Early Warnings for All in Focus: Hazard Monitoring and Forecasting

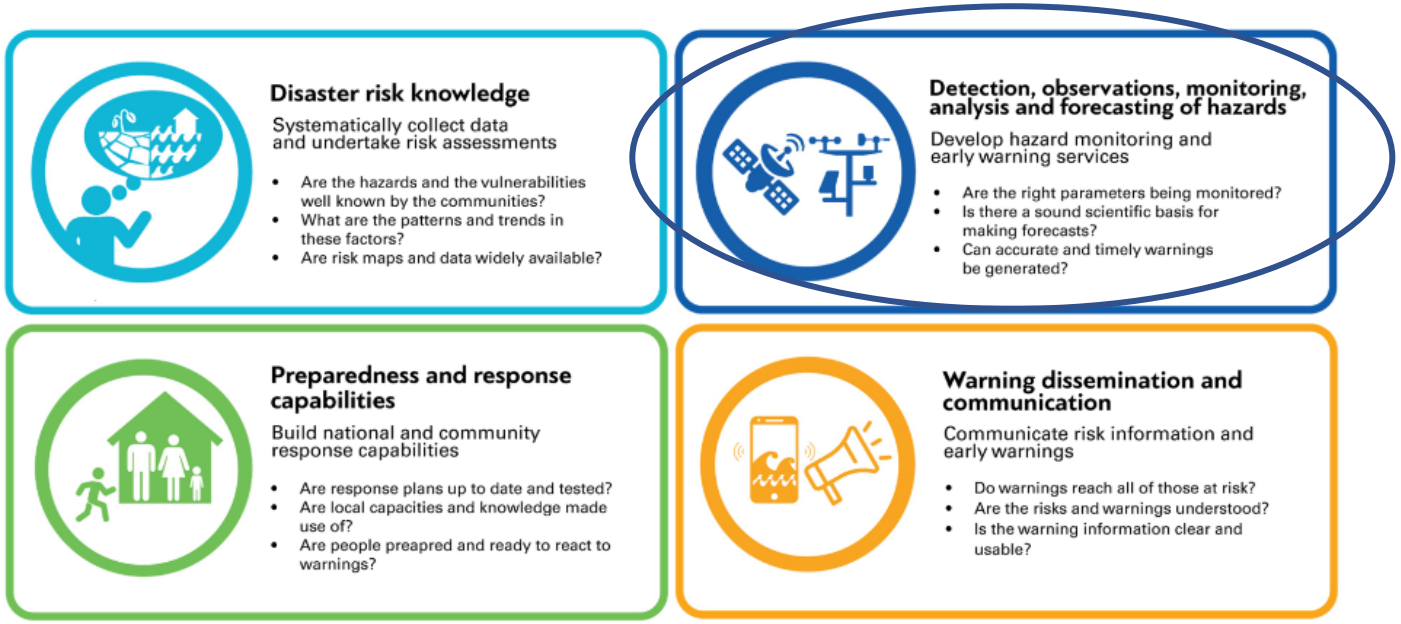
Results of the Pillar 2 Rapid Assessment

South Caucasus Early Warnings for All Event, Geneva, 14 December 2023

WMO OMM

Purpose | Pillar 2 Rapid Assessment

- ✓ **Inform the planning stage** of the Early Warnings for All Initiative
  - o Quick baseline data, more granular data
- ✓ **Identify capacity gaps**
  - o Guide technical assistance and investments
- ✓ **Develop a tool for monitoring country capacity**
  - o Maturity Index



Methodology | Pillar 2 Rapid Assessment

- ✓ 8 elements of hydrometeorological value chain
- ✓ 70+ data points
- ✓ Quantitative and qualitative data
- ✓ 5 priority hazards

- ✓ Applied to 30 countries
- ✓ Structured interviews
- ✓ Maturity levels on a scale of 1-5

- ✓ Based on Country Hydromet Diagnostics and other existing methodologies

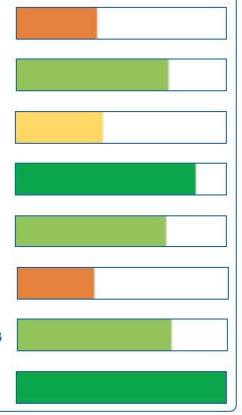
Legal framework and institutional mechanisms
Observational infrastructure
Hazard-specific observations
Remote-sensing data
NWP model and forecasting tool application
Impact-based forecasting capacity
Warning services and MHEWS operations
Financial and technological enablers

Country Scorecards | Pillar 2 Rapid Assessment

COUNTRY X 3

NMHS has good synoptic observation capacity and data management, sufficient trained forecasters to meet its needs, extensive fail-safes systems and good financial and technological resources. It lacks observation capacity for marine and hydro hazards, IBF capacity is incomplete, and it suffers from a lack of governance and effective institutional cooperation. The latter is currently being addressed by a CREWS project.

Pillar II capacity



The capacity assessment level above is ranked on a scale from 1 to 5, where 5 represents advanced capacity and 1 represents no capacity. The capacity level is determined via a quantitative (weighted rating) and qualitative analysis of the EW4All Rapid Assessment Tool (RAT) submission of the Member.

The colours of the bars above express the degree of attainment of each element as quantified by the EW4All RAT, following the percentages indicated hereafter: 0-20% | 21-40% | 41-60% | 61-80% | 81-100%

Tropical cyclones

\+ Good access to and use of remote-sensing data

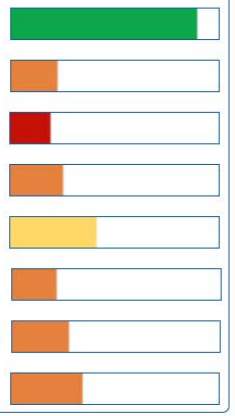
— Limited local observations
Lack of impact data for IBF

Rogue waves/high seas

COUNTRY Y 2

Despite a moderate amount of synoptic station, observations are limited by a lack of capacity to perform maintenance, QC and calibration, as well as to transfer data in (near)real-time. Forecasting capacity is impaired by a lack of training, incl. on remote sensing data. Cooperation with the national DRR agency is limited, and no risk and vulnerability data is available for IBF. Little financial resources are available for service improvements.

