16th EUMETSAT User Forum in Africa
(Cotonou, Benin, 16-20 September 2024)

WEATHER CLIMATE WATER
TEMPS CLIMAT EAU

Early warnings for all (EW4All) initiative

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World Meteorological Organization
Organisation météorologique mondiale

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INFCOM = WMO Commission for Observation, Infrastructure and Information Systems
RAIDEG = WMO Regional Area I Satellite Data Dissemination Expert Group

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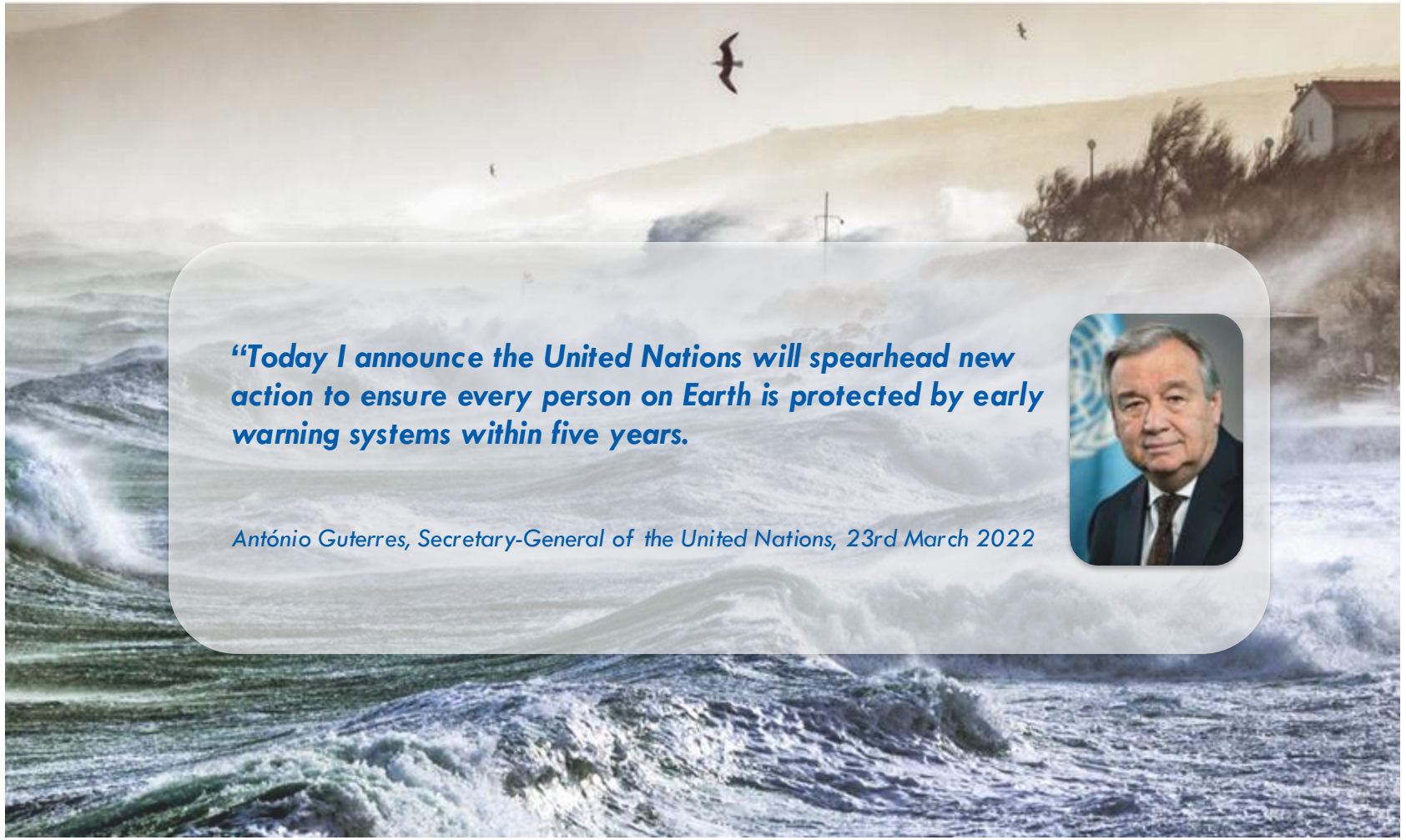
Early Warnings for All



"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.

António Guterres, Secretary-General of the United Nations, 23rd March 2022

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Gaps in early warning services coverage pose worldwide risks

- Early warning services cover **65 percent of the world's population**, mainly in OECD countries.
- In Africa, coverage is about 45 percent.
- In the Least Developed Countries (LDCs) and Small Island Developing States (SIDS) coverage is less than 50%.
- Only half of the world's countries report having enough capacity to alert their citizens in case of impending hazardous weather conditions.

The initiative is built on four pillars

UNDRR

Disaster risk knowledge and management (led by UNDRR)

Ensuring all countries **have *access to reliable, understandable and relevant risk information, science and expertise***

WMO

Detection, observation, monitoring, analysis and forecasting (led by WMO)

Ensuring all countries have ***robust forecast and monitoring systems***, *enabling policies to support optimization and sustainability of hazard monitoring and early warning systems*

ITU

Warning dissemination and communication (led by ITU)

Using a people-centered approach to *ensure that* ***early warnings are effectively and timely disseminated to reach everyone***, especially those most at risk

IFRC

Preparedness and response capabilities (led by IFRC)

Ensuring local **governments, communities and individuals at risk have the *knowledge and means to take pre-emptive early actions*** *to prepare for and respond to incoming disasters* upon receiving warnings

