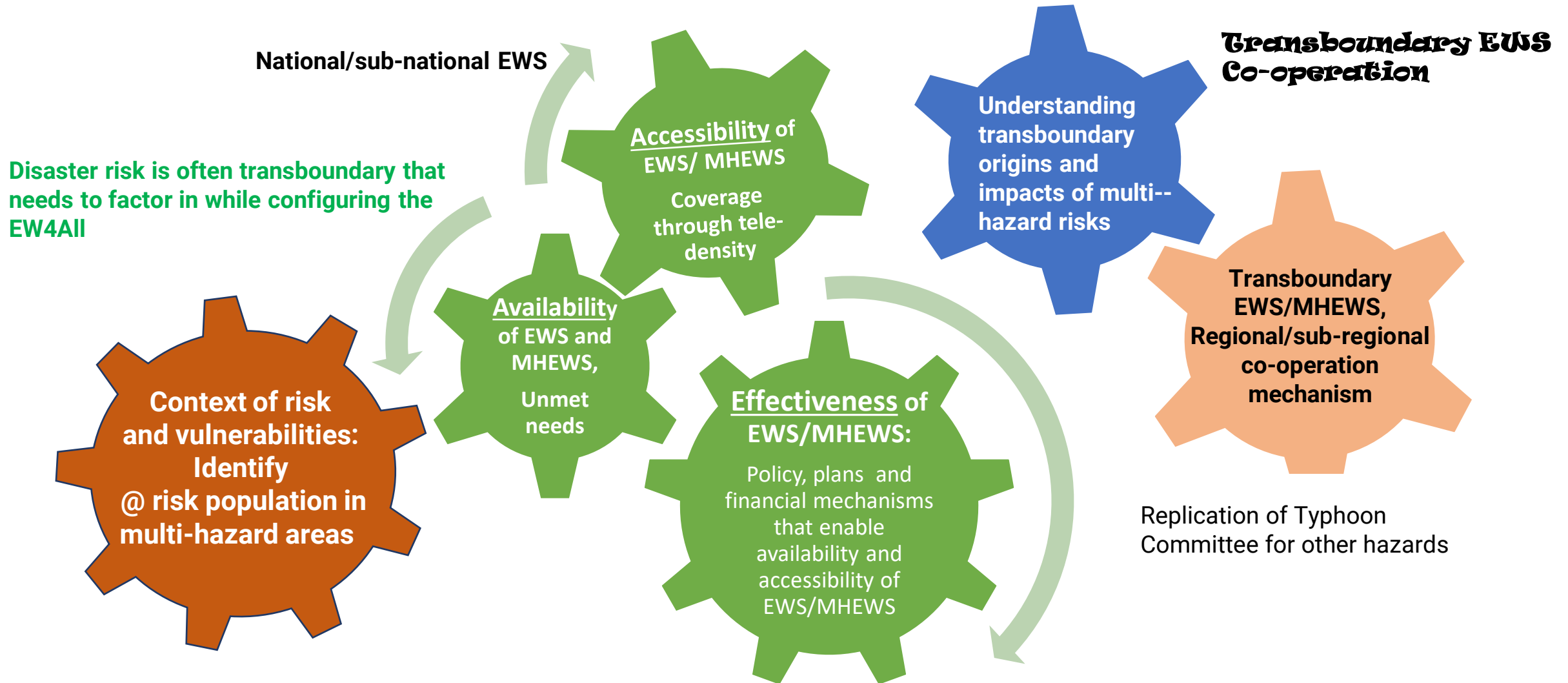


Faroosha Ali, Director NDMA, leading the discussion on regional EW4All at the 8th Session of the Committee on Disaster Risk Reduction

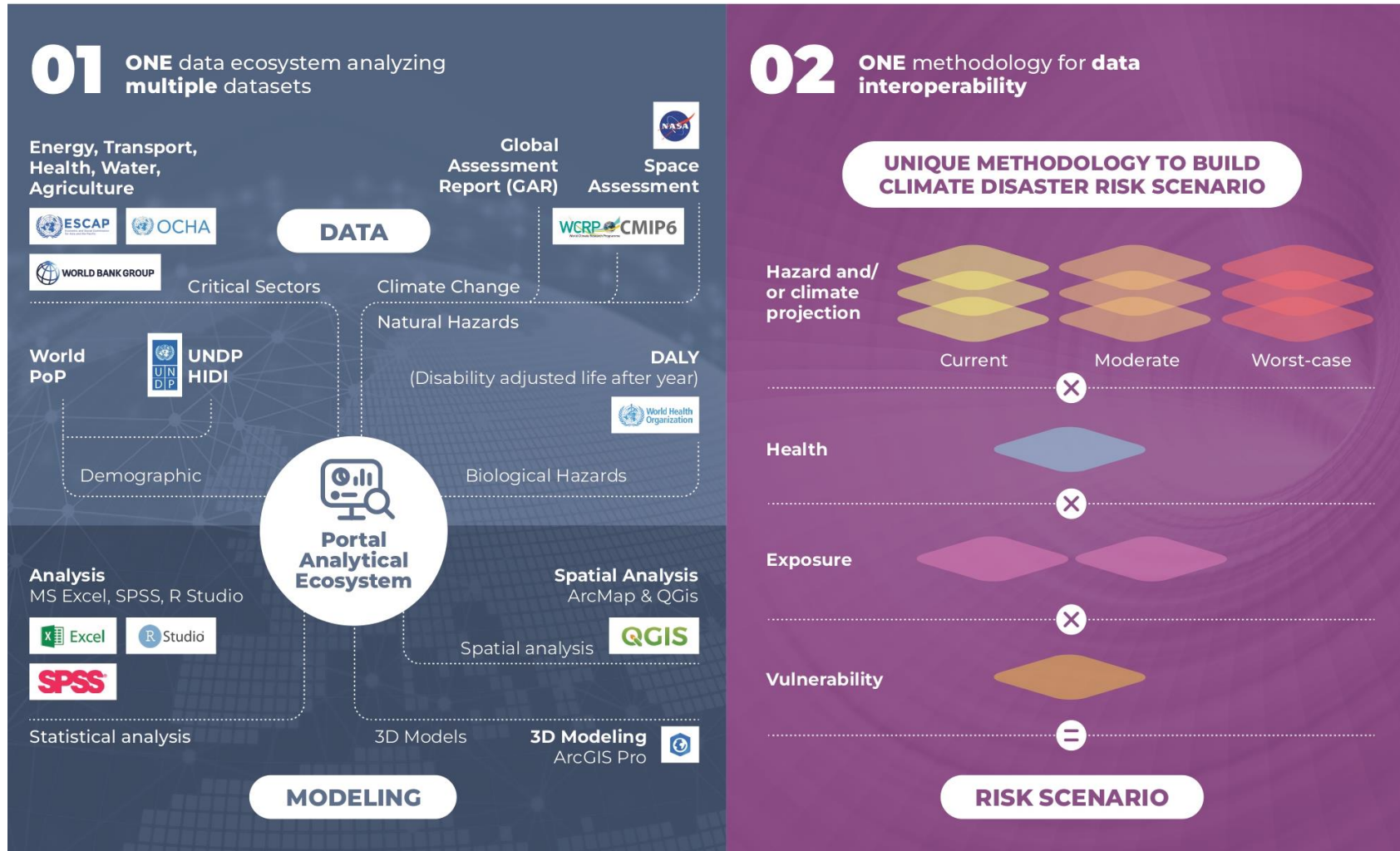
Operationalizing ESCAP Mandates



A regional strategy for seamless integration of national and transboundary EWS



Eco-System of the Portal



The Portal is built on a state-of-the-art data intensive and risk analytics



To close the gaps in Pillar 1, EWS initiatives must understand the changing geography of hazards and use dynamic risk assessments

IPCC AR6 climate provides the latest and most accurate climate projections.

