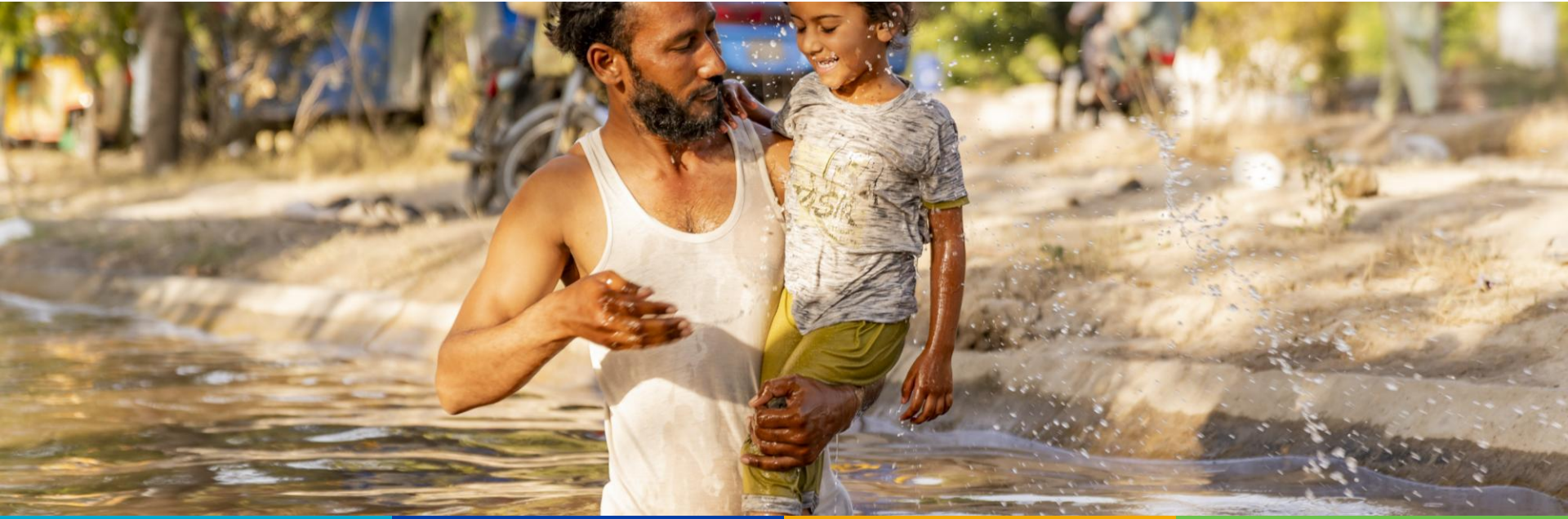
UNDRR
UN Office for Disaster Risk Reduction

WORLD METEOROLOGICAL ORGANIZATION

ITU

IFRC



Disaster Risk Knowledge | Observations & Forecasting | Dissemination & Communication | Preparedness & Response

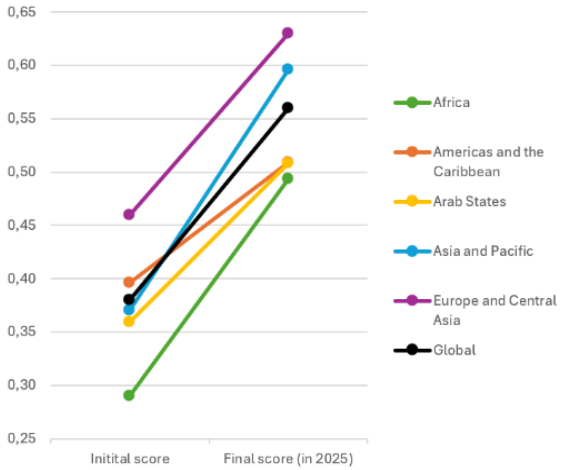
Early Warnings for All

Early Warnings for All

Dr Muhibuddin USAMAH, ***Scientific Officer, Early Warning Services Sections, WMO***
musamah@wmo.int

Significant Progress, But Not Yet Universal Protection

128	Countries now report multi-hazard early warning systems
180+	Countries receiving some form of financial or technical support
161	Countries supported by Pillar Leads
46	National roadmaps in implementation or development
20M+	People reached through anticipatory action (2024-2025)
Nearly 50%	Improvement in MHEWS comprehensiveness scores globally since reporting began