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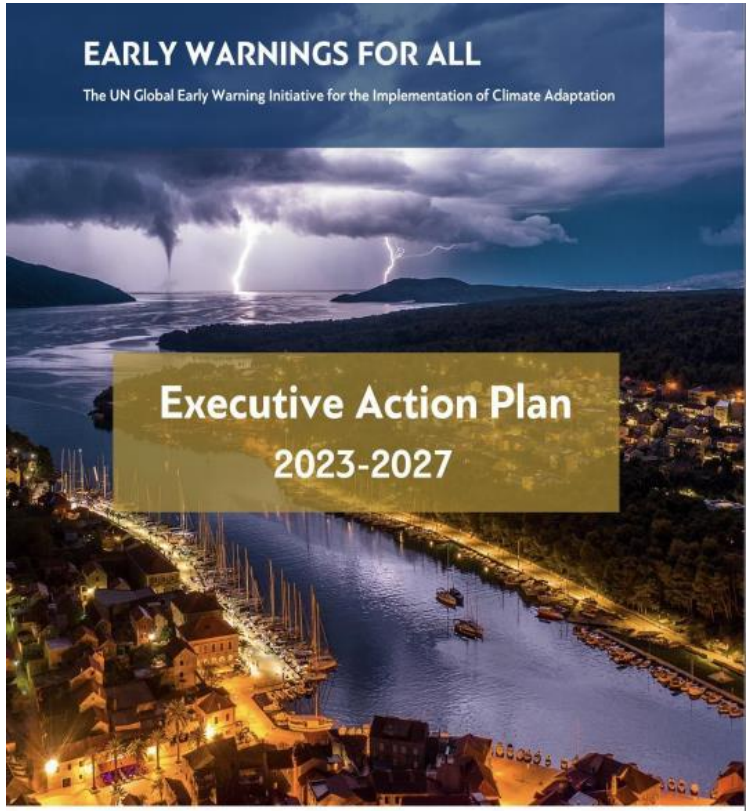
WMO`s EW4All efforts are on two parallel complementing tracks:

- **Enhancing the global infrastructure:**
  - **Improvement of international data exchange**
  - **More and better products available world wide**
  - **Better guidance and training to the members**

- **Technical Support to Regional and/or National interventions:**
  - **Establishing regional support systems**
  - **Targeted investments for closing national gaps using e.g. SOFF and CREWS**



WORLD METEOROLOGICAL ORGANIZATION

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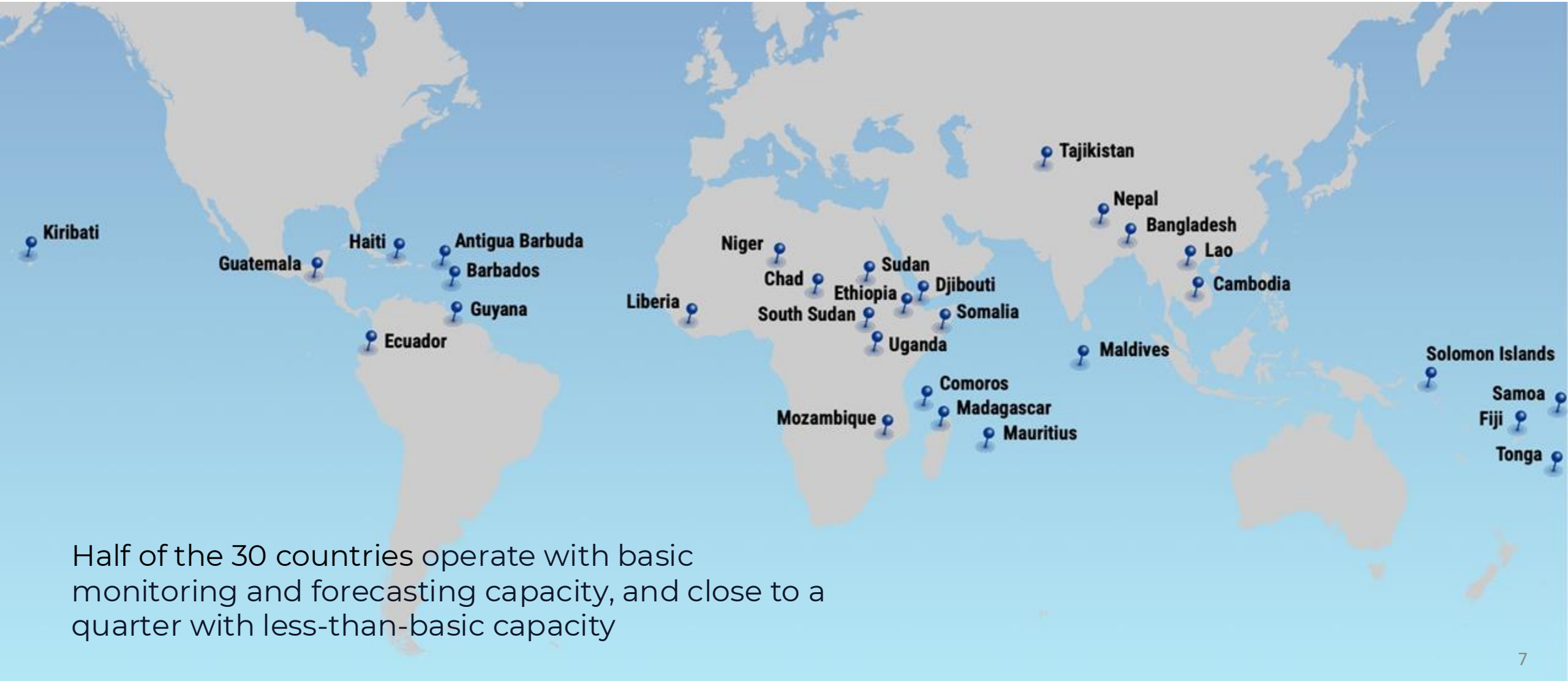
30 countries initially selected for Early Warnings for All coordinated assistance



