# Warning Dissemination and Communication

**Needs, challenges and opportunities**

**Mira Markova**
Senior Coordinator on Early Warning Systems
Telecommunications Division, BDT
International Telecommunication Union (ITU)

# About ITU

# International Telecommunication Union (ITU)

## Our mission: Connect the world

**Specialized United Nations (UN) Agency for Telecommunications & Information and Communication Technologies (ICTs)**

**3**

**Sectors**

- Standardization
- Radiocommunication
- Development

**194**

**Member States**

**1000+**

**Companies, universities, and international and regional organizations.**

**Rich network of experts in the global ICT ecosystem**

Originally the International Telegraph Union in 1865…

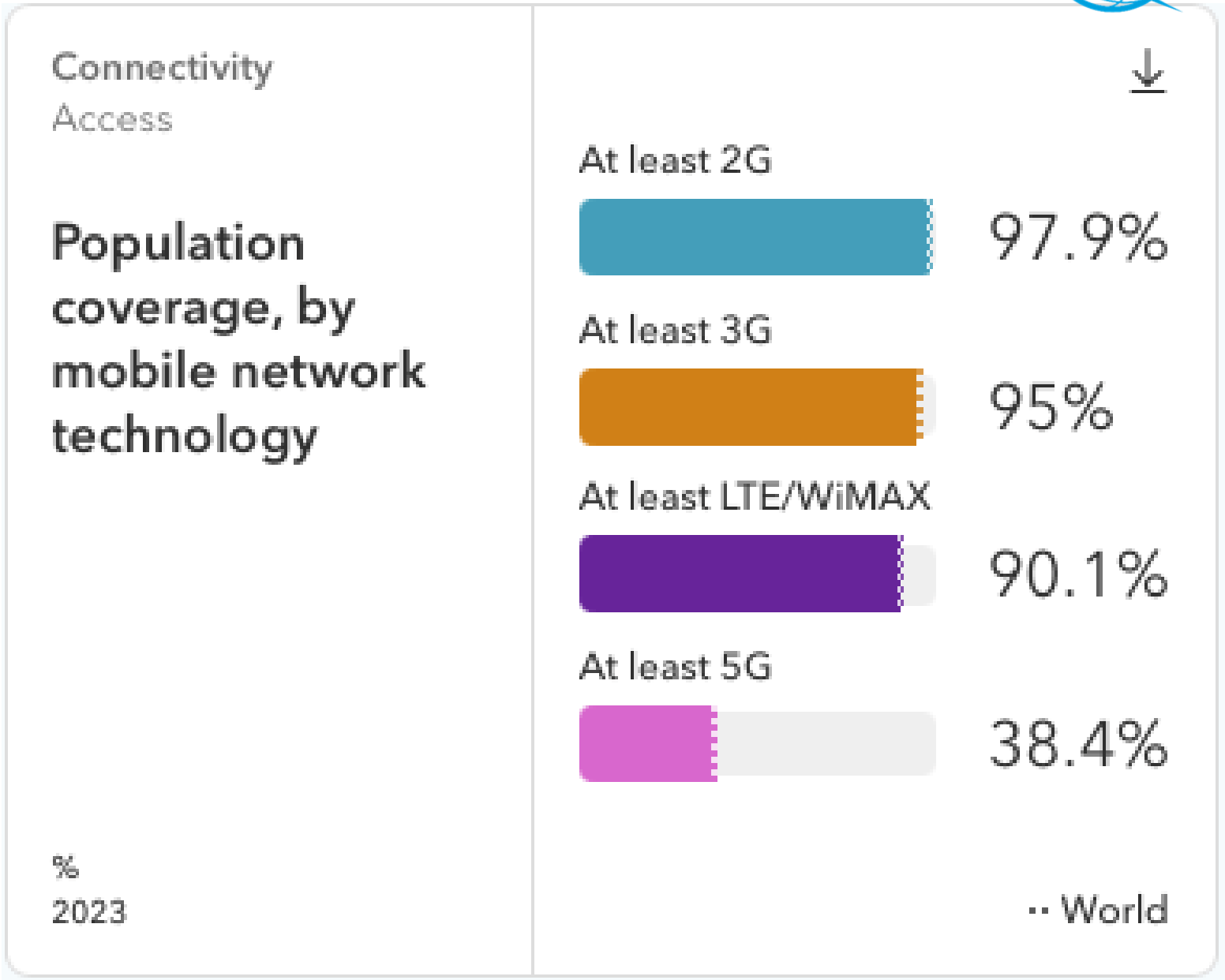
Years of ITU

# The Statistics

**97.9% of the world population is covered by a mobile network**

Connectivity
Access

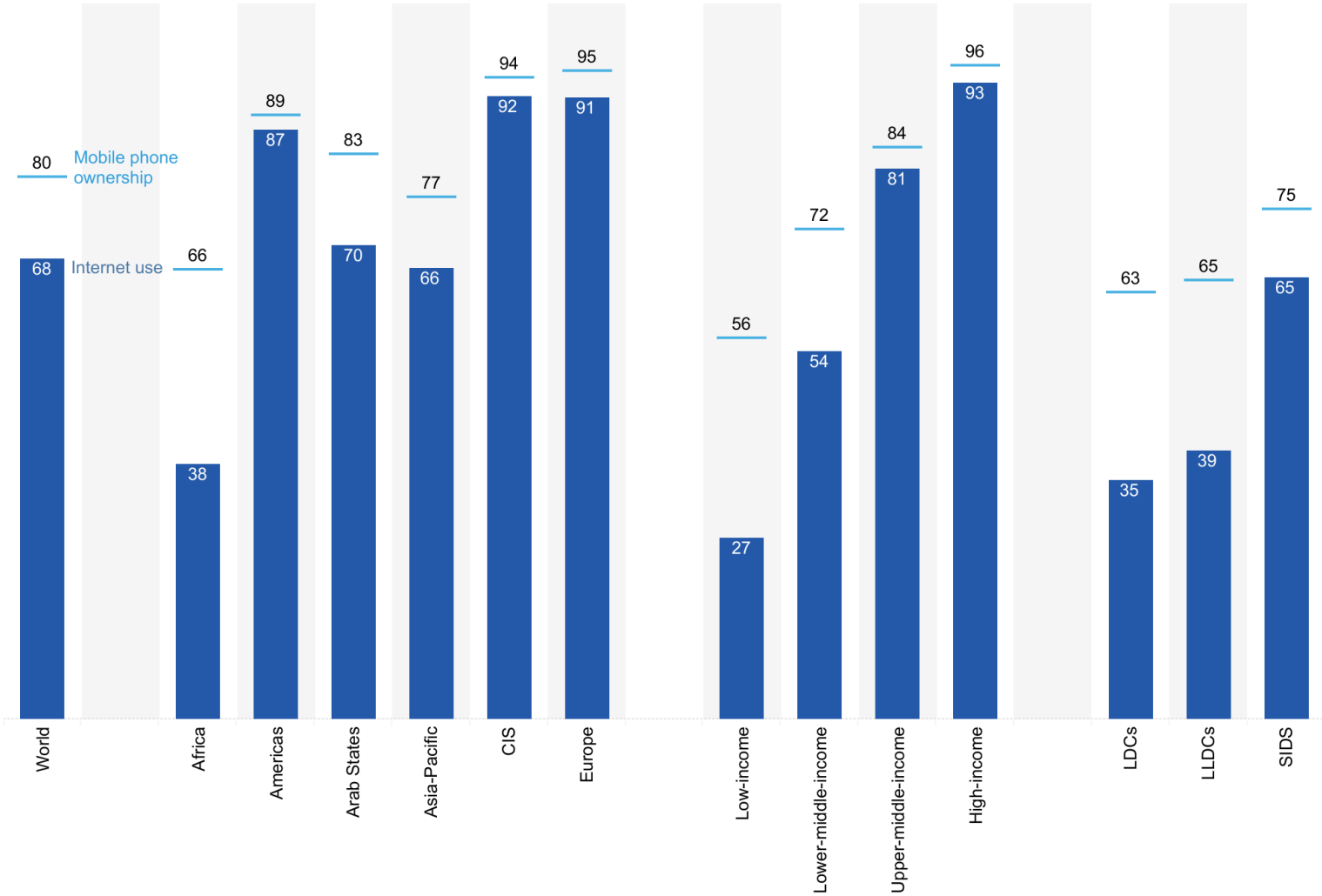
## Population coverage, by mobile network technology