How does warming translated to changing risk of floods, drought, heatwaves and tropical cyclones.

Captures multi-hazard risk under baseline, 1.5 and 2 Degrees.

Captures future impacts on cross cutting and multiple sectors.

Hazards Hotspots

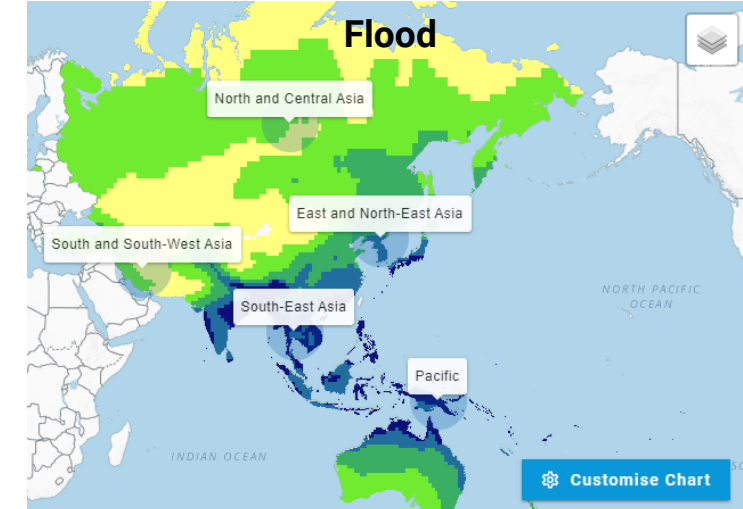
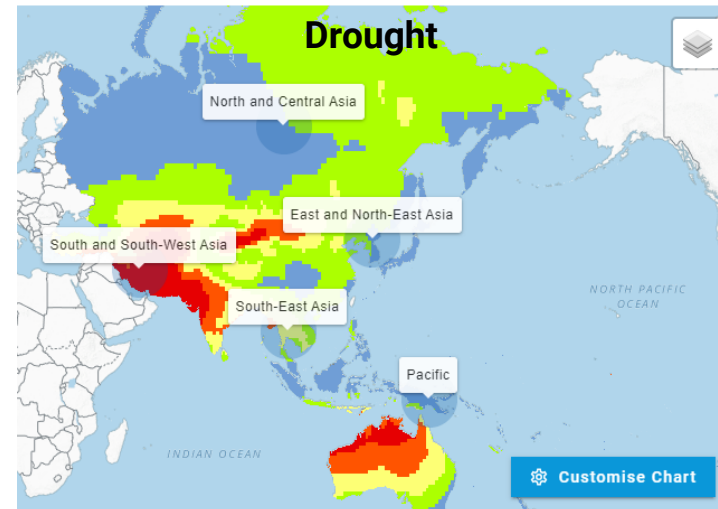
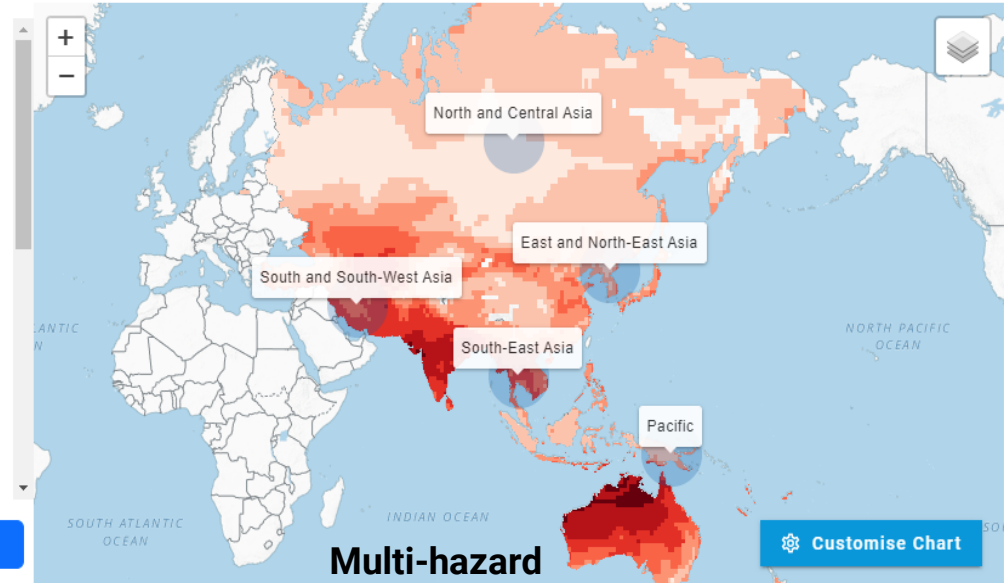
Examine the hazard vulnerability using risk scenarios and historical data analysis for selected natural hazards.

1 Select Analysis

- Multi-Hazard
- Drought
- Flood
- Heatwave
- Tropical Cyclone
- Earthquake and Tsunami
- Economic Impact
- Adaptation Costs and Priorities