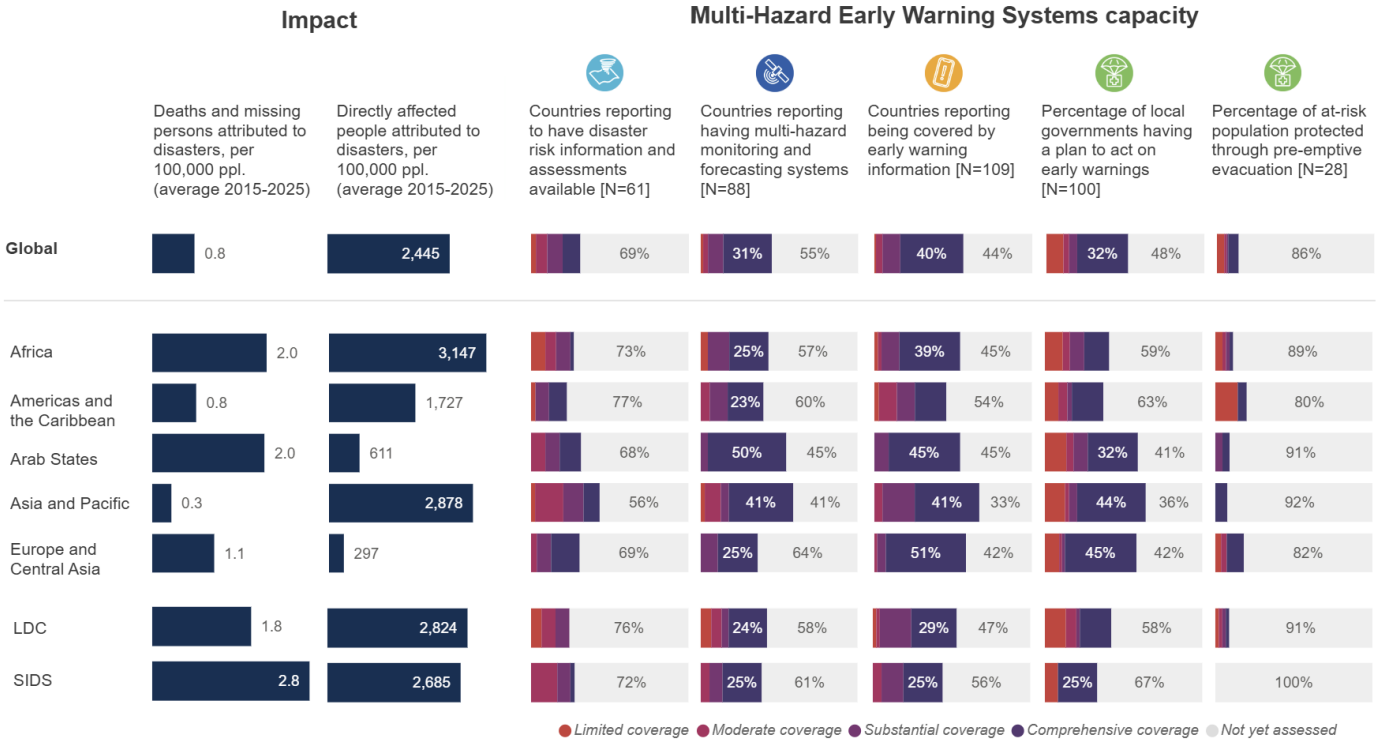


EW4All Dashboard

The Initiative's main data portal used to track progress and measure success along the M&E Framework.

Global status of early warning systems

The indicators below are designed to capture the global impact of the Early Warnings for All Initiative across the four pillars of end-to-end, people-centred early warning systems.