Pillar II capacity



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Flash-floods

≈ Limited forecasting capacity

— Lack of hydrological observations
Lack of vulnerability/impact data

Rogue waves/high seas

\+ Benefit from RSMC la Réunion guidance

Storm surge/coastal flood

≈ Limited forecasting capacity

Tsunami

≈ Reliance on Regional Tsunami Service Provider

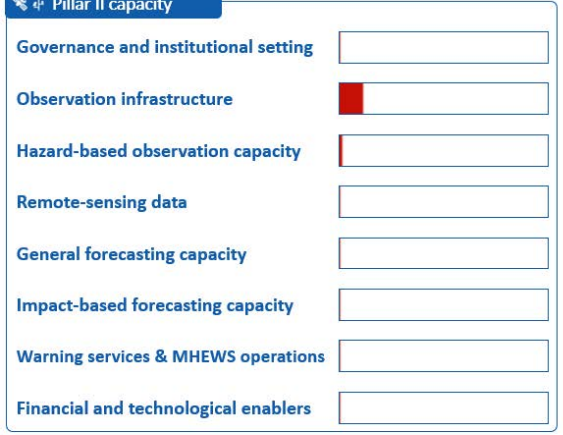
Rain/Wet spell

≈ Limited forecasting capacity

COUNTRY Z 1

The NMHS is being established, with a related law expected to pass by June 2023. As it is not yet a functioning national service, the NMHS lacks all human, financial, material and logistical resources. Observations stations in the country are operated by FAO and will be transferred to the NMHS: 6 met AWS, 15 hydro- and 100 agromet stations (most are not fully operational).

Pillar II capacity



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Drought/Dry spell

— Acute lack of observation, forecasting and warning capacity

Flash-floods

— Acute lack of observation, forecasting and warning capacity

Riverine floods

— Acute lack of observation, forecasting and warning capacity

Tropical cyclones

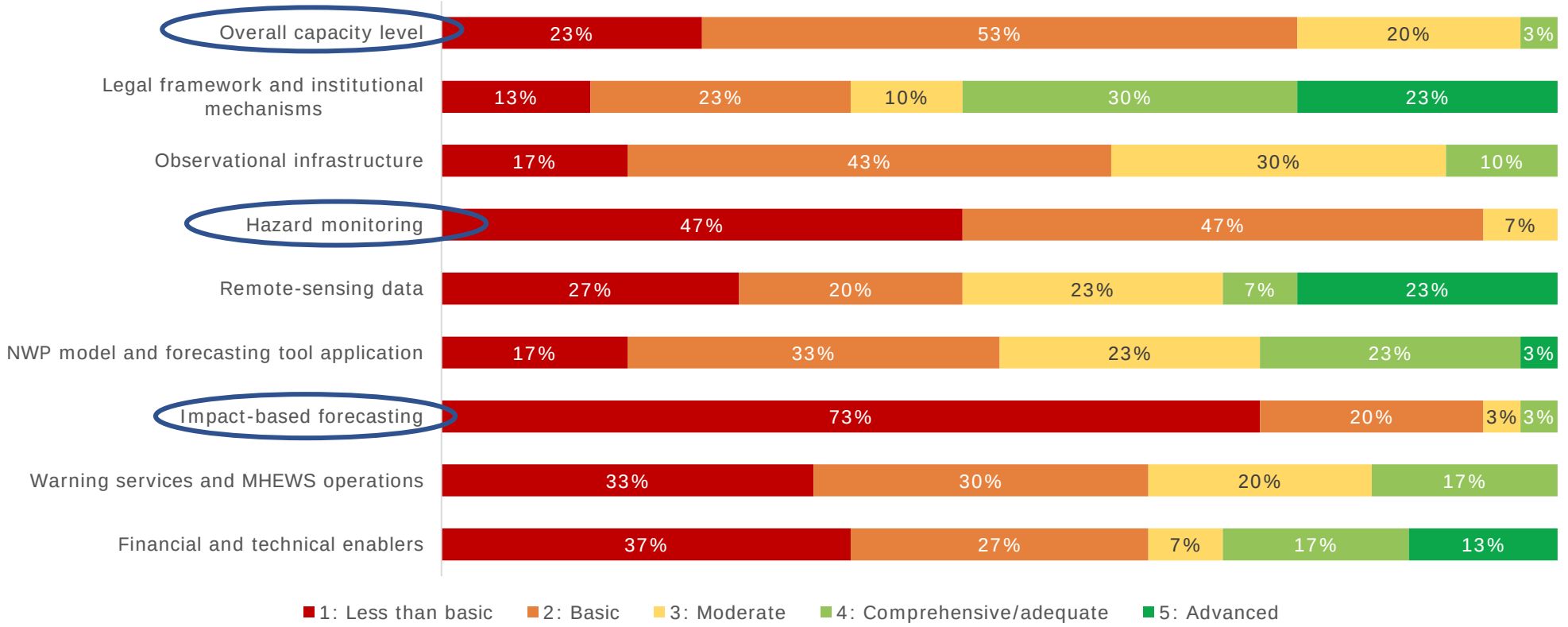
— Acute lack of observation, forecasting and warning capacity