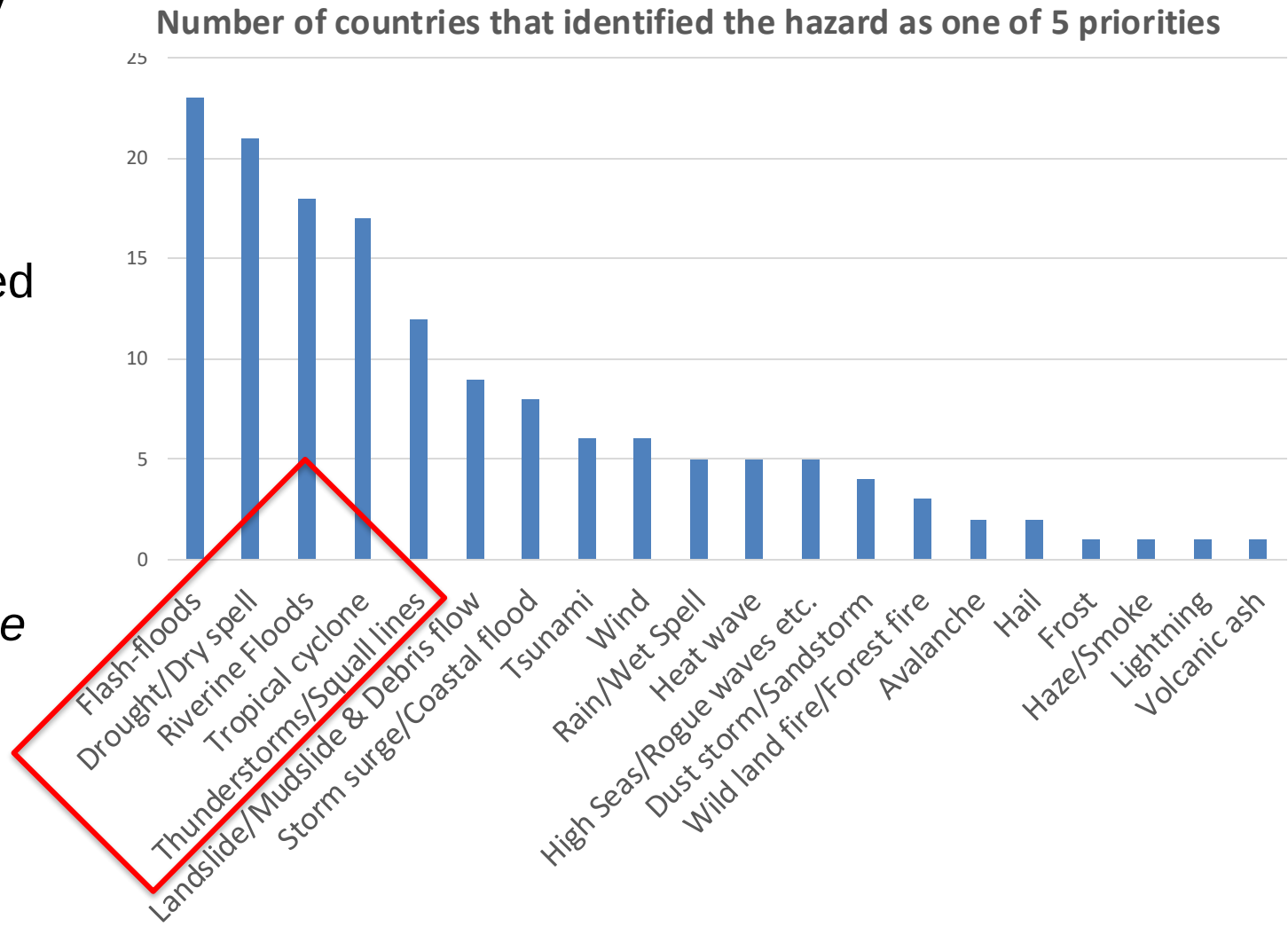
Half of the 30 countries operate with basic monitoring and forecasting capacity, and close to a quarter with less-than-basic capacity

Priority hazards

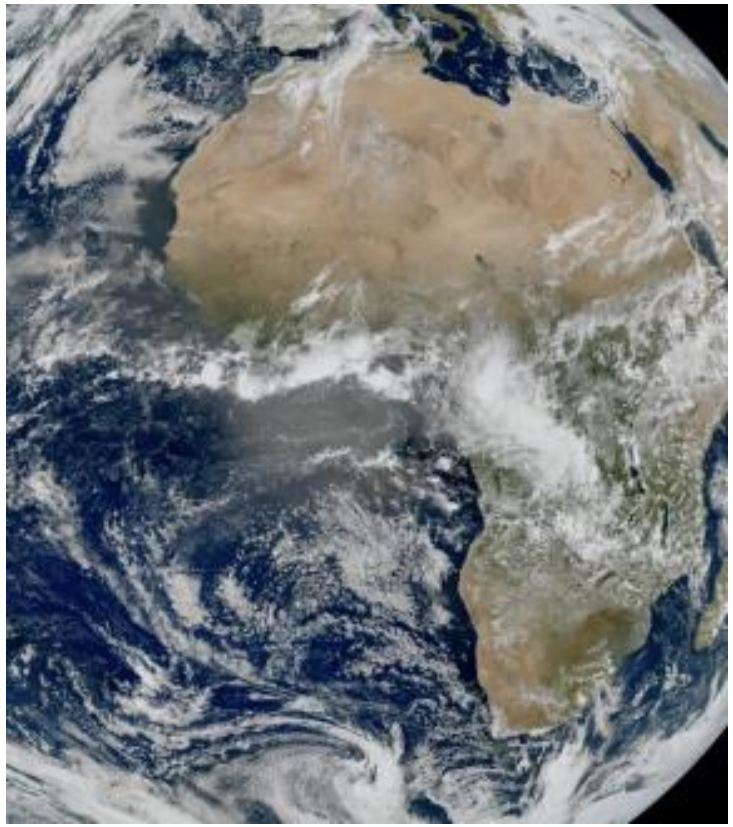
- Eventually, **priority hazards** covered by the EW service **need to be decided by each country**

- For the short-term actions, TCC identified **Flood**, **Drought**, **Tropical cyclone**, **Thunderstorm/squall lines** as priority hazards.