2. Select Region

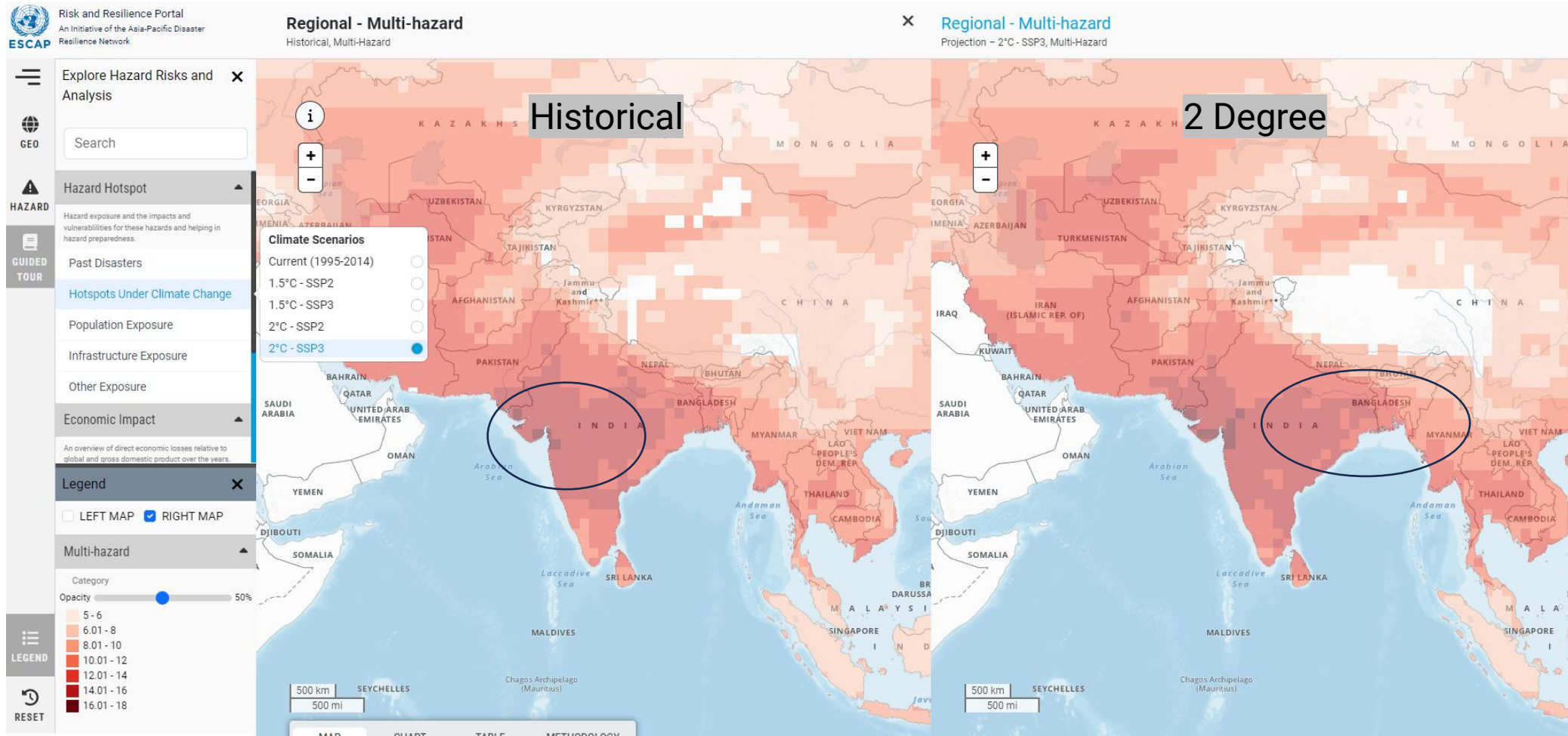
Apply filter





Where are the historical risk hotspots and how will they change under climate scenarios?

Multi-hazard risk in South and Southwest Asia

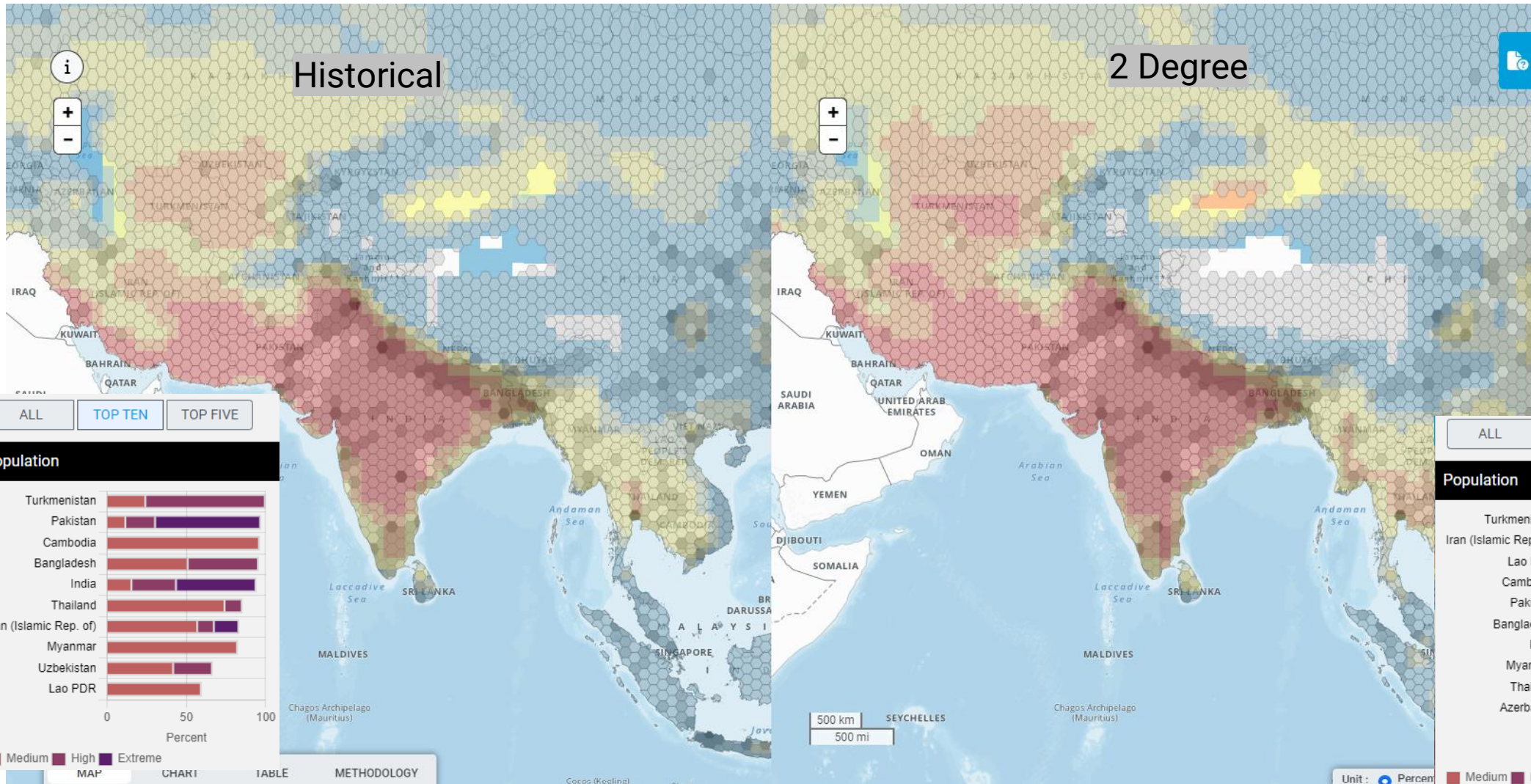


Portal shows that **multi-hazard risk is moving westward and north** under 2 degree climate change

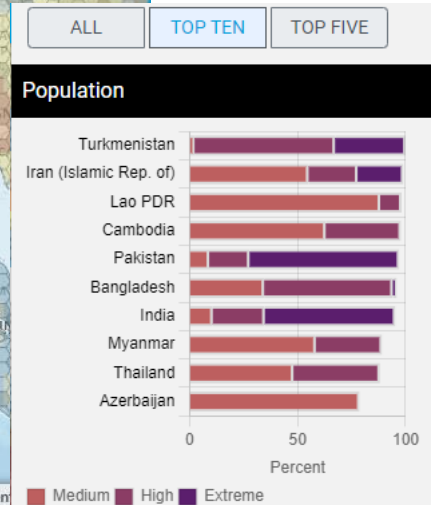
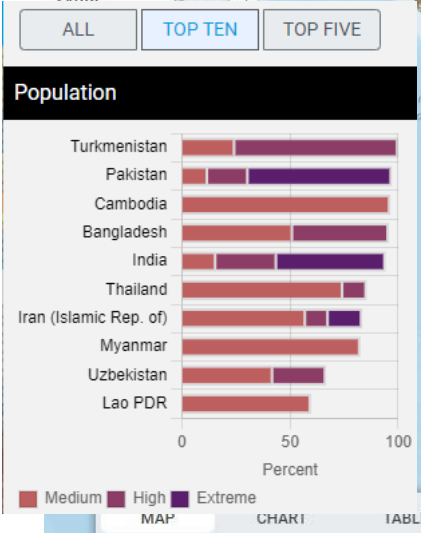