Thunderstorms/Squall lines

— Acute lack of observation, forecasting and warning capacity

Aggregate Results | Pillar 2 Rapid Assessment

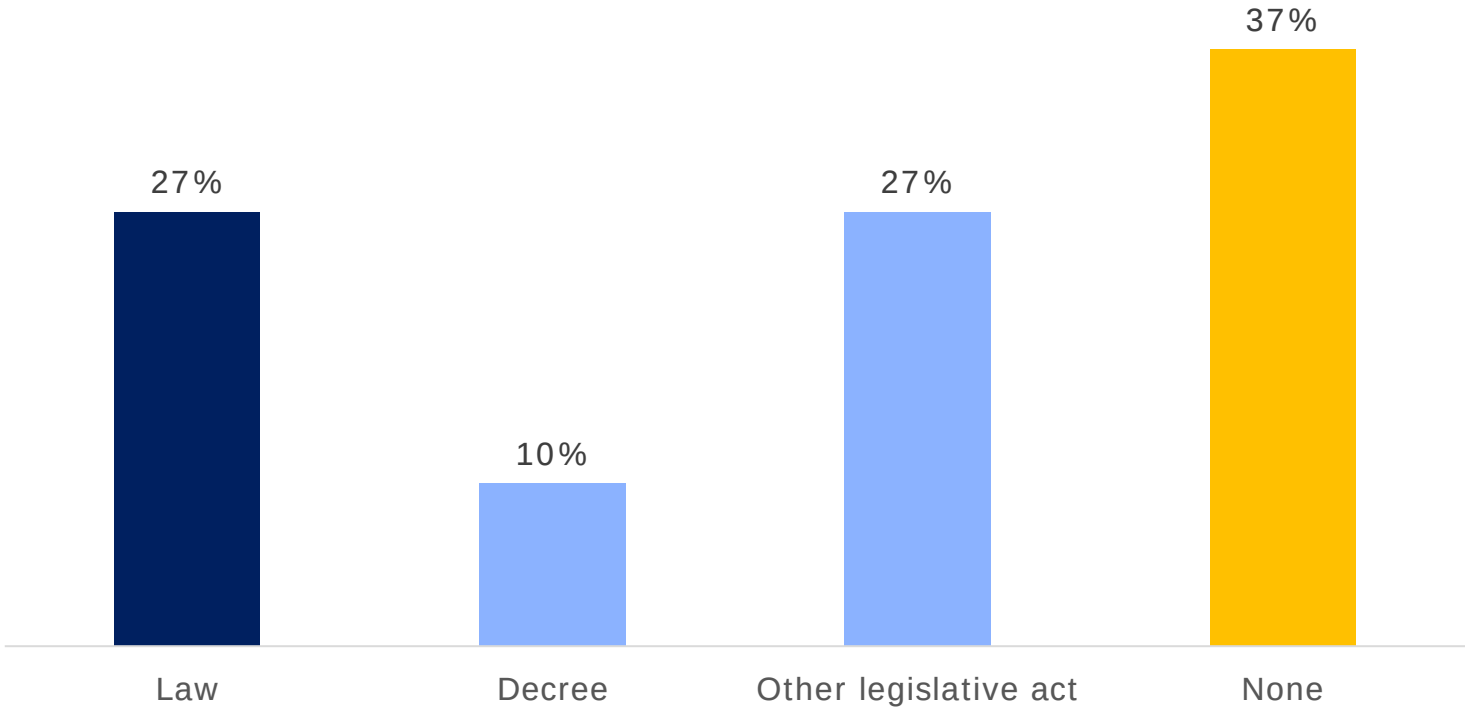
Half of the 30 NMHS operate with basic monitoring and forecasting capacity; a quarter with less-than-basic capacity



EW4All Pillar 2 capacity levels of 30 selected countries (data collected by WMO, 2023)

Legal Framework & Institutional Mechanisms | Pillar 2 Rapid Assessment

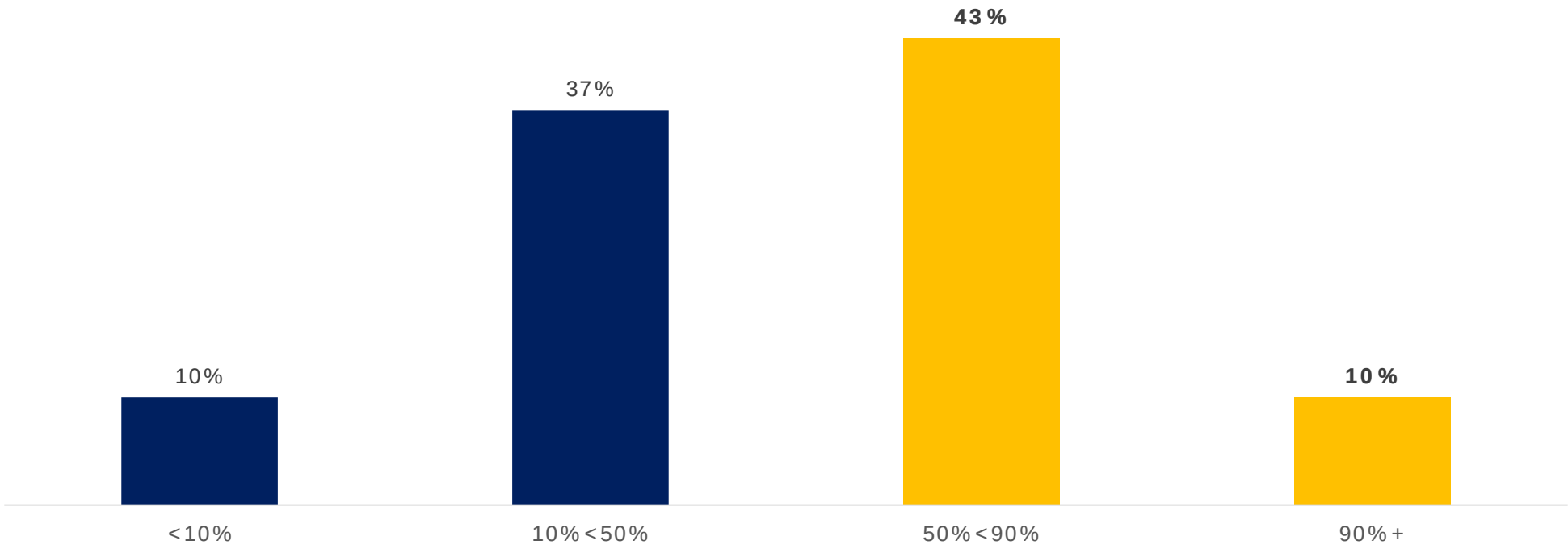
- Lack of legislative framework
- Where it exists, it often falls short of establishing clear roles and responsibilities
- Fails to implement systematic data exchange protocols