- This is largely *based on the results of the Rapid Assessment* conducted by the WMO Secretariat.



How can satellites help pillar 2?



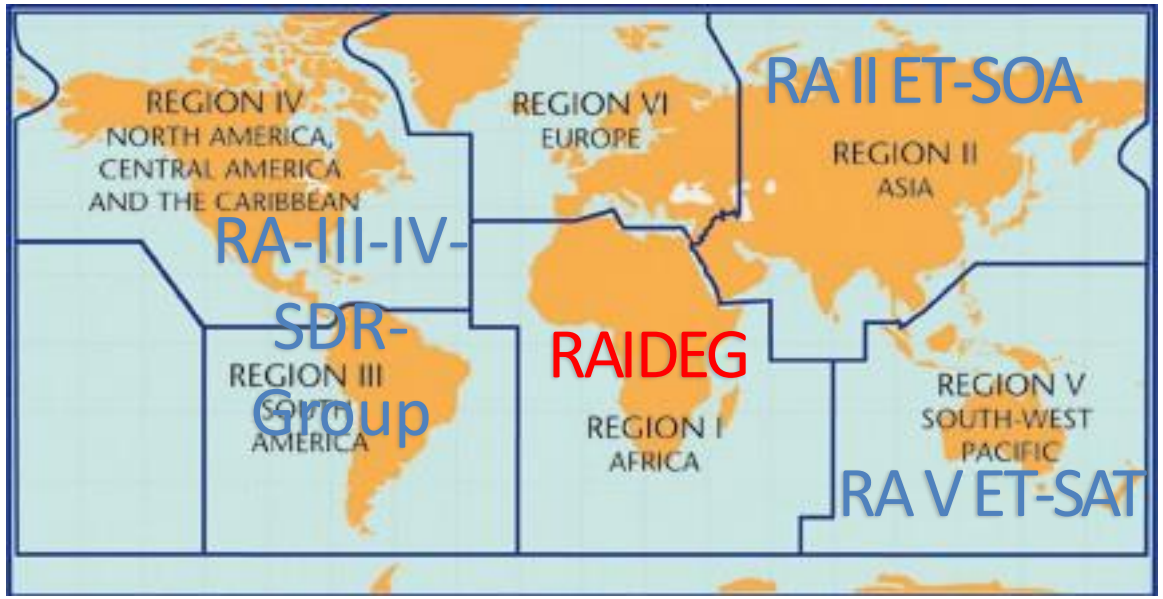
- Continuous monitoring of storms and severe weather with derived products and visualization
- Reliable data source with receiving stations like PUMA
- Satellites covers regions lacking of other observations
- High impact on NWP forecast skill

INFCOM EW4All Plan: Identify gaps in satellite data & products in support of EW4ALL

No.	Deliverable	Delivered to (body, e.g. INFCOM-3)	Body responsible (Team, Secretariat, etc.)	Consultation with, support from (Secretariat, etc.)	Effort type (meetings, workshops, consultancy, secretariat)	Estimated timeline
1	Preparation of the mapping exercise on the utilization of satellite data for priority hazards		Regional Associations (e.g. Regional Coordination Groups on Satellite Data Requirements)	Secretariat (Regional offices, Space Systems and Utilization Division), with the guidance from ET-SSU	Virtual meetings, email exchange, Secretariat work	July 2024
2	Conduct the mapping exercise among Members		Regional Associations	Secretariat (Regional offices)	Dynamic mapping exercise	September 2024
3	Identity the initial (regional) list of satellite products for each priority hazards based on: (1) results of mapping exercise above and (2) results of data call on EW4ALL provided by satellite providers		More experienced users in each region (particularly the leads of satellite data requirements groups and VLab members)	Secretariat (Regional offices, Space Systems and Utilization Division), with the guidance from ET-SSU	Virtual meetings, email exchange, Secretariat work	November 2024
4	Validate the list of products with satellite providers to include any additional products that users may not be aware of, as well as with Members in each region	INFCOM MG & Regional Associations MG via Regional Coordination Groups on Satellite Data Requirements	Satellite providers and WMO Members	Secretariat (Regional offices, Space Systems and Utilization Division), with the guidance from ET-SSU		December 2024 – February 2025
5	Gap analyses in terms of access to satellite data, training on processing, visualization, and use of satellite data and products	INFCOM MG & Regional Associations MG via Regional Coordination Groups on Satellite Data Requirements	Regional Coordination Groups on Satellite Data Requirements, with support from ET-SSU	Secretariat (Regional offices, Space Systems and Utilization Division), with the guidance from ET-SSU	Virtual meetings, email exchange, Secretariat work	April 2025
6	Develop regional implementation plan(s) to address the gaps identified in the gap analyses for inclusion in the regional operating plans	Regional Associations	Regional Associations	Secretariat (Regional offices, Space Systems and Utilization Division), with the guidance from ET-SSU	Virtual meetings, email exchange, Secretariat work	TBD by Regional associations

WMO Regional Coordination Groups on Satellite Data Requirements

- WMO has Regional Coordination Groups on Satellite Data Requirements
- To facilitate WMO members to express their requirements for satellite data and products
- Coordinate the deployment of satellite data reception, data dissemination and training
- The gap analysis work is supported by the satellite operators in the respective Regional Associations (RA)



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RAIDEG: Key activities relevant to EW4A

- Conducting an **annual survey on the status of PUMA 2015 stations**, which facilitate the reception of MSG data and associated NWP information
- Coordinating the **deployment of new PUMA stations** compatible with the **reception of MTG data**
- Coordinating the **data and products available via EUMETCast-Africa**
- Supporting the **connection to EUMETCast-terrestrial** – to provide access to full MTG datasets
- Organizing the **RAIDEG technical sessions**, covering the topics of “Space in support to Early Warning System” (incl. use of NWP SAF products, key priority hazards for different subregions)