PAGES

Progress

- Global indicators
- Implementation

MHEWS Capacity

- Global overview
- Country/territory

PAGE FILTERS

REGION UNDRR

All

WMO REGIONAL ASSOCIATIONS

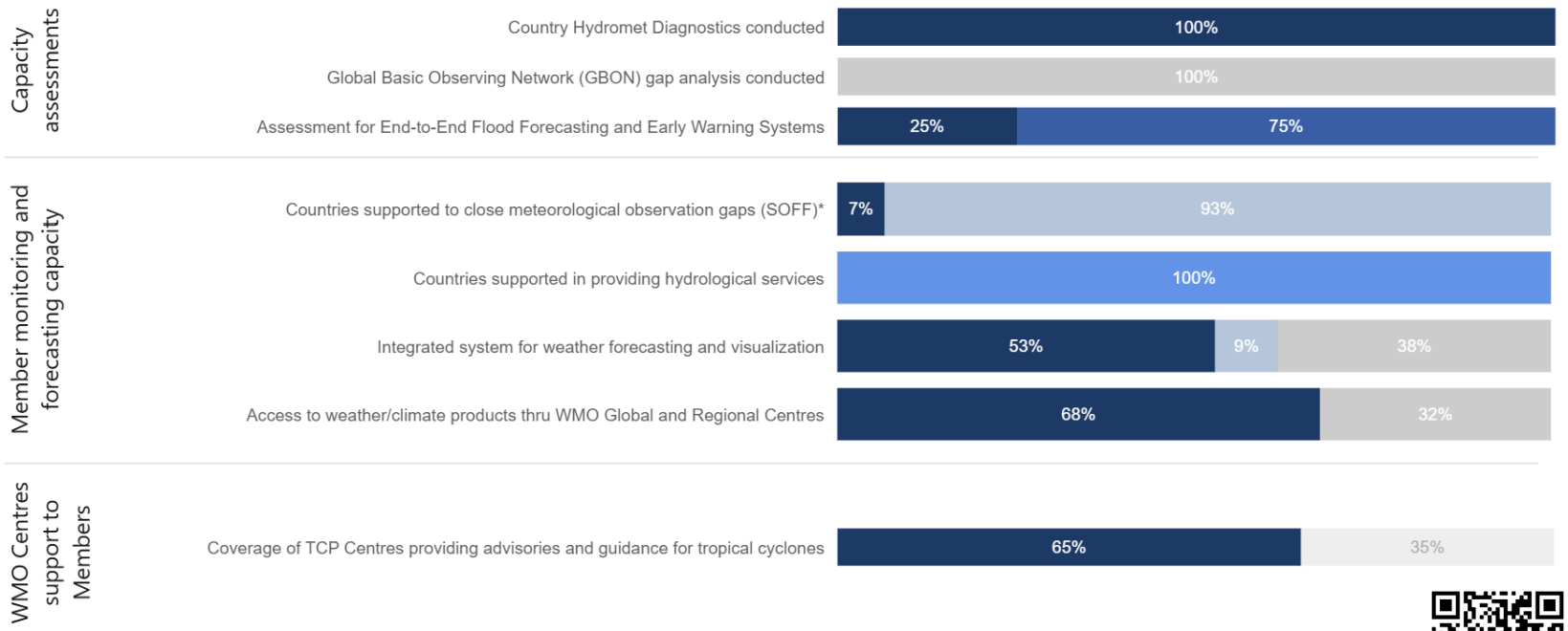
II: Asia

- Select all
- I: Africa
- II: Asia
- III: South America
- IV: North Ameri…
- V: South-West …
- VI: Europe

Implementation

The indicators below monitor global key indicators designed to measure implementation of the EW4All Pillar Implementation Strategies.

Disaster risk knowledge | Detection, Monitoring & Forecasting | Warning Dissemination & Communication | Preparedness to respond | Cross-cutting | Roll-out



PAGES

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PAGE FILTERS

COUNTRY/TERRITORY

Maldives

Maldives (example)