Existence of a law, decree or other legislative act on MHEWS in 30 selected countries (data collected by WMO, 2023)

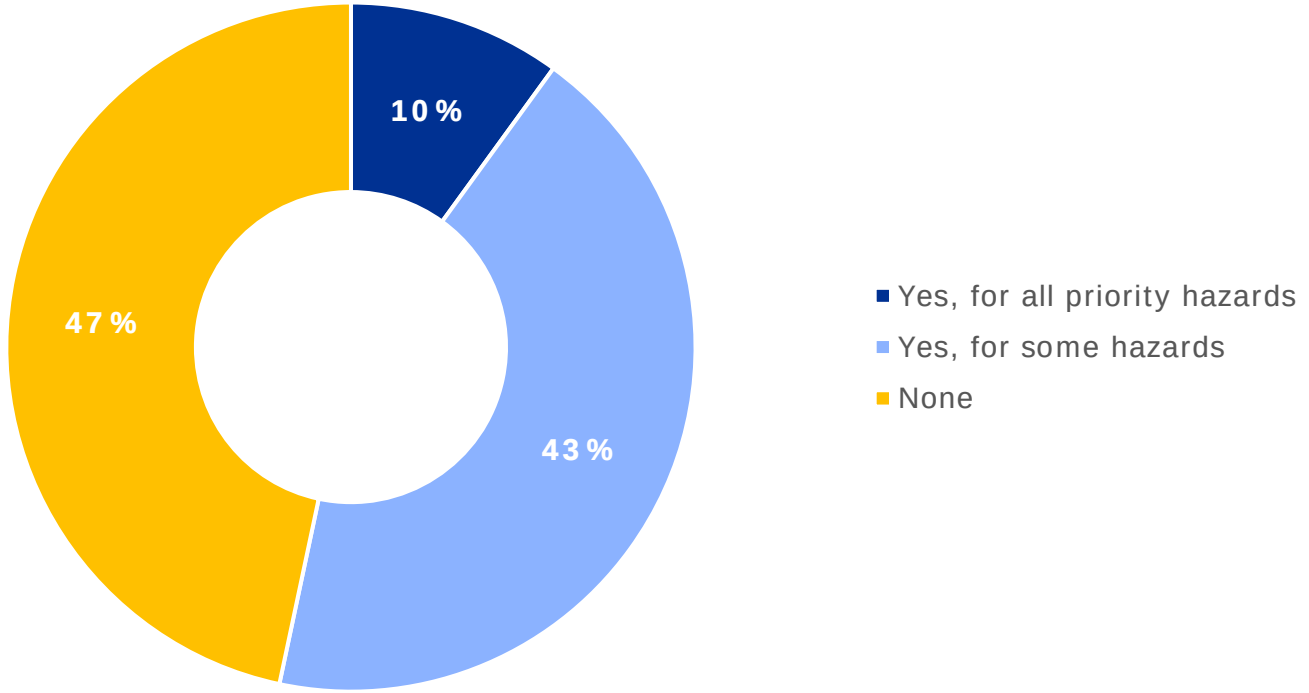
Observation Infrastructure | Pillar 2 Rapid Assessment

53% of the 30 NMHSs reported that more than half of their observation infrastructure is inoperable



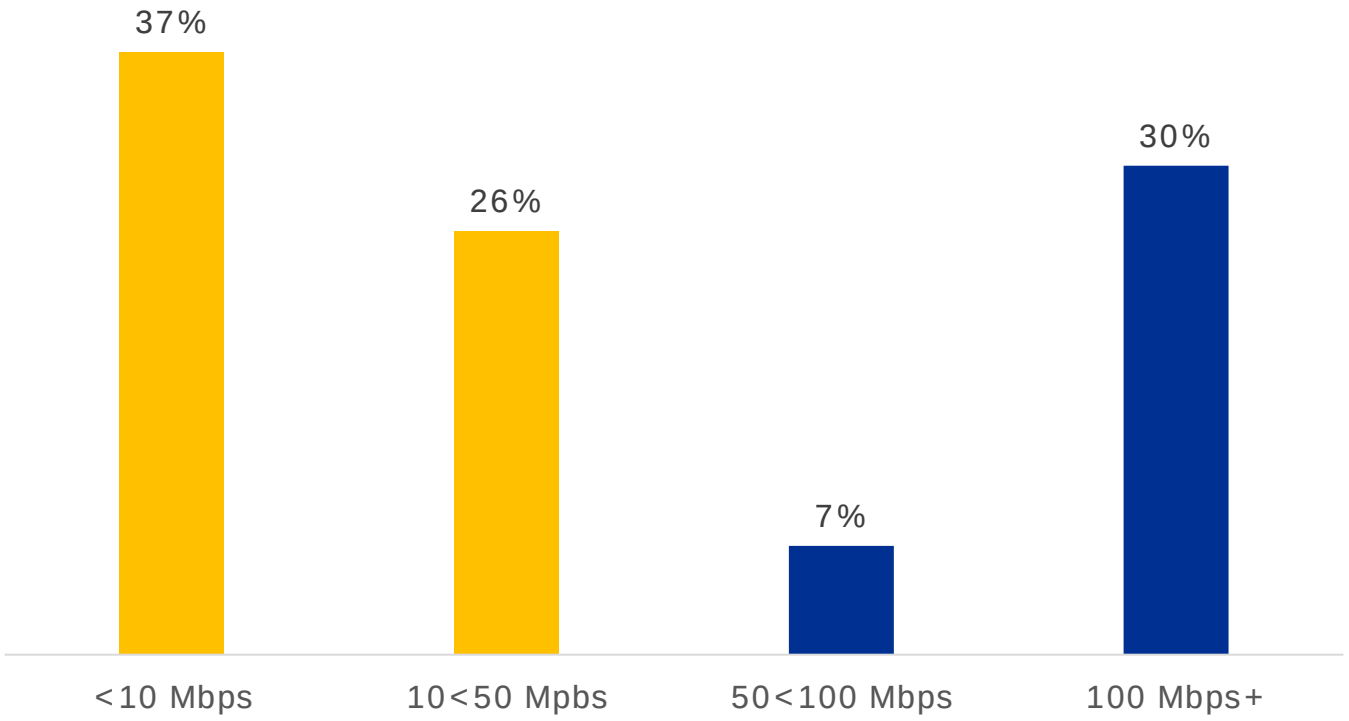
Estimated percentage of inoperable (silent) stations in 30 selected countries (data collected by WMO, 2023)