How much exposure in social, economic, and environmental sectors

Population exposure to heatwaves- SSWA

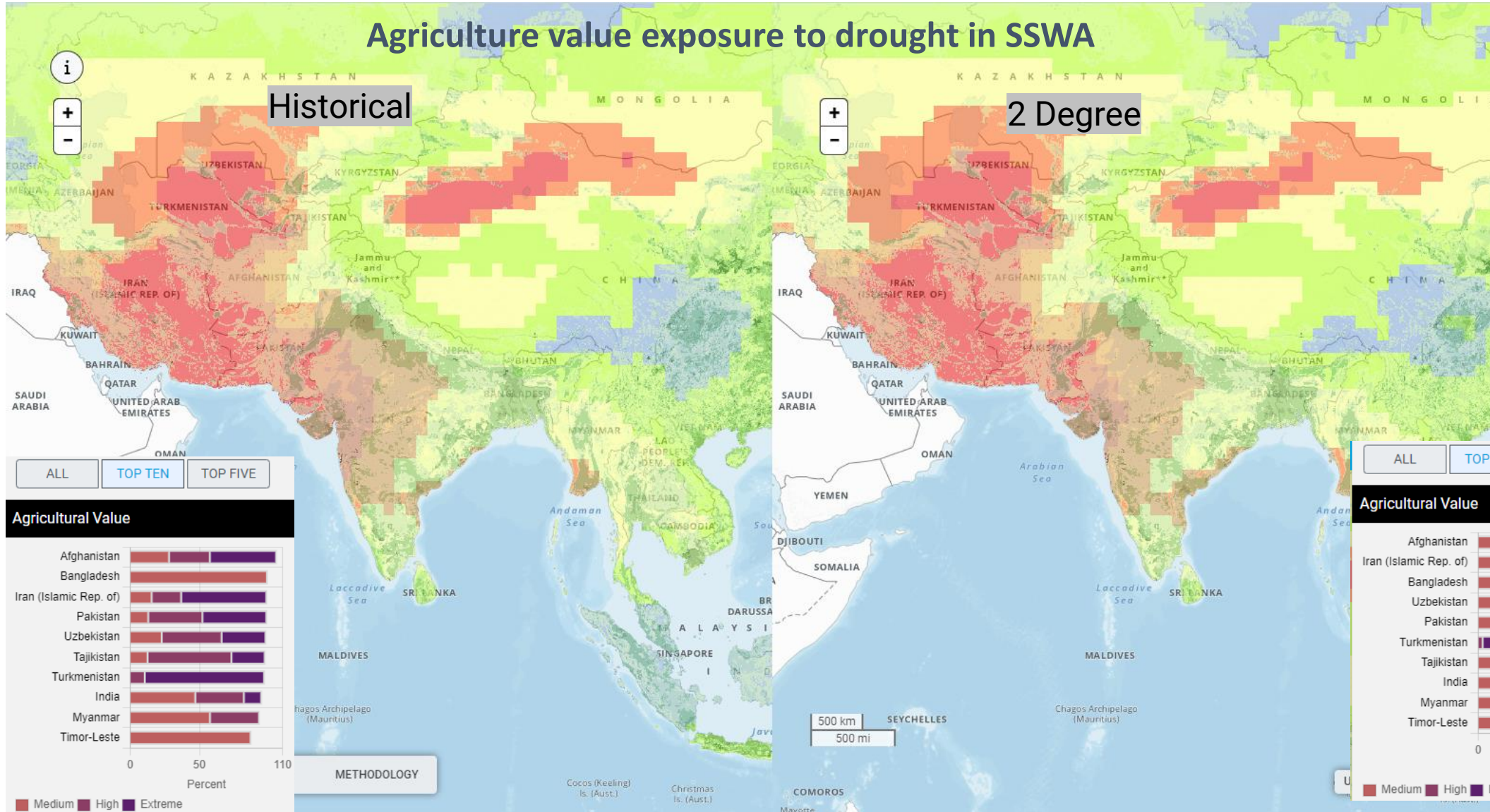


Portal shows **more people at risk for high temperature and heatwaves under 2 degrees, especially in Iran, Pakistan, Bangladesh and India under 2 degree climate change**





How much exposure in social, economic, and environmental sectors



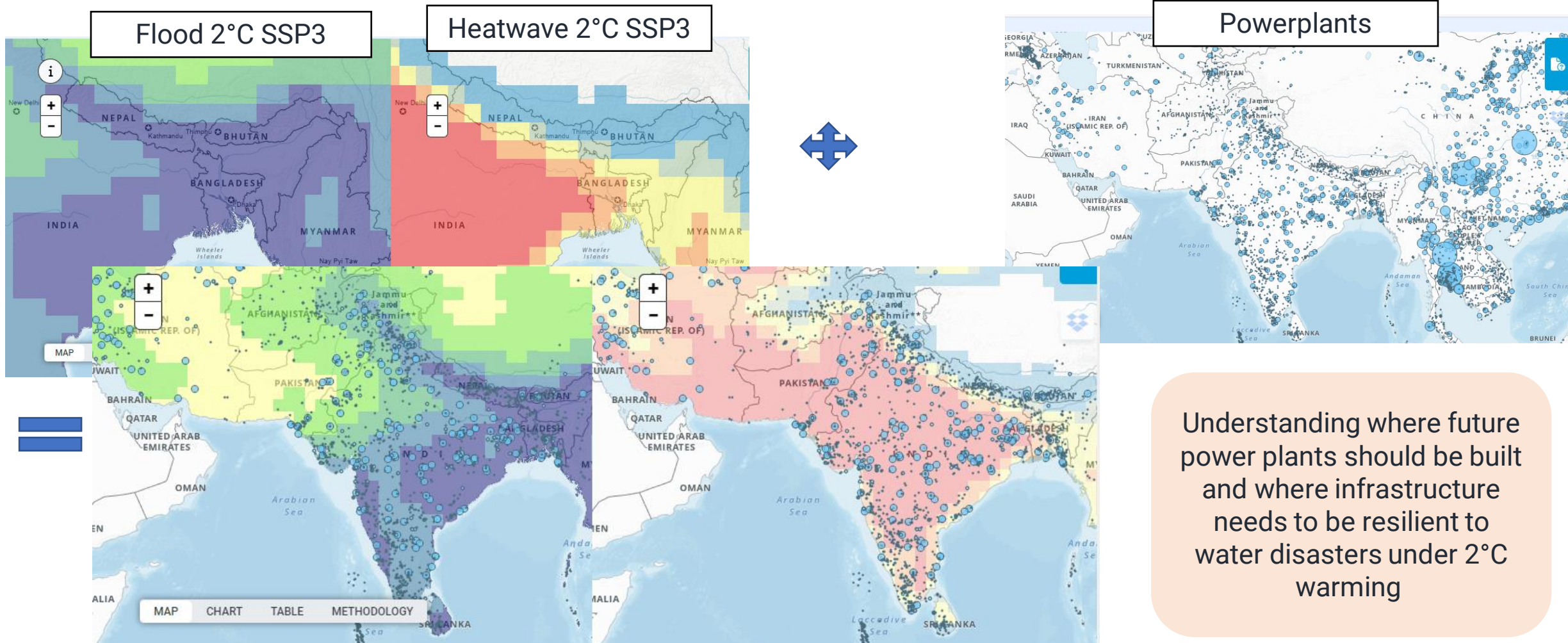
Portal shows **high agriculture at risk under 2 degrees, especially in Tajikistan and Kazakhstan under 2 degree climate change**



