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

700+ Datasets
100+ Policy documents

Data Explorer

rrp.unescap.org

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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

- **1.1°C-1.5°C WARMING**
  - Autonomous adaptation
  - Areas of low to moderate risk categories
  - Nature-based solutions

- **1.1°C-1.5°C WARMING**
  - Incremental adaptation
  - Adaptation does not exceed hard limits adaptation

- **1.5°C-2.0°C WARMING**
  - Transformative adaptation
  - Expanded solution space
  - Achieve transformation

- **2.0°C WARMING**
  - Forced adaptation
  - Adaptation exceeds hard limits and/or deliberate transformation fails

**PATHWAYS TO TRANSFORMATION**
- Responding to and preparing for the impact of climate change
- Deep, systemic change that requires transformational adaptation

- **Leave no one @ risk behind**
- **Comprehensive risk management**
- **Sector to system approach**
- **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 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?

3. 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?

4. 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
ESCAP’s mandate to support EW4All at the 8th Committee on DRR

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

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

Understanding transboundary origins and impacts of multi-hazard risks

Transboundary EWS/MHEWS, Regional/sub-regional co-operation mechanism

Replication of Typhoon Committee for other hazards

Effectiveness of EWS/MHEWS:
Policy, plans, and financial mechanisms that enable availability and accessibility of EWS/MHEWS

Accessibility of EWS/MHEWS
Coverage through tele-density

Availability of EWS and MHEWS, Unmet needs

Context of risk and vulnerabilities:
Identify @ risk population in multi-hazard areas

Disaster risk is often transboundary that needs to factor in while configuring the EW4All

National/sub-national EWS
Eco-SYSTEM of the Portal

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

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

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.
Understanding where future power plants should be built and where infrastructure needs to be resilient to water disasters under 2°C warming.

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

Flood 2°C SSP3
Heatwave 2°C SSP3
Powerplants
Estimating hazard losses (average annual loss) for multiple climate scenarios
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
**Estimation of population likely to be exposed to above-normal precipitation**

<table>
<thead>
<tr>
<th>Country</th>
<th>Total population 2022 (thousands)</th>
<th>35.1% - 40% probability of above normal precipitation</th>
<th>40.1% - 50% probability of above normal precipitation</th>
<th>50.1% - 62% probability of above normal precipitation</th>
<th>Above normal precipitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Afghanistan</td>
<td>41,128</td>
<td>13.3%</td>
<td>4.0%</td>
<td>0.0%</td>
<td>17.2%</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>171,386</td>
<td>0.3%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.3%</td>
</tr>
<tr>
<td>Bhutan</td>
<td>783</td>
<td>3.4%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>3.4%</td>
</tr>
<tr>
<td>India</td>
<td>1,417,773</td>
<td>10.1%</td>
<td>2.6%</td>
<td>0.0%</td>
<td>12.7%</td>
</tr>
<tr>
<td>Maldives</td>
<td>564</td>
<td>0.0%</td>
<td>81.8%</td>
<td>0.0%</td>
<td>81.8%</td>
</tr>
<tr>
<td>Myanmar</td>
<td>54,179</td>
<td>10.0%</td>
<td>15.3%</td>
<td>13.0%</td>
<td>36.3%</td>
</tr>
<tr>
<td>Nepal</td>
<td>30,548</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
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<tr>
<td>Pakistan</td>
<td>235,825</td>
<td>3.1%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>3.1%</td>
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<tr>
<td>Sri Lanka</td>
<td>21,832</td>
<td>25.9%</td>
<td>25.3%</td>
<td>0.0%</td>
<td>51.2%</td>
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<tr>
<td><strong>Total</strong></td>
<td>1,973,178</td>
<td>8.5%</td>
<td>2.6%</td>
<td>0.4%</td>
<td>11.5%</td>
</tr>
</tbody>
</table>

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*
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 SGDs.
# Tracking Progress in and Climate SDGS for Maldives

## Cross-Sectoral Comparison

<table>
<thead>
<tr>
<th>Sector</th>
<th>5 Years Trend</th>
<th>MDV</th>
<th>S2WA</th>
<th>APAC</th>
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<tbody>
<tr>
<td><strong>Economic</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Total economic losses</td>
<td>↑</td>
<td>13</td>
<td>16</td>
<td>19</td>
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<tr>
<td>Agriculture sector</td>
<td>↓</td>
<td>1</td>
<td>1</td>
<td>1</td>
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<tr>
<td>Housing and assets sector</td>
<td>↓</td>
<td>1</td>
<td>1</td>
<td>1</td>
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<tr>
<td>Transport sector</td>
<td>↑</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td><strong>Social</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mortality and population affected</td>
<td>↓</td>
<td>1</td>
<td>1</td>
<td>1</td>
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<tr>
<td>Disrupted or destroyed livelihoods</td>
<td>↓</td>
<td>1</td>
<td>1</td>
<td>1</td>
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<tr>
<td><strong>Environment</strong></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>Land degradation index</td>
<td>↑</td>
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<tr>
<td>Water availability</td>
<td>↑</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Mangroves availability</td>
<td>↑</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
Tracking Progress in and Climate SDGS for Maldives
Explore, learn, and adapt with the AI Driven Adaptation Tool, your guide to evidence-based climate resilience.

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-Swaisgood, Maria Bernadet Dewi, Rahul Kumar Suman, Akash Shrivastav, Shashwat Avi, Sanjay Srivastava

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