Staff at 47% of the 30 NMHSs have not received any training to use satellite data for hazard monitoring



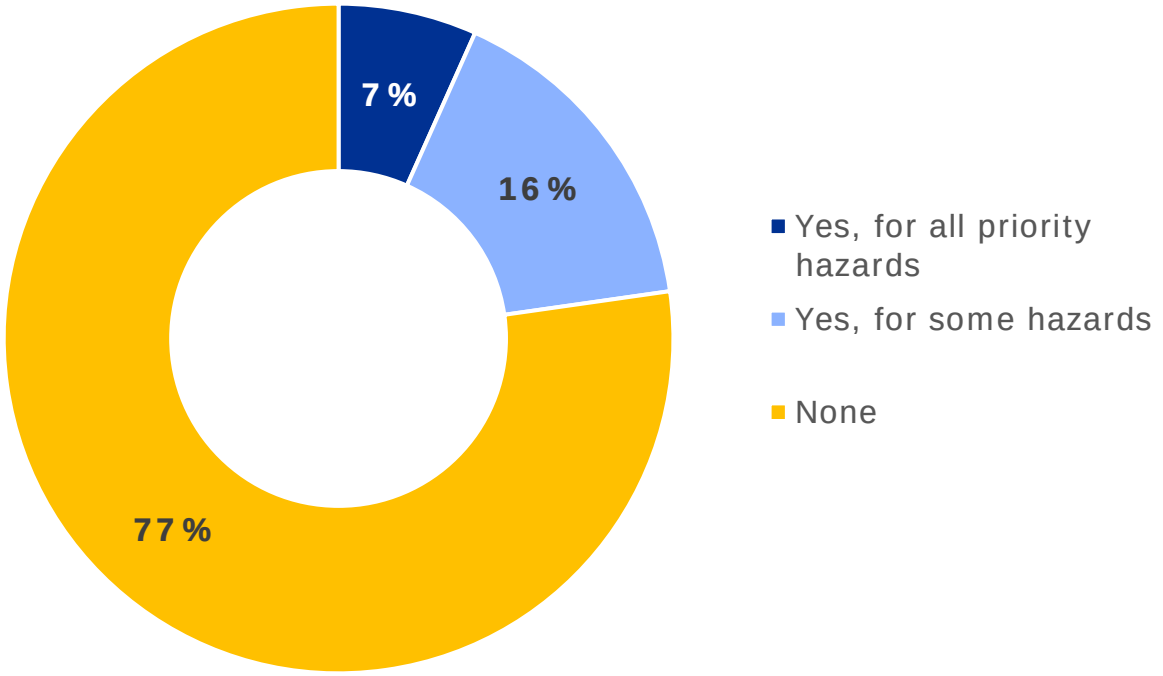
NMHS forecasters who are trained to access and use satellite data to monitor hazards, in 30 selected countries (data collected by WMO, 2023)

60% have unstable internet connection, with frequent loss of connectivity and drop in bandwidth



Maximum download speed available at the national forecasting centre in 30 selected countries (data collected by WMO, 2023)

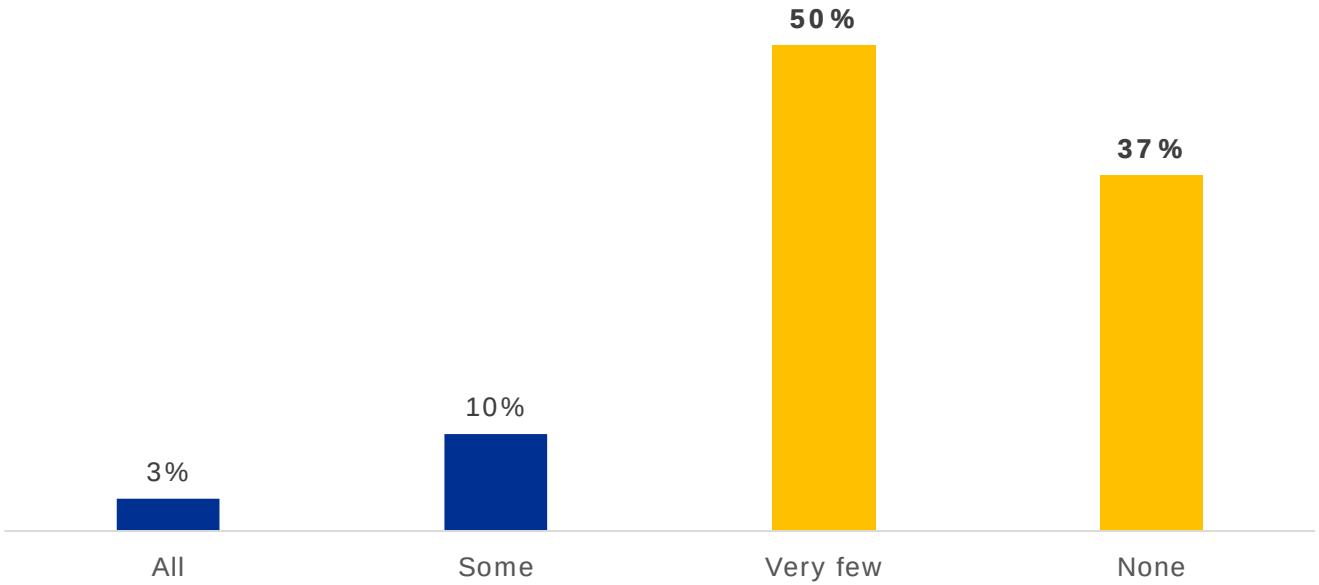
77% of the 30 NMHSs assessed do not implement Impact-Based Forecasting