RAIDEG: Response to INFCOM EW4ALL plan

No.	DELIVERABLE	RAIDEG RESPONSE
1.1	Preparation of the mapping exercise on the utilization of satellite data for EWS (DRAFT)	A survey was conducted on 1st Half of 2024 on the access of satellite data by all NMHS in Africa. Result of the survey was shared to all RAIDEG members.
1.2	Conduct the mapping exercise among Members	Group session per region was conducted during the 16th User Forum on-line session on the use of satellite data for EW. Outcomes are available on the UFA website.
1.3	Identity the initial (regional) list of satellite products for each priority hazards based on: (1) results of mapping exercise above and (2) results of data call on EW4ALL provided by satellite providers	Set of "priorities" hazard where satellite data play a critical role were identified for each region.
1.4	Validate the list of products with satellite providers to include any additional products that users may not be aware of, as well as with Members in each region	This could be done via the RAIDEG.
1.5	Gap analyses in terms of access to satellite data, training on processing, visualization, and use of satellite data and products	Gap analysis rose from the survey, and the User Forum. Working group session per region will also take place during the plenary session of the 16th UFA on Monday 16 September.
1.6	Develop regional implementation plans to address the gaps identified in the gap analyses to be included in the regional operating plans	This is considered as part of the "Space for Early Warning in Africa" initiative funding by the European Union, whose implementation should start in 2025. Especially on Nowcasting (AMSAF-Nowcasting).

EW4ALL rollout in Africa

EW4All action plan co-developed with AUC, the 4 pillar leads and contributions of other UN and non-UN agencies, RECs, RCCs and RSMCs. It builds on existing continental and regional strategies, including AMHEWAS.

Launched 4th September 2023 during the Africa Climate Summit, Nairobi, Kenya; *with WMO SG, Kenya Minister of Environment representing the President, AU Commissioner, AMCOMET Chair, Mozambique Minister, and UNDRR*

- **Successful roundtable for Africa Minister present at COP 28** where the Ministers reaffirmed commitment for implementing EW4A in Africa.
- **Engaged the UN Resident Coordinators and other stakeholders** on the need for all Early warning Projects to collaborate and cooperate for the success of EW4All.
- **Steering Committee (AUC and pillar leads) provides guidance** and oversight and coordination for implementation of EW4All initiative across the continent

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Progress on implementation of Early warning in Africa

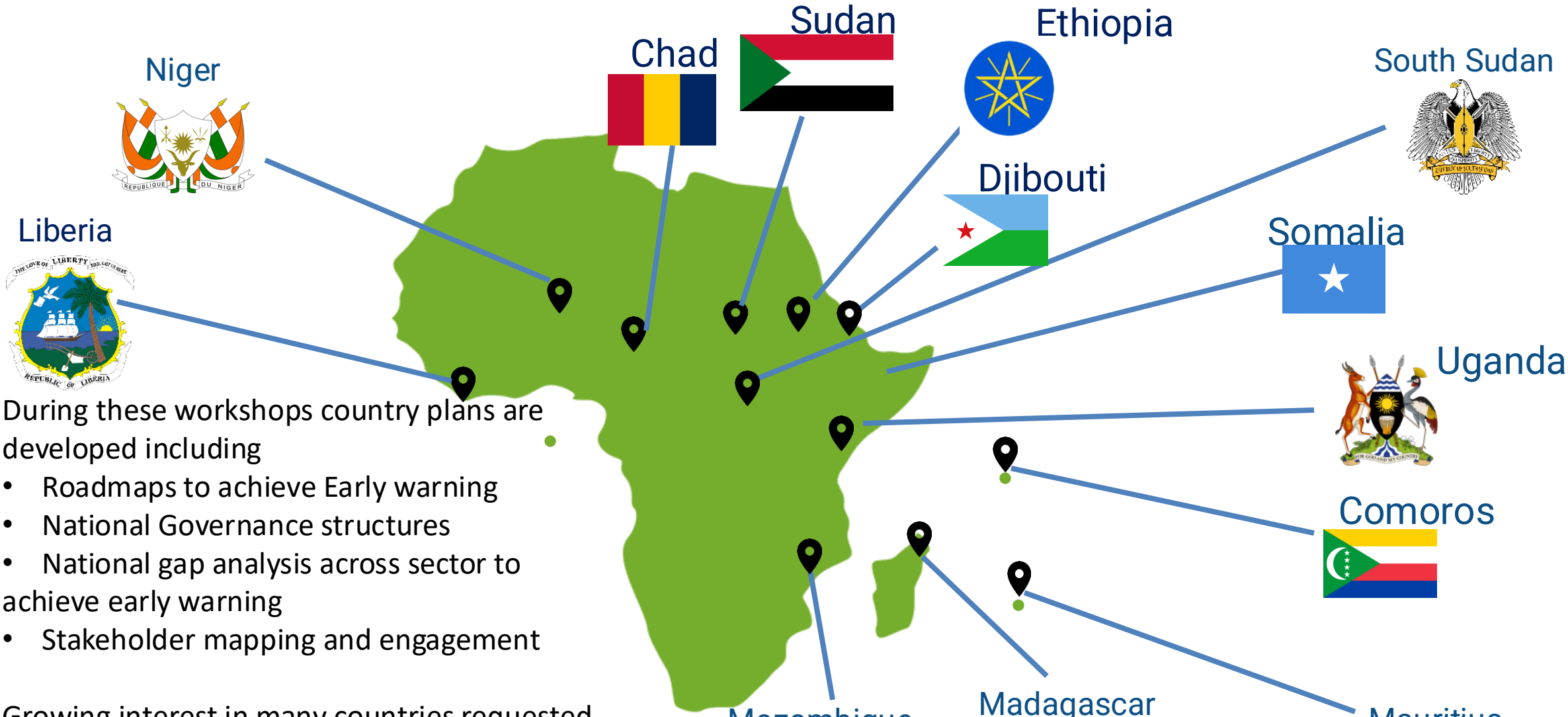
- Implementation phase of the EW4All initiative has already begun, focusing on all countries but **initially on 30 highly vulnerable countries**, and conducting complementary activities in other countries.