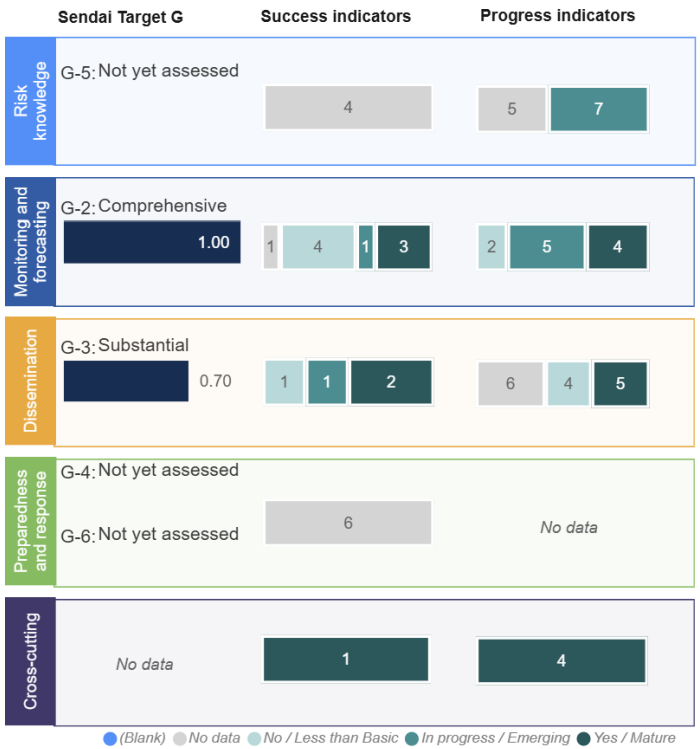
SENDAI TARGET G	COUNTRY INFORMATION	HYDROMETEOROLOGICAL HAZARDS	
G-1: Moderate	SIDS	Most frequent	Storm (general)
0.42	Upper middle income	Highest mortality	Flood (general)

Overview | Monitoring and forecasting capacity | Preparedness and Response | Capacity and development projects

This page presents information on the progress made by countries in reaching key milestones towards the development of comprehensive MHEWS capacity.

PILLAR: All

ACHIEVEMENT STATUS: All



KEY PROGRESS INDICATORS

2	Use of RSMCs guidance products for all priority hazards	In progress
2	Forecasters are trained on IBF	In progress
2	Fail-safe systems (incl. power backup, equipment redundancy, on-call personnel, and contingency plans)	Yes, in part
2	Download speed of internet bandwidth	26-50 Mbps
x	National MHEWS legislation	Decree
2	User feedback mechanisms established to validate warnings	Yes
3	EW4All Pillar 3 capacity gap assessment	Yes
3	Mobile phone ownership (% population)	96
3	% Population covered by mobile networks (3G+)	100

KEY SUCCESS INDICATORS

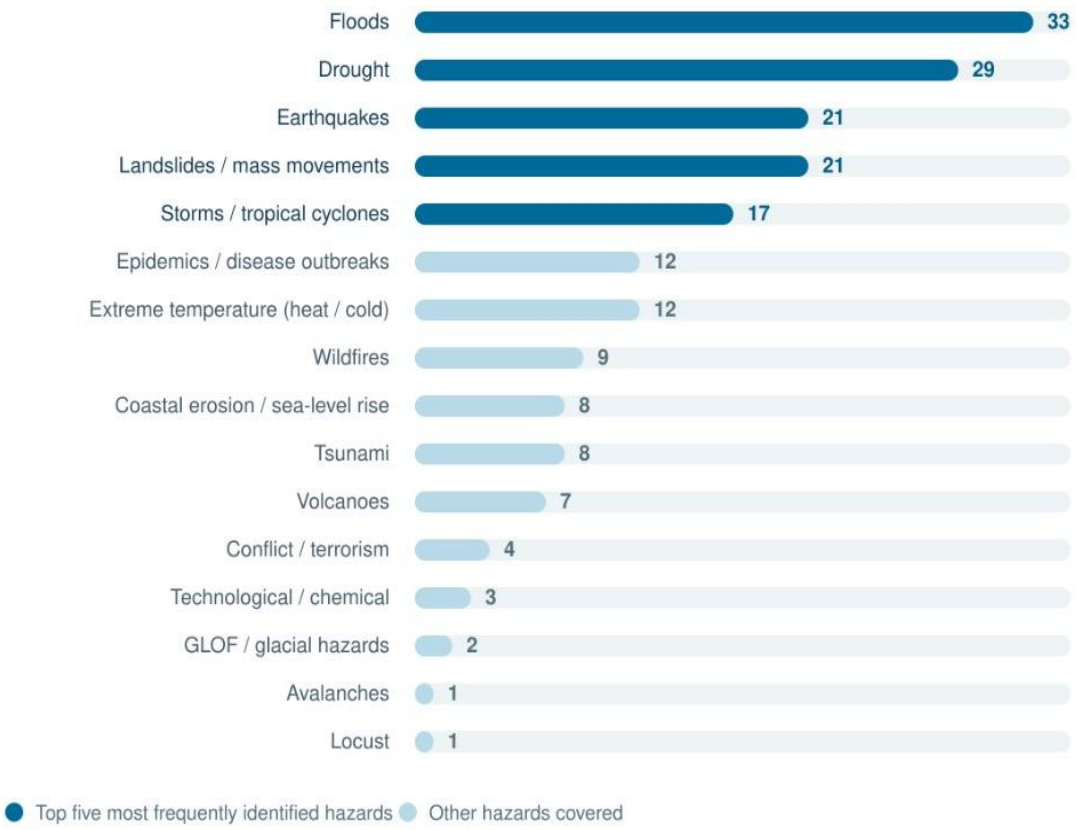
2	Standard Alerting Procedures in place with authorities and stakeholders	Yes
2	Warning services conducted 24/7	Yes
2	Global Basic Observing Network (GBON) compliance	No
2	Integrated system for weather forecasting and visualization	Yes
2	Integrated system for weather forecasting and visualization	No data
3	Common Alerting Protocol (CAP) adopted by National Meteorological and Hydrological Services (NMHSs)	Completed
3	Mobile early warning systems (cell broadcast and/or location-based SMS)	No
3	National Meteorological and Hydrological Services (NMHSs)	Sustained