NMHSs that produce impact-based forecasts and warnings for their priority hazards in 30 selected countries (data collected by WMO, 2023)

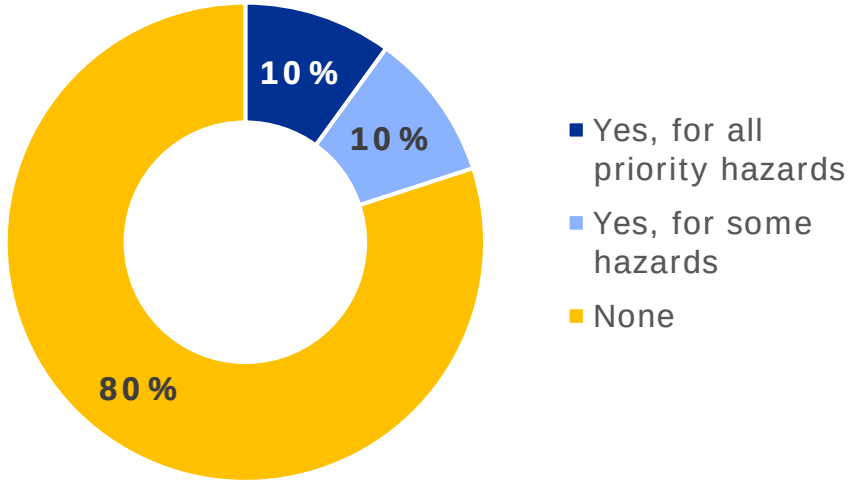
Impact-Based Forecasting | Pillar 2 Rapid Assessment

87% of the 30 NMHSs have no or very few of their forecasters trained in applying Impact-Based Forecasting



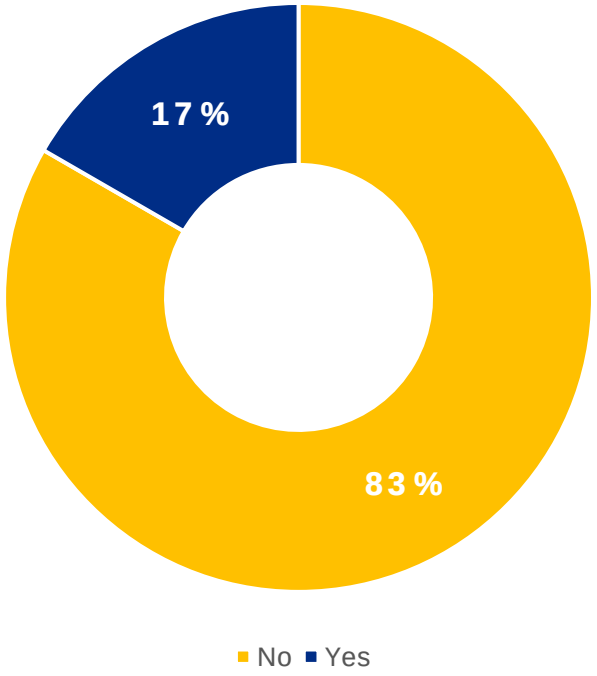
NMHS forecasters trained in applying impact-based forecasting principles and methods in 30 selected countries (data collected by WMO, 2023)