# 4 out of 5 people own a mobile phone

…making mobile networks an effective channel to reach people!

Percentage of individuals owning a mobile phone and using the Internet, 2024

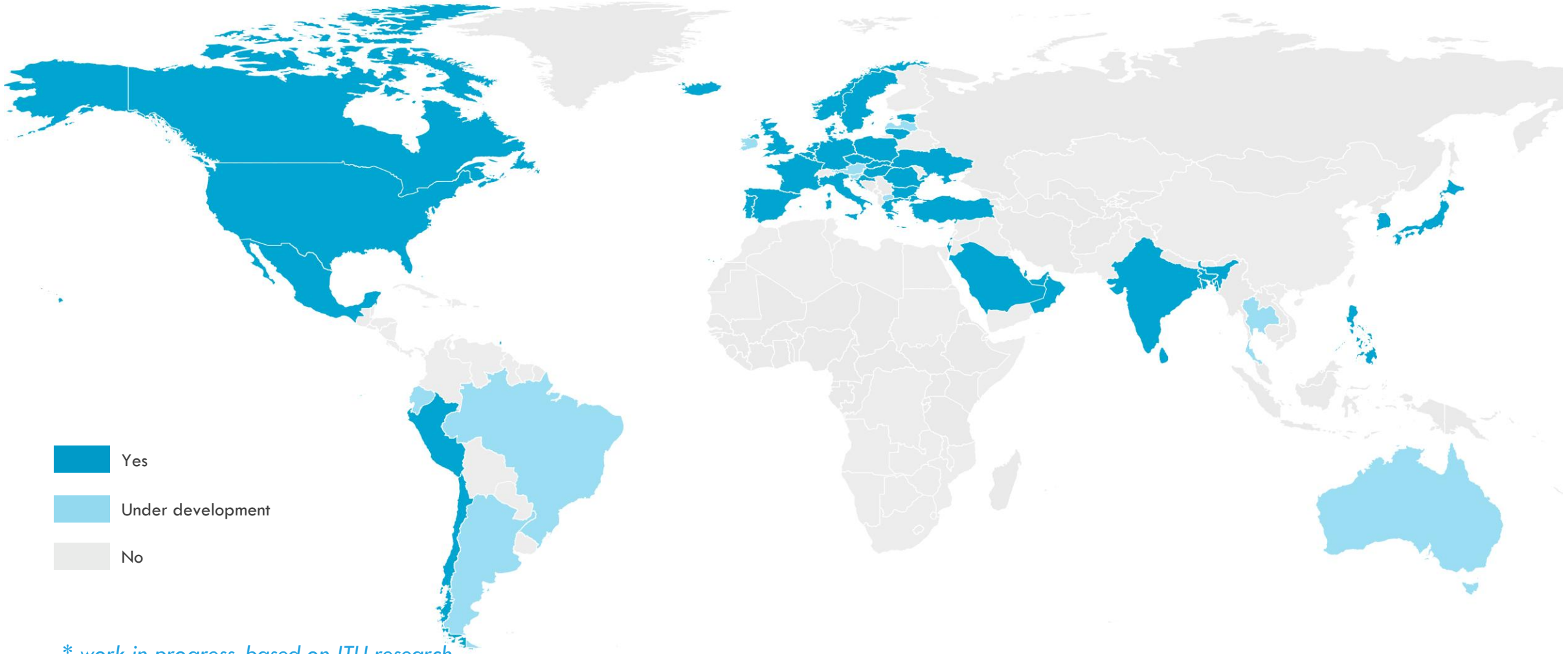



**Note:** Mobile phone ownership refers to individuals aged 10 or older.

Source: ITU