DISASTER RISK KNOWLEDGE

SYSTEMATICALLY COLLECT DATA AND UNDERTAKE RISK ASSESSMENTS

Facilitate collaboration to tackle intersecting transboundary climate risks and shared challenges for early warning in infrastructure systems





DISASTER RISK KNOWLEDGE
SYSTEMATICALLY COLLECT DATA AND UNDERTAKE RISK ASSESSMENTS



Estimating hazard losses (average annual loss) for multiple climate scenarios

ESCAP RISK AND RESILIENCE PORTAL
An initiative of the Asia-Pacific Disaster Resilience Network

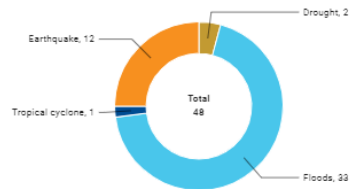
HOME RISK & RESILIENCE ANALYTICS COUNTRY TOOLS & APPLICATIONS REGIONAL COOPERATION E-LEARNING & KNOWLEDGE

Tajikistan

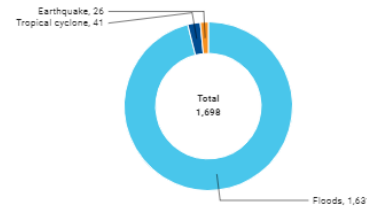
Average Annual Loss (AAL)
- Baseline : 5.5 % GDP
- SSP3 2Degree : 5.2 % GDP
Total adaptation costs: 1.3 % GDP

Climate adaptation highest priorities :
- Making water resources management more resilient

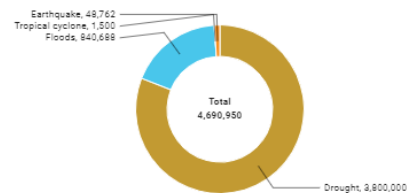
Number of events
All hazards, in number of events



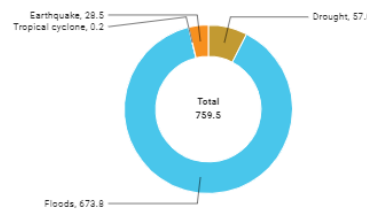
Number of deaths
All hazards, in number of people



Number of affected
All hazards, in number of people



Number of damaged
All hazards, in USD, Millions

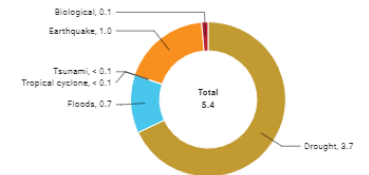


Disaster Risk

Average Annual Loss (AAL), Current

	USD, Millions	% GDP
Drought	450.5	3.7
Floods	77.1	0.7
Tropical cyclone	0.0	0.0
Tsunami	0.0	0.0
Earthquake	117.3	1.0
Biological	8.5	0.1
Multi-hazard	634.4	5.5

Average Annual Loss (AAL), Current
All hazards, in % GDP



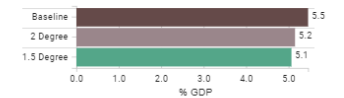
Average Annual Loss (AAL), Climate change scenarios