80% do not have access to impact information and post-disaster analytics for IBF

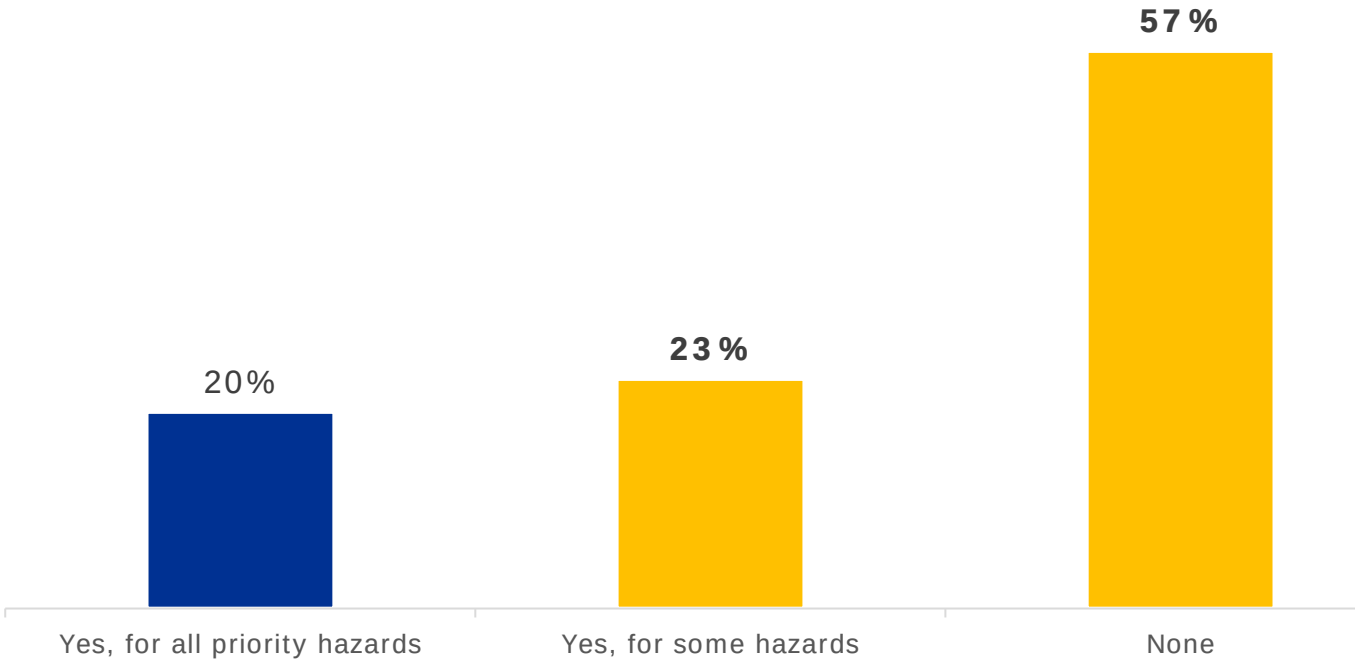


Access to impact information and post-disaster analytics to incorporate in impact-based forecasting in 30 selected countries (data collected by WMO, 2023)

Integrated MHEWS are missing in most countries, as are operational inter-agency mechanisms, including standard alerting procedures