A multi-hazard approach broadens collaboration

Analysis of 35 Country Roadmaps

The 35 EW4All roadmaps address 16 hazards—bringing more sectors, disciplines and institutions into coordinated action.

Hazards identified across 35 national roadmaps



From diverse hazards to coordinated action

16 hazards

broaden the partnership base

- Weather & water services
- Geological institutions
- Health & agriculture
- Disaster management, ICT & communities

Coordinated end-to-end MHEWS

Risk knowledge • Forecasting • Communication
Preparedness and response

One national framework for joint action

Financing, Technology and Monitoring Gaps

Financing gaps

- Project-based, infrastructure-focused — operations, maintenance, workforce underfunded
- EWS not yet integrated into national budgets, climate finance, or humanitarian planning

Technology divide

- Only ~45 countries have mobile-based warning systems
- AI and digital tools: major opportunity, but infrastructure, governance, and interoperability investment needed

Monitoring and Evidence Base

- Partial reporting understates real progress
- M&E architecture (Maturity Index, dashboards, pillar assessments) shifting toward measuring operational maturity and real-world effectiveness

Who is still at risk of being left behind?

Countries requiring targeted attention

- FCV settings: Standard delivery mechanisms are insufficient
- High-risk SIDS, LDCs, LLDCs: Systems established but not yet operationally mature or financially sustainable
- Middle-income countries: Significant exposure, large vulnerable populations, but lower visibility in international support frameworks

Under-addressed hazards

- Extreme heat, wildfire, volcanic hazards, and solar storms require accelerated action on coverage, governance, and cross-border coordination
- Cascading risks are growing — most national systems still operate in single-hazard silos

Last mile

- Warnings often fail not because they are absent, but because they do not reach, resonate with, or prompt action among at-risk populations
- Women, older persons, persons with disabilities, linguistic minorities, and remote communities face the greatest barriers

Recent and Upcoming Implementation Highlights

Updated Early Warning Technical Regulations (WMO)

- Agreed by WMO Extraordinary Congress October 2025, now published in six official languages
- Substantial upgrade to agreed standards of early warning services to be implemented, including:
  - Definition of institutional arrangements
  - Coordination between entities
  - Quality and business continuity of services received by public
  - Information about possible impacts of hazards on communities, infrastructure and relevant socioeconomic sectors
  - Communication standards and channels
  - Recording and cataloguing of events and impacts
- For 'meteorological, hydrological, climatological, and related environmental hazards'
- Guide now ready for SERCOM review

WMO-No.49, Part IV, 6: Early Warning Services

اللائحة الفنية : المجلد الأول - المعايير العامة والممارسات الموصى بها للأرصاد الجوية – *Arabic*
(edition 2025)

Технический регламент, Том I — Общие метеорологические стандарты и рекомендуемые практики – *Russian*
(edition 2025)

Règlement technique, Volume I – Pratiques météorologiques générales normalisées et recommandées – *French*
(edition 2025)

Reglamento Técnico, Volumen I — Normas meteorológicas de carácter general y prácticas recomendadas – *Spanish*
(edition 2025)

技术规则第一卷 - 通用气象标准和建议规范 – *Chinese*
(edition 2025)

Leveraging AI to Enhance MHEWS

What this report provides:

Showcases practical AI solutions that can strengthen all four pillars of MHEWS, highlighting technologies already being applied around the world.