# Countries with mobile EWS in place

using cell broadcast and/or location-based SMS*



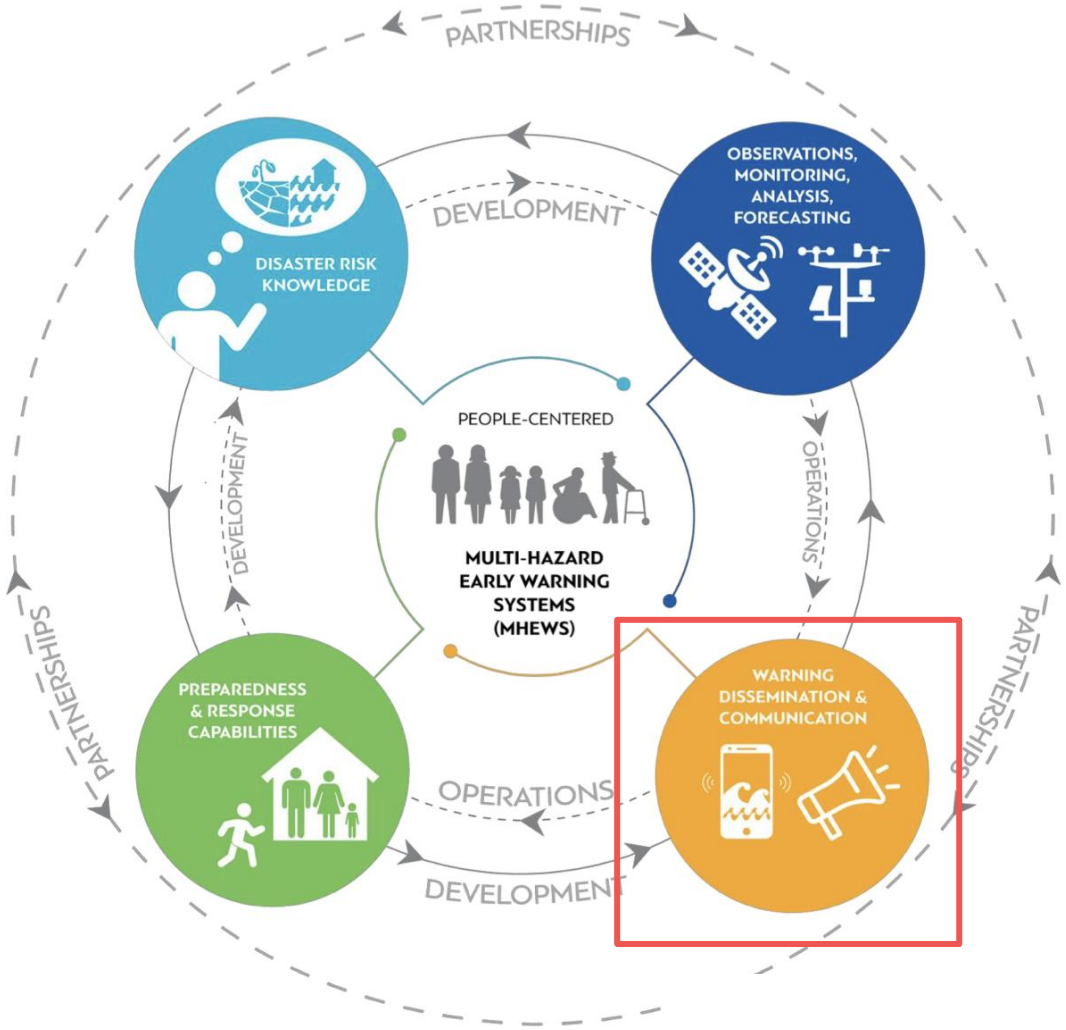

** work in progress, based on ITU research*

# EW4All

# Warning Dissemination & Communication

# UN Early Warnings for All Initiative

In