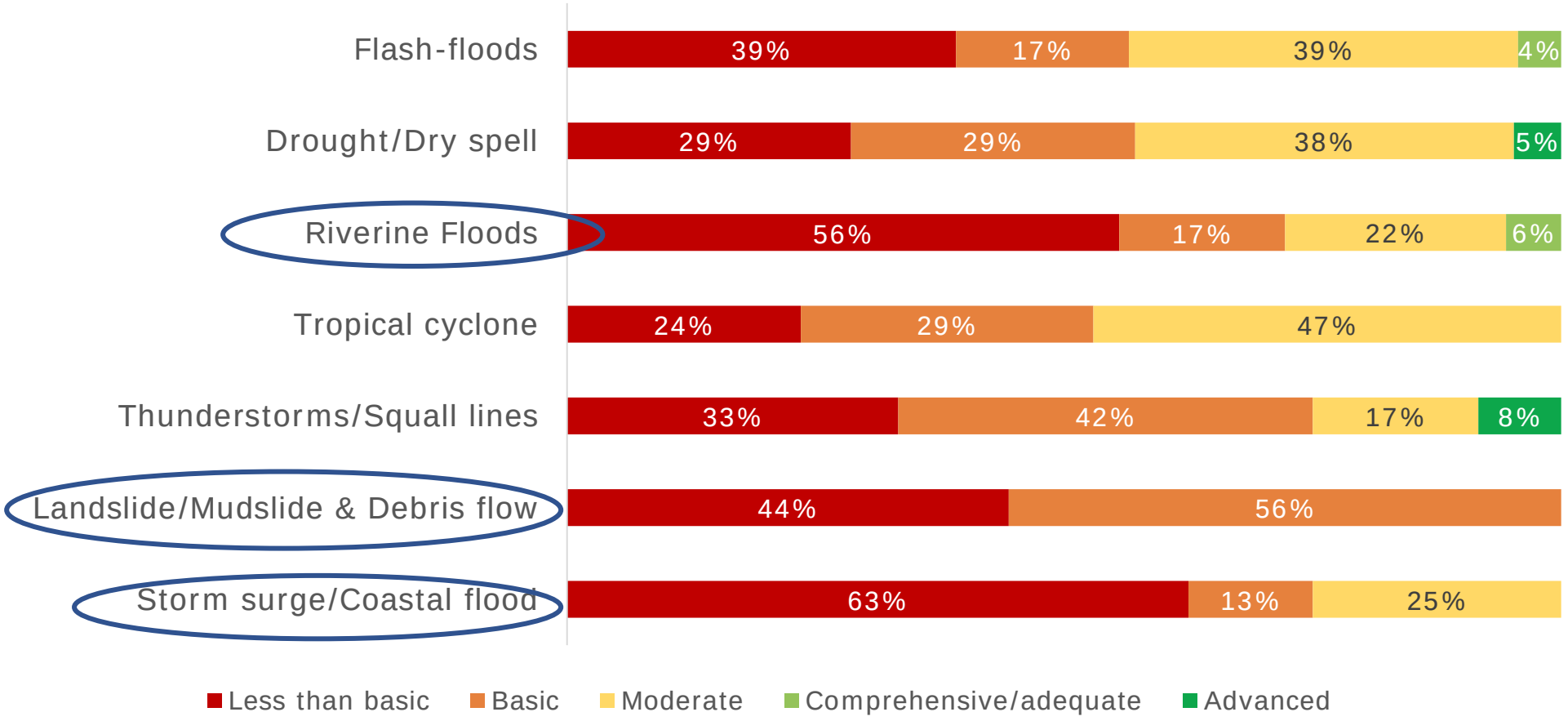


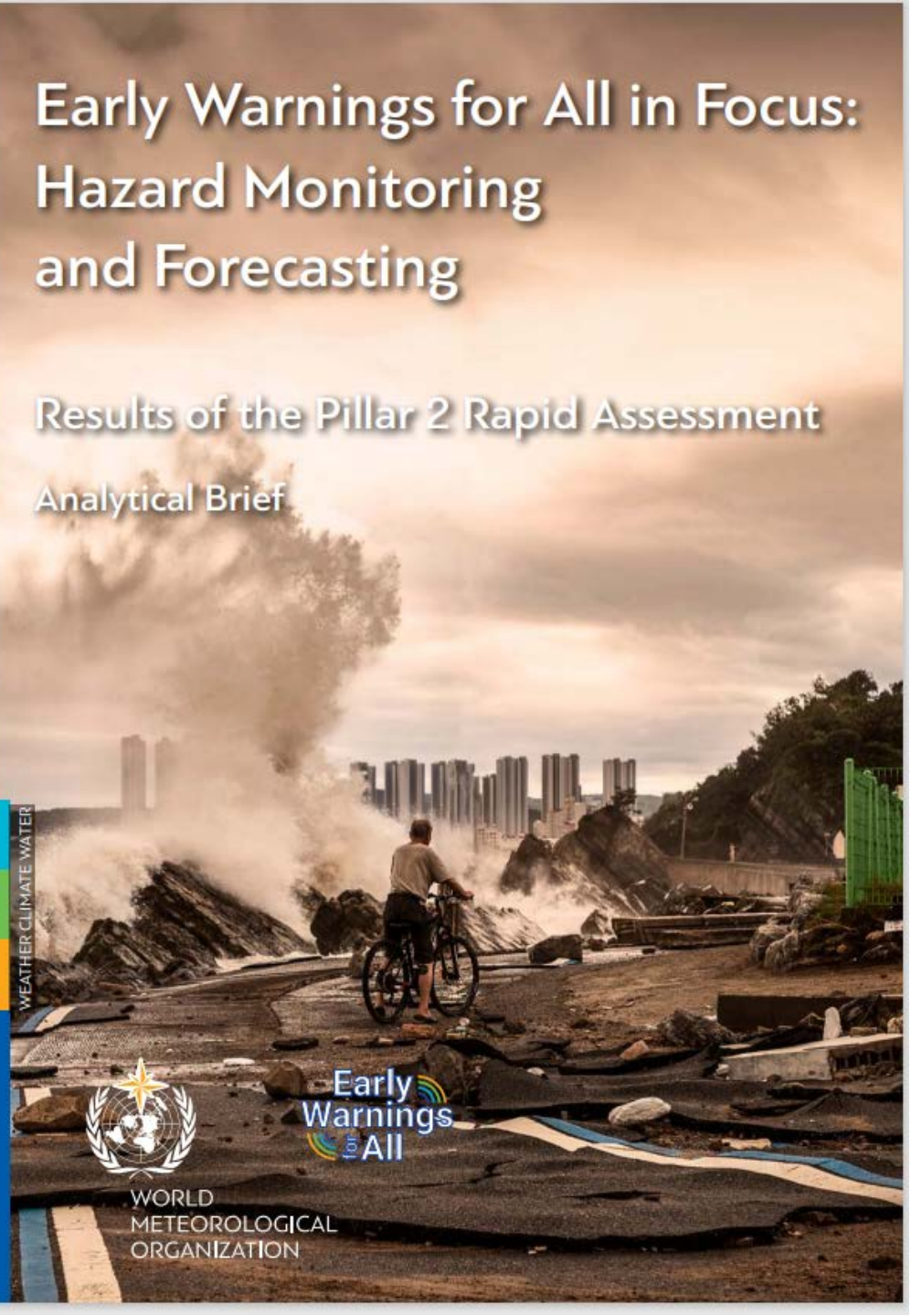
Integrated Multi-hazard Early Warning System established in 30 selected countries (data collected by WMO, 2023)



Standard alerting procedures in place with alerting authorities in 30 selected countries (data collected by WMO, 2023)

Self-assessed monitoring capacity of the most frequently identified priority hazards, 30 countries (WMO, 2023)





Early Warnings for All

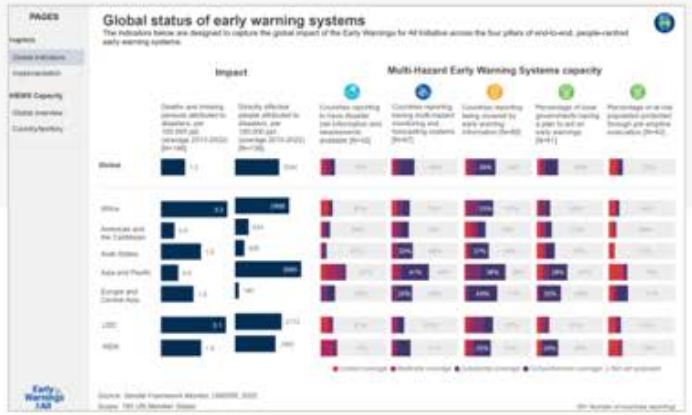
Early Warnings for All in Focus:

A Rapid Assessment of Country Monitoring and Forecasting Capacity

WMO

Dashboard

Early Warnings For All

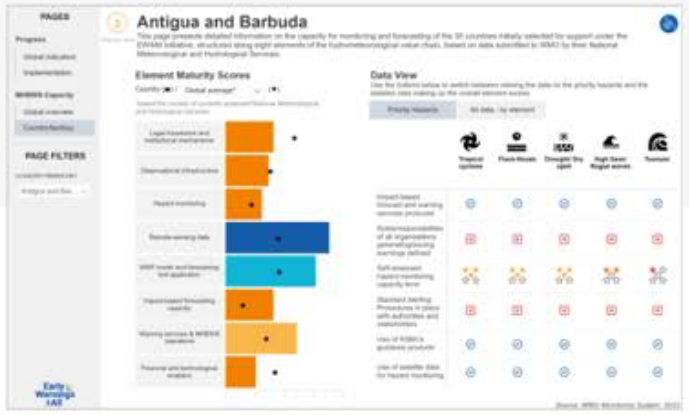


Global indicators

Explore the overall progress of the Early Warnings For All initiative. Indicators capture the global impact of natural disasters and the status of Multi-Hazard Early Warning Systems.

Implementation indicators

Learn more about the global key indicators designed to measure the EW4All Pillar Implementation Strategies. Use the tabs to explore data for each of the four pillars as well as cross-cutting indicators.



MHEWS Country Capacity

Delve into country-level information on the capacity for monitoring and forecasting of the 30 countries initially selected for support under the EW4All Initiative.

Thank you!

WORLD METEOROLOGICAL ORGANIZATION

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