Identifies **operational gaps in MHEWS where AI can add value** and the conditions needed for responsible, effective implementation.

Developed under the **AI for EW4All Group**, bringing together global case studies, partner experience and emerging research.

UNDRR UN Office for Disaster Risk Reduction | World Meteorological Organization | ITU | IFRC

Launched July 2026

Download the report

AI Opportunities Across MHEWS Pillars

Disaster Risk Knowledge

- Risk data discovery and integration
- Exposure and vulnerability baselines
- Use of risk information in early warning and early action
- Loss and damage data tracking & analysis

Detection, Observation, Monitoring, Analysis, and Forecasting

- Nowcasting
- AI weather prediction
- Flood and cyclone forecasting
- Impact-based forecasting

Warning Dissemination and Communication

- Automated translation
- Personalised alerts
- Misinformation management

Preparedness to Respond to Warnings

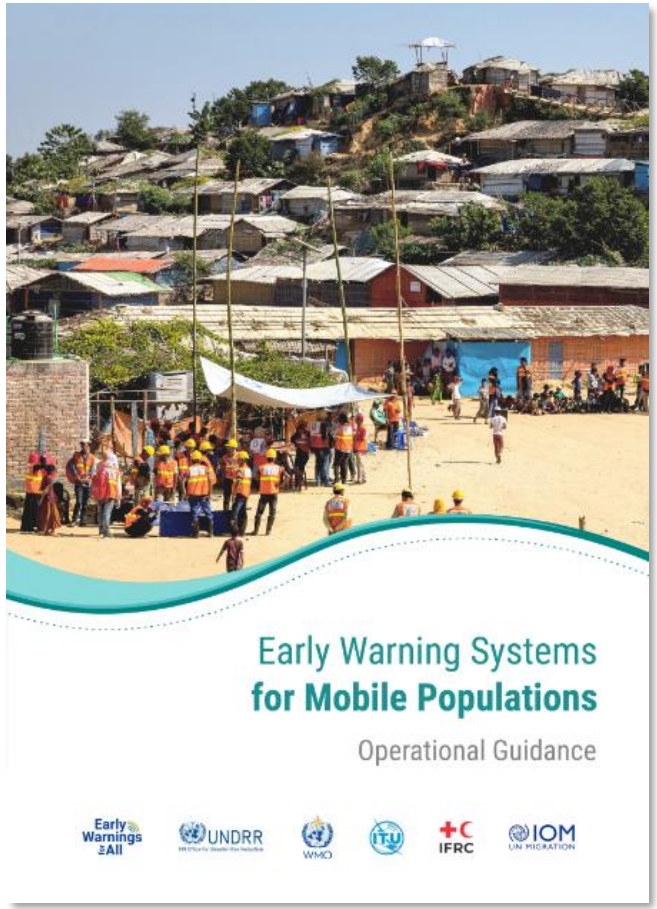
- Scenario modelling
- Resource optimisation
- Anticipatory action triggers

AI allows for end-to-end solutions - connecting all four pillars into interoperable, people-centred warning systems

Early Warnings in Fragile, Conflict and Violent Settings

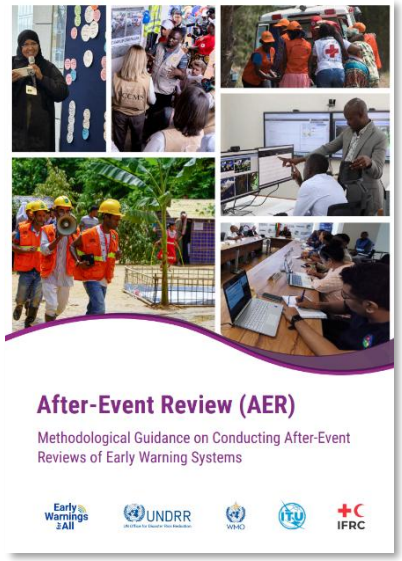
Operational Guidance on Early Warning Systems for Mobile Populations

Launched
22 July 2026



After Event Review (AER) & Simulation Manual

- **After Event Review**: Structured, learning-oriented process for government and stakeholders to assess EWS performance after a hazardous event
- **EW4All Simulation Exercise Manual**: A new step-by-step guide for designing and running functional and full-simulation exercises that test early warning and anticipatory action systems end to end.