Baseline, SSP3 1.5Degree, and SSP3 2Degree

	USD, Millions	% GDP
Baseline	634.4	5.5
1.5 Degree	588.8	5.1
2 Degree	598.7	5.2

Average Annual Loss (AAL), Climate change scenarios

Baseline, SSP3 1.5Degree, and SSP3 2Degree



Basic country information

Disaster Data

Disaster Risk

Climate adaptation and resilience

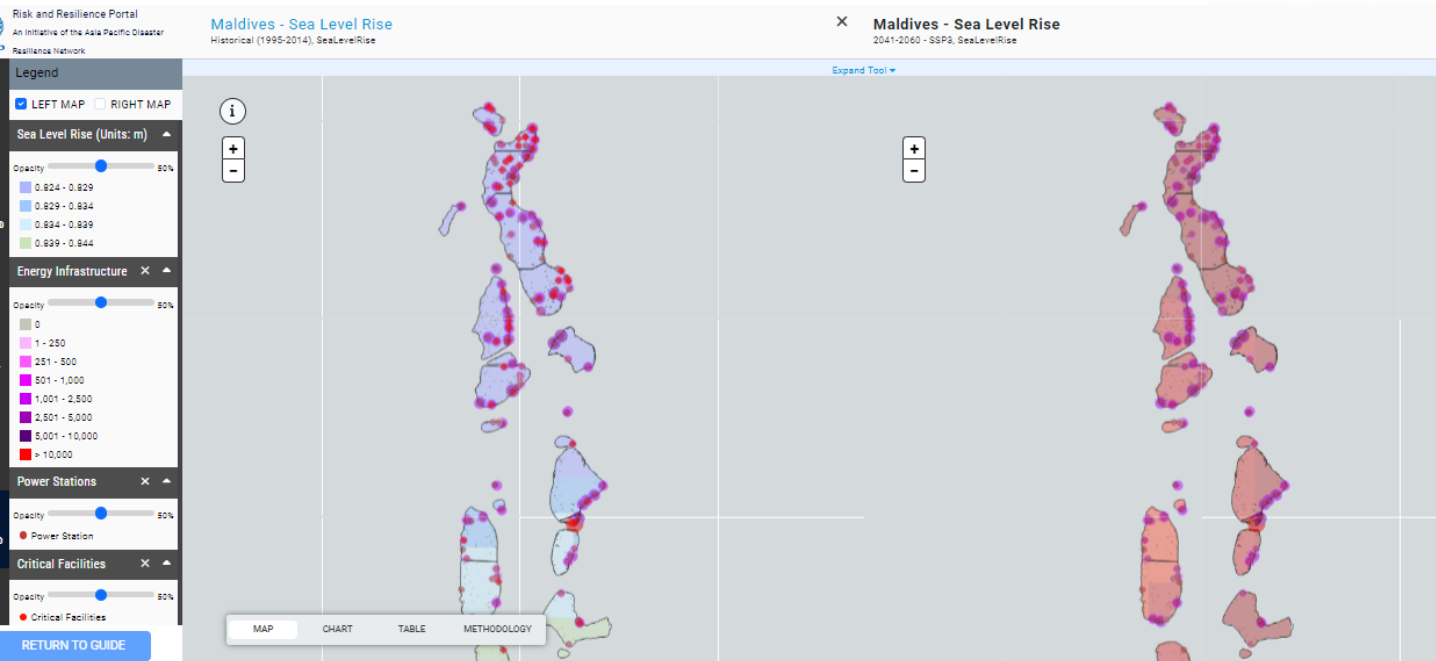
SDG Score



Customized downscaling of global climate data

Maldives Project

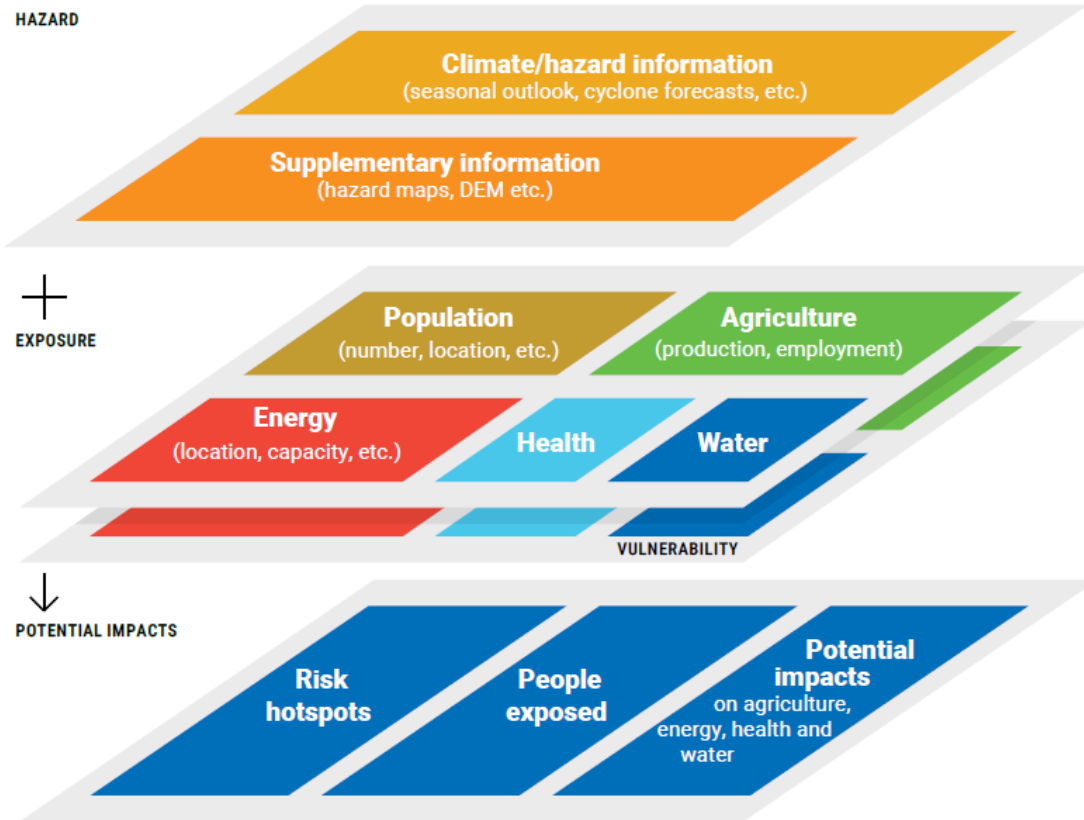
Downscaled climate projection to 5 x 5 resolution



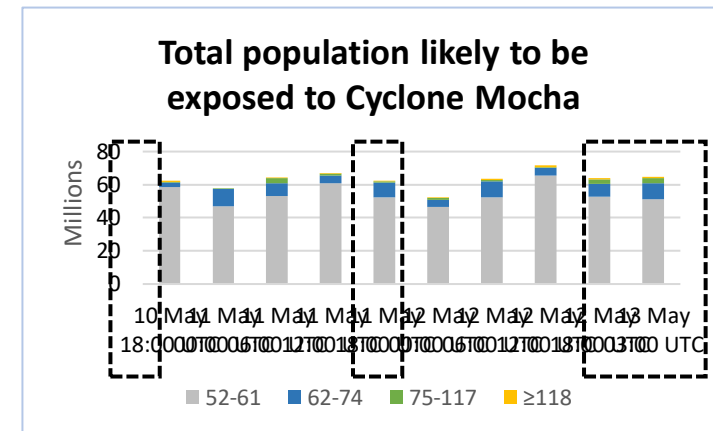
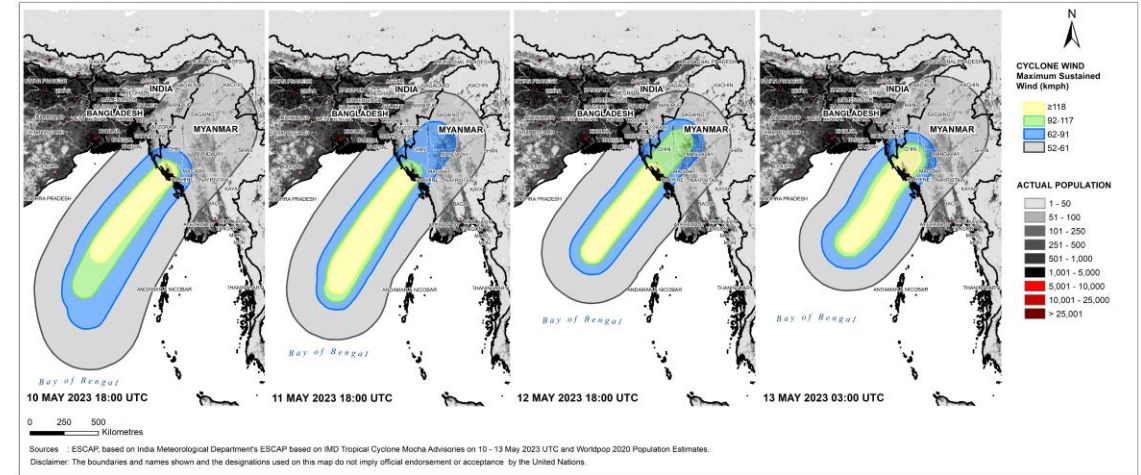
No risk at baseline but alarming increase under 2 degrees for sea level rise

High impact on future coastline infrastructure

To support Pillar 2, ESCAP's impact-based forecasting approach follows WMO Global Framework for Climate Services



Estimation of Population likely to be hit by Cyclone Mocha



Source: ESCAP (2022) APDR – Pathways to Adaptation and Resilience in South and South-West Asia Overview of the work of secretariat and the UN system at the regional level. ESCAP/CDR/2021/INF/1