- **Africa has 13 countries in the initial batch;** *(Djibouti, Somalia, Sudan, Chad, Comoros, Ethiopia, Liberia, Madagascar, Mauritius, Mozambique, Niger, South Sudan, Uganda)*

So far there has been:

- **Appointment of a national coordinators** to oversee the initiative in these countries,
- hosting of **multi-stakeholder workshops** to plan the implementation processes,
- as well **as provision of technical support** based on national priorities to ensure that a **minimum core capability to provide early warning** is achieved in each country

National EW4ALL Support in Africa



During these workshops country plans are developed including

- Roadmaps to achieve Early warning
- National Governance structures
- National gap analysis across sector to achieve early warning
- Stakeholder mapping and engagement

Growing interest in many countries requested technical support and guidance to strengthen their existing EW systems: Tunisia, South Africa, Tanzania, Cabo Verde, Ghana

WMO Assessments in Africa

WMO has carried out several assessments in different countries in Africa in relation to capacities to provide EWS to;

- Understand on going work at national levels
- Compile available hazard knowledge
- Evaluate current capabilities to provide adequate EWS
- Understand observing and forecasting strengths
- create user-oriented warning disseminations procedures
- Evaluate and verify products and services provided
- Evaluate process management based on QMS principles
- Assess support from WMO regional and global centers

Some of the tools

- Rapid Assessment result
- Countries Hydro Met diagnostics
- Country consultations

Other partners have also done their own gap analysis

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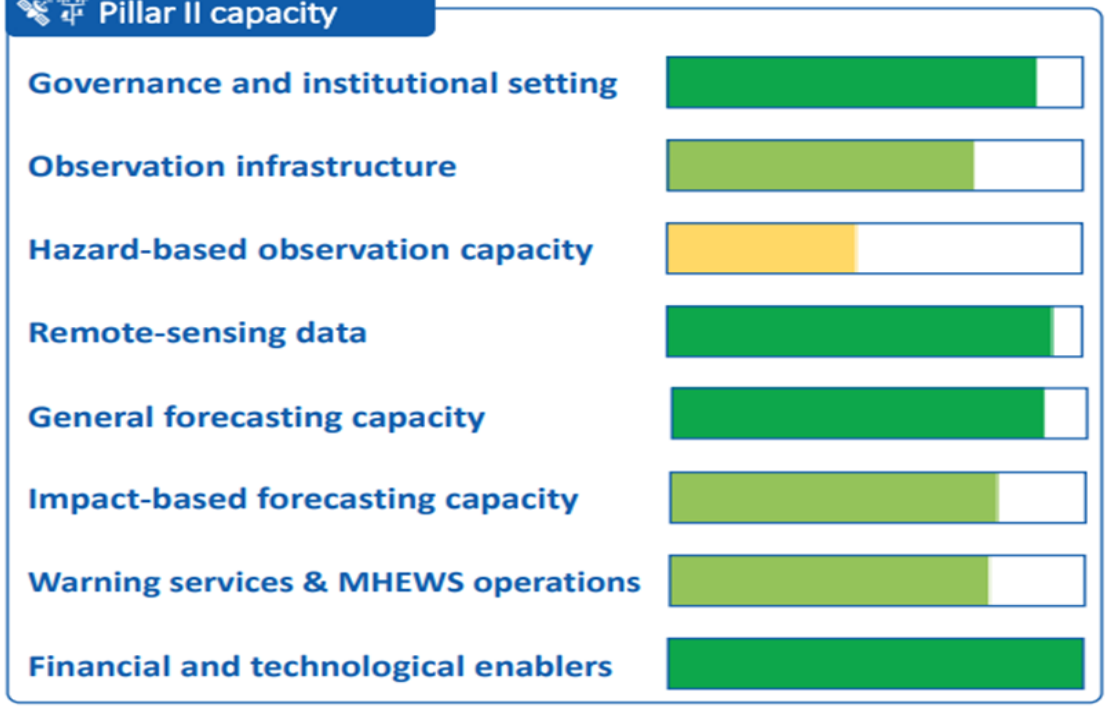
Early Warnings for All

National Assessment results for Ethiopia

ETHIOPIA 4

The NMHS has a strong mandate, good inter-agency cooperation, an extensive and well-maintained observing infrastructure network (incl. radars) and financial resources for providing comprehensive forecasting and warning services. Having piloted its IBF potential readiness in certain areas (drought, agriculture), the NMHS requires knowledge and technology transfer to scale up its IBF and MHEWS against hydromet hazards (floods, landslides).

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%

Drought/dry spell

\+ Good monitoring, forecasting and warning capacity, incl. IBF

— Partial lack of soil moisture data

Flash-floods

\+ Good monitoring, forecasting and warning capacity, incl. IBF

Riverine floods

\+ Good monitoring, forecasting and warning capacity, incl. IBF

Landslides/mudslides

— Observations (local and remote) and risk maps are missing to complete monitoring and IBF capacity

Wild land fires/forest fires

— Observations (local and remote) and risk maps are missing to complete monitoring and IBF capacity

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Thank you

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RA I Dissemination Expert Group (RAIDEG)