Launched
4 August 2026

(References Value Chain Report)

The Road Ahead: The Regional-to-Global Consultative Process

Early Warnings for All: A Global Commitment

- **Five years after the UN Secretary-General's call for universal early warning coverage, 2027 marks the need for a pivot:**
  - From a time-bound initiative to a long-term global commitment
  - From short-term projects to nationally owned early warning systems
  - From reliance on external financing to sustainable, blended long-term financing

- The regional-to-global process aims to build momentum through a series regional consultations, culminating in a high-level global event, on the way forward on Early Warnings.

Objectives

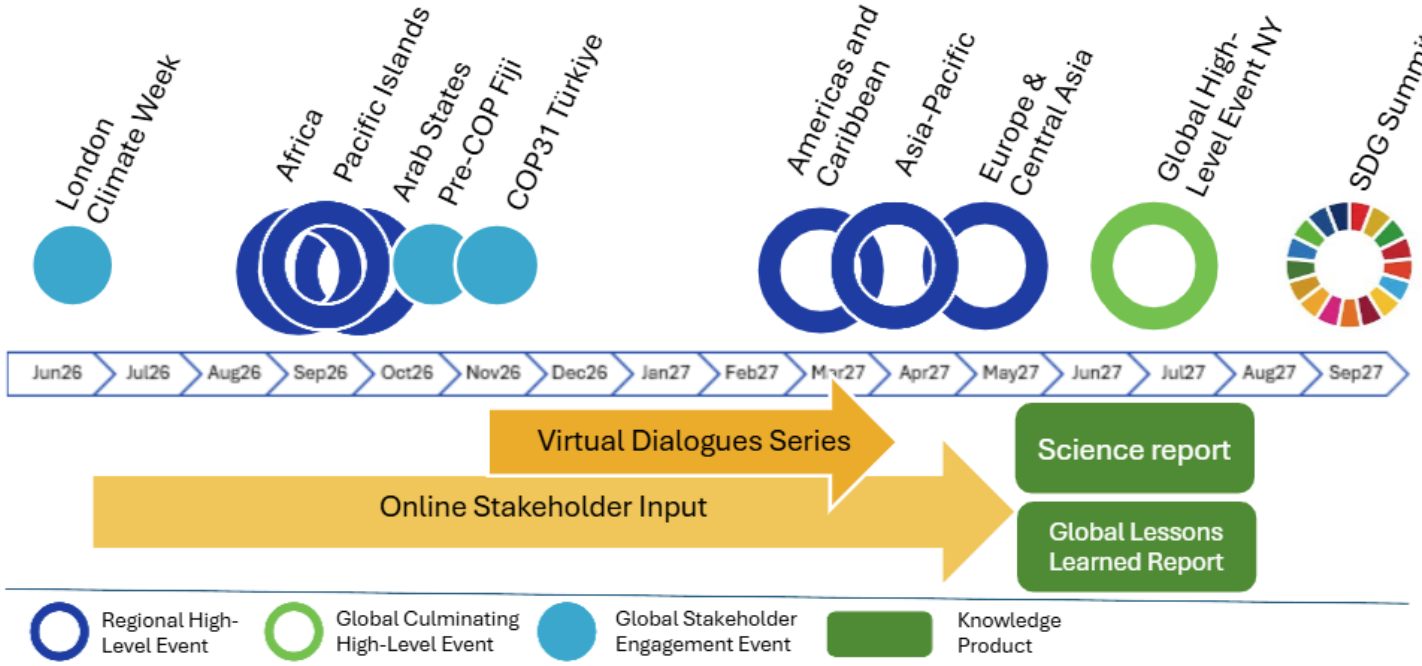
- Review impact
- Identify priorities and commitments
- Define the post-2027 architecture
- Build momentum

Consultations around Six Thematic Areas

- Impact of the Early Warnings for All Initiative
- Sustainable Financing for Early Warning Systems
- National Ownership, Governance, and Institutional Sustainability
- People-Centred and Inclusive Early Warning Systems
- Technology, Innovation, and the Role of AI
- Early Warning to Early Action: Bridging the Gap

How can we best bring science advances into this?

The Regional-to-Global Consultative Process




Early warnings work.
They must work for everyone.