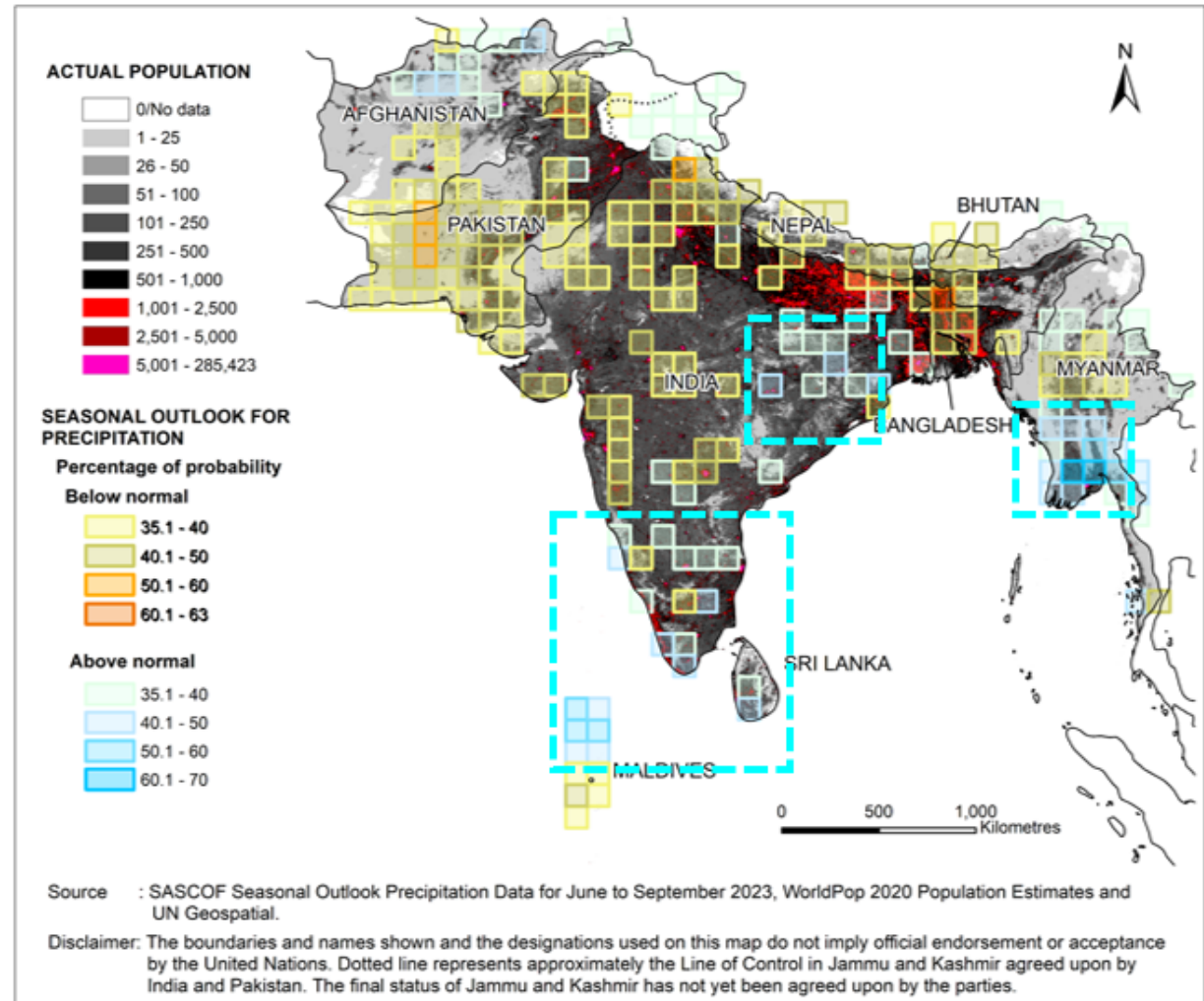
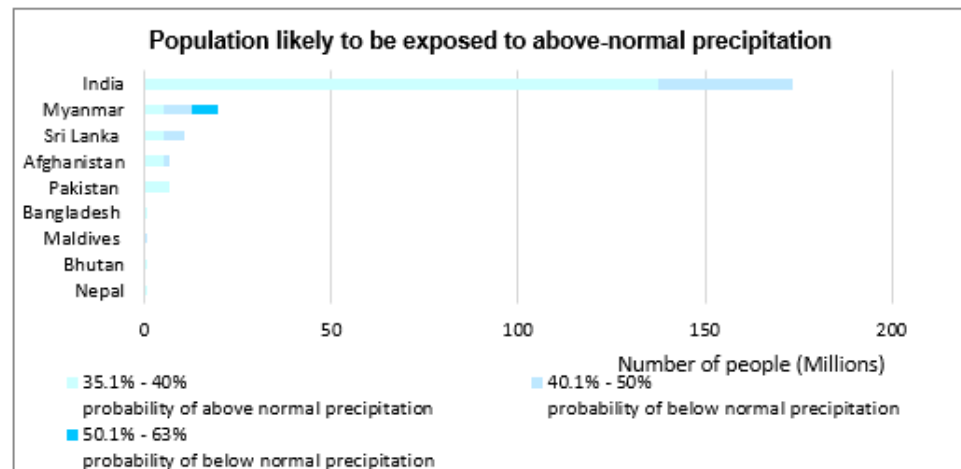
SASCOF: Estimation of population likely to be exposed to above-normal precipitation



Estimation of population likely to be exposed to above-normal precipitation

Country	Total population 2022 (thousands) ESCAP statistics	Percent of population exposure			
		35.1% - 40% probability of above normal precipitation	40.1% - 50% probability of above normal precipitation	50.1% - 63% probability of above normal precipitation	Above normal precipitation
Afghanistan	41,129	13.3%	4.0%	0.0%	17.2%
Bangladesh	171,186	0.3%	0.0%	0.0%	0.3%
Bhutan	783	3.4%	0.0%	0.0%	3.4%
India	1,417,173	10.1%	2.6%	0.0%	12.7%
Maldives	524	0.0%	81.8%	0.0%	81.8%
Myanmar	54,179	10.0%	13.2%	13.0%	36.2%
Nepal	30,548	0.0%	0.0%	0.0%	0.0%
Pakistan	235,825	3.1%	0.0%	0.0%	3.1%
Sri Lanka	21,832	25.9%	25.3%	0.0%	51.2%
Total	1,973,178	8.5%	2.6%	0.4%	11.5%

In total, **11.5%** of South Asia population are likely to be exposed to above-normal precipitation.



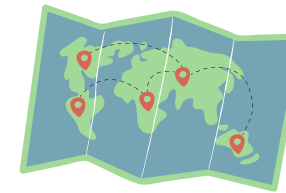
Automated Impact Based Forecasting Tool on Portal (upcoming 2024-2025)

USER INPUT*



- Population data
- Infrastructure data
- Hazard data
- Boundary data

OUTPUT



- Exposure and intensity zone of hazards
- Map & exportable table



GEOSPATIAL PYTHON AUTOMATION SCRIPT

GEOSPATIAL PRE-PROCESSING



- Setting Coordinate Reference Systems
- Setting resolution
- Classifying hazard (based on intensities, create different hazard intensity zones)