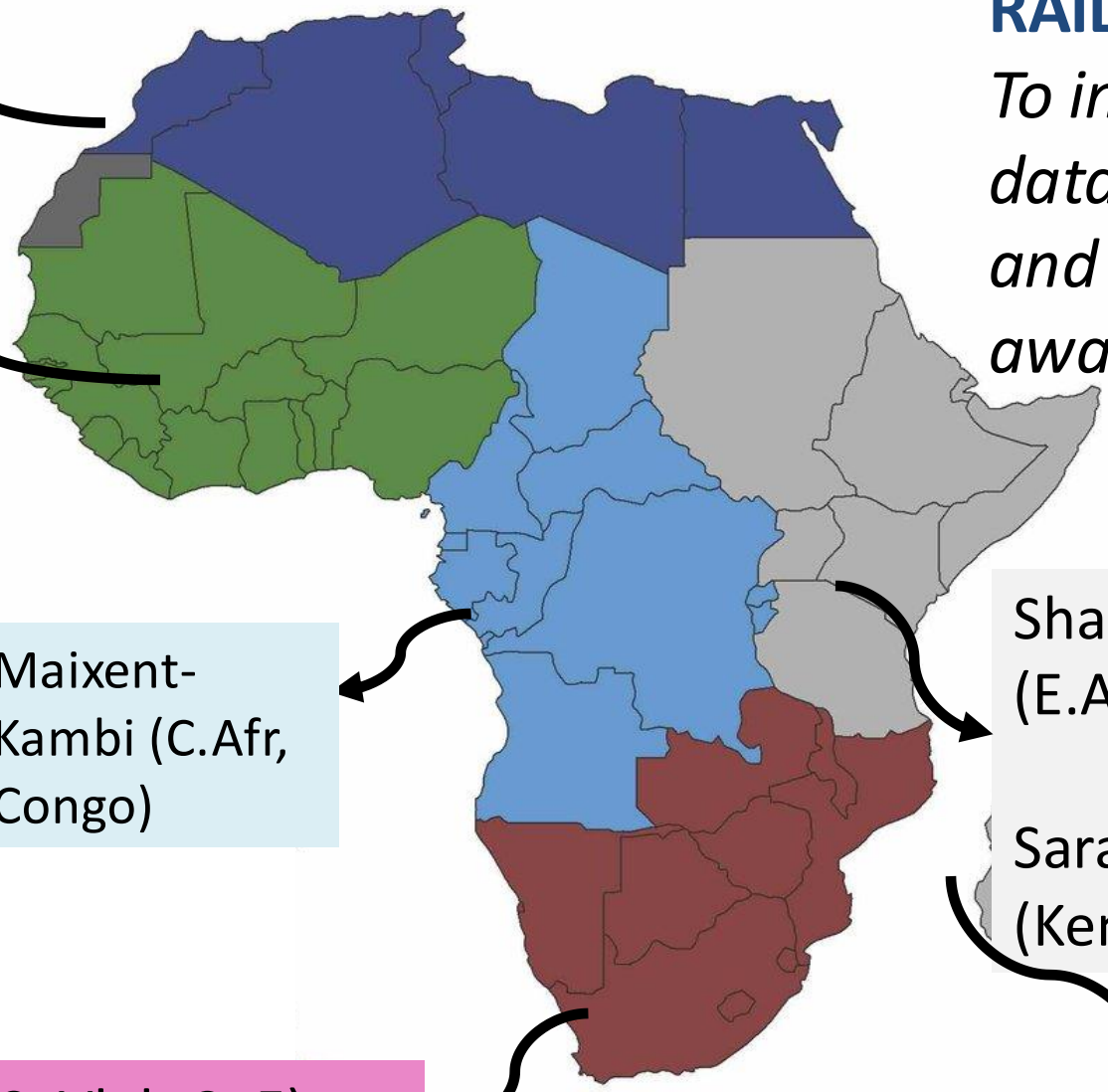
Tareq Soubai (N.Afr & Morocco CoE)

Leon-Guy Razafindrakoto (Co-Chair, African Centre of Meteorological Applications for Development (ACMAD) – Niger)

Diakaria Kone (EAMAC, VLab CoE, Niger)

Abdoulaye Diouf (W.Afr, Senegal)

JCOMM: Kwame Adu Agyekum, Ghana



Maixent-Kambi (C.Afr, Congo)

Shamim Mushi (E.Afr)

Sarah Kimani (Kenya CoE)

Winifred Jordaan (SAWS, Vlab CoE)
Nico Kroese (S.Afr)

Kumar Ram Dhurmea (IO)

RAIDEG's role:
To improve satellite data accessibility and user awareness in RA-I

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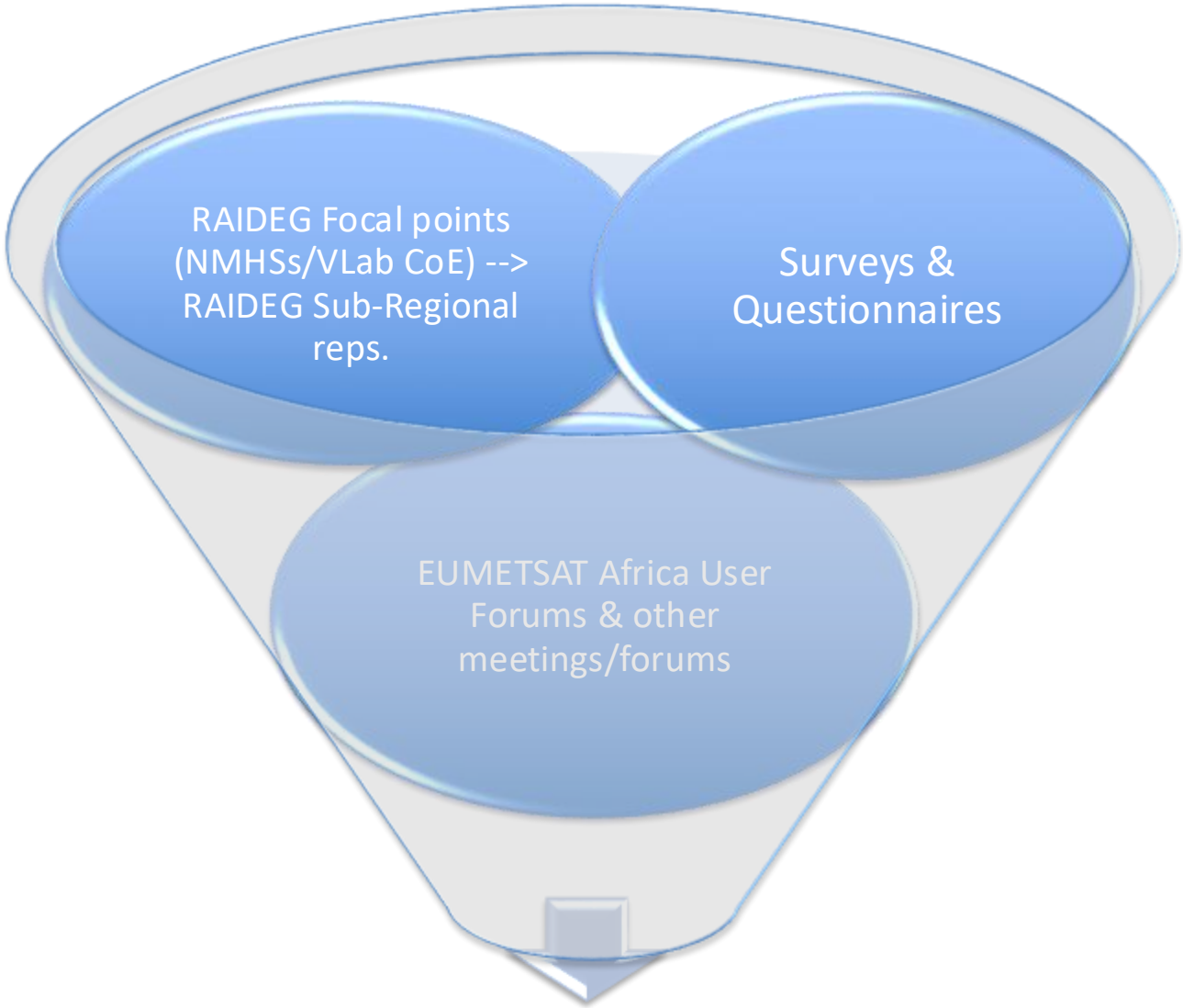
RAIDEG: How they collect information



WMO/RAIDEG/EUMETSAT Meetings

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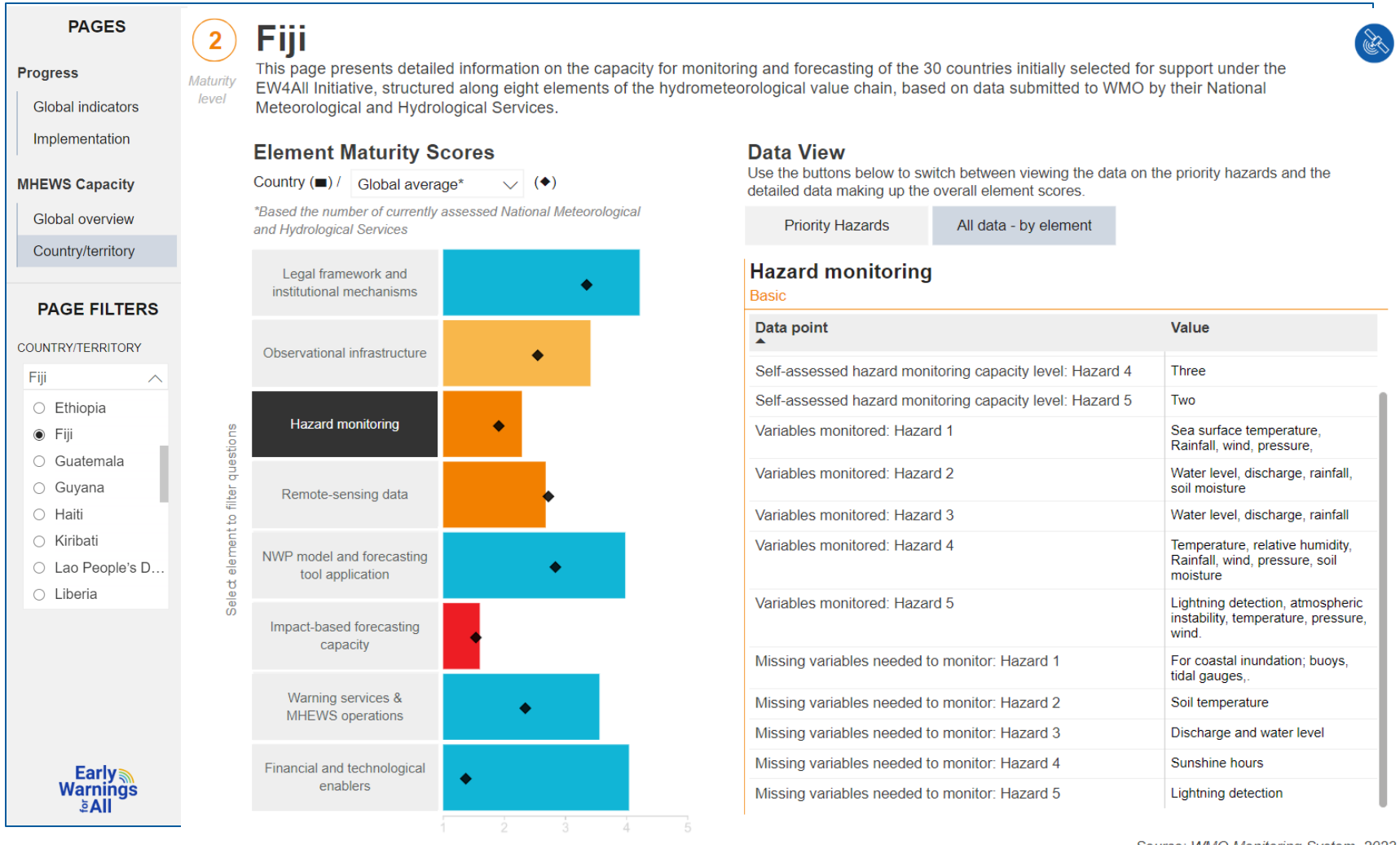
Early Warnings for All Dashboard

Early Warnings for All Dashboard: [Early Warnings for All Dashboard (wmo.int)]



The colours of the bars express the degree of attainment of each element as quantified by the EW4All Pillar 2 Rapid Assessment, following these percentages