PROCESS IDENTIFICATION



- Auto recognize type of infrastructure / population data

GEOSPATIAL EXPOSURE ANALYSIS



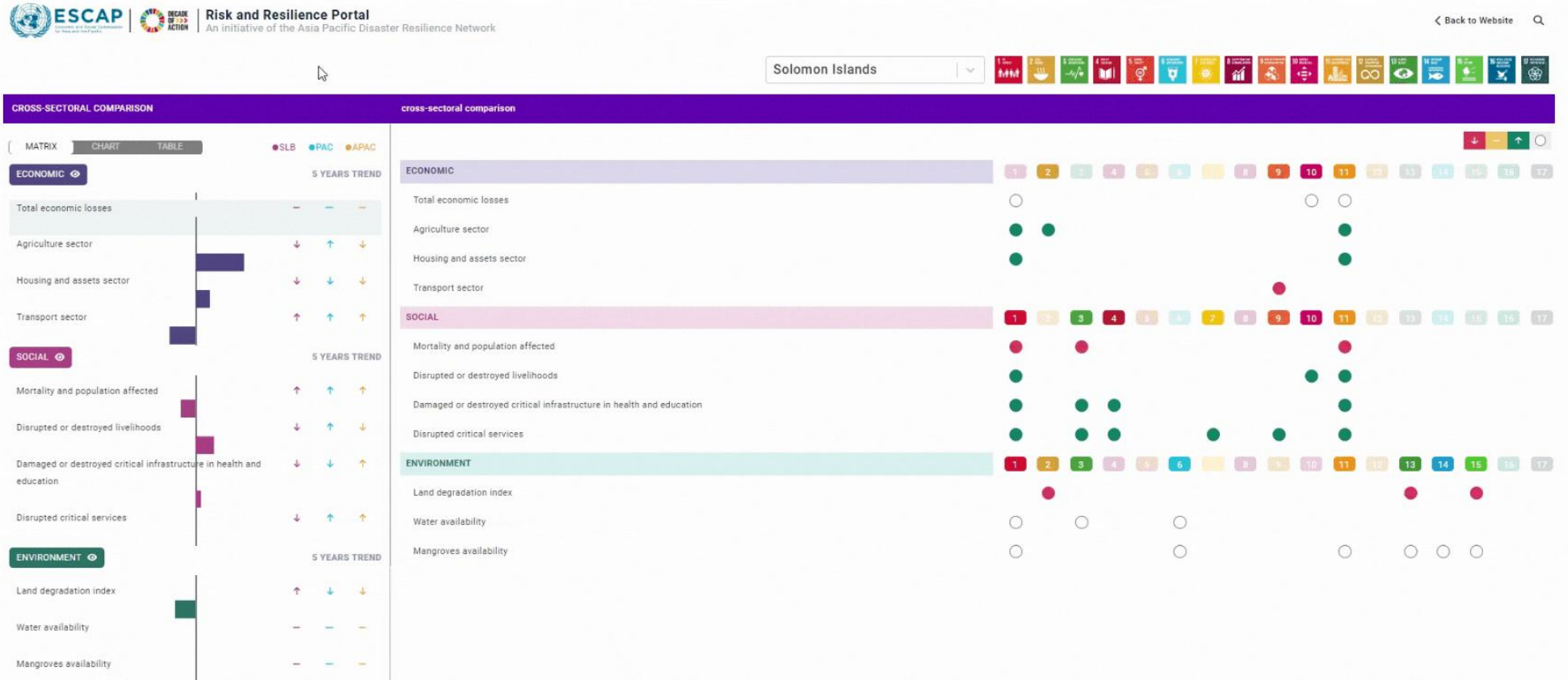
- Calculate exposure to all infrastructure and population
- Overlay & count exposure



*Georeferenced and classified data

Tracking Progress in and Climate SDGs

Pooling data from ESCAP SDG Gateway to track disaster and climate related SDGs.



Using this along with the risk analytics countries can inform their DRR and NAP strategies

Pooling data from ESCAP SDG Gateway to track disaster and climate related SDGs

Tracking Progress in and Climate SDGs for Maldives

Maldives



CROSS-SECTORAL COMPARISON

cross-sectoral comparison

Matrix Chart Table

● MDV ● SSWA ● APAC

ECONOMIC

5 YEARS TREND

Total economic losses
Agriculture sector
Housing and assets sector
Transport sector

— — —
↓ ↓ ↓
↓ ↓ ↓
↑ ↑ ↑

SOCIAL

5 YEARS TREND

Mortality and population affected
Disrupted or destroyed livelihoods
Damaged or destroyed critical infrastructure in health and education
Disrupted critical services

↑ ↓ ↑
↓ ↓ ↓
— ↑ ↑
— ↓ ↑

ENVIRONMENT

5 YEARS TREND

Land degradation index

— ↓ ↓

ECONOMIC

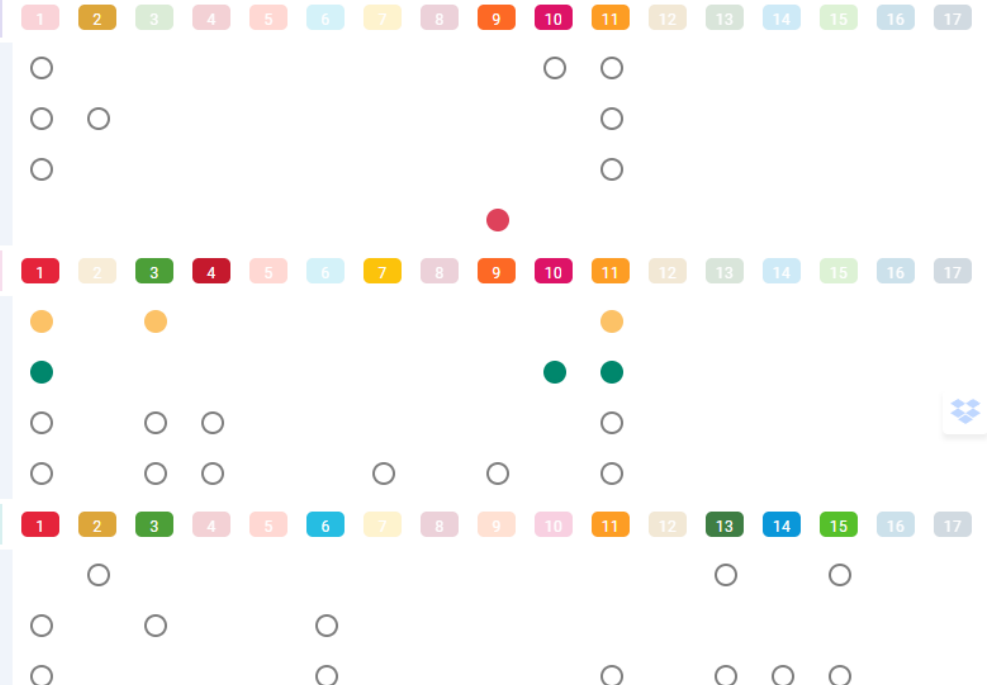
Total economic losses
Agriculture sector
Housing and assets sector
Transport sector

SOCIAL

Mortality and population affected
Disrupted or destroyed livelihoods
Damaged or destroyed critical infrastructure in health and education
Disrupted critical services

ENVIRONMENT

Land degradation index
Water availability
Mangroves availability



Tracking Progress in and Climate SDGs for Maldives



What's next? AI-Driven Adaptation Solutions

Map of Adaptation Solutions Database

Explore, learn, and adapt from proven adaptation solutions.



Explore, learn, and adapt with the AI Driven Adaptation Tool, your guide to evidence-based climate resilience.



[Map of Adaptation Solutions Database](#)



[Adaptation Recommendations for target countries](#)

**Empowering Climate Decision-Makers
with Machine Learning**

A comprehensive tool powered by machine learning that provides tailored recommendations on adaptation from worldwide case studies based on your area's unique risk profile.

THANK YOU

Acknowledgement

Lead team: Madhurima Sarkar-Swaigood, Maria Bernadet Dewi, Rahul Kumar Suman, Akash Shrivastav, Shashwat Avi, Sanjay Srivastava

Country customization: Soomi Hong, Prangya Gupta

Developer: Think Blue Data



rrp.unescap.org

Follow us:



unescap



unitednationsescap



www.unescap.org



unescap



unescap



united-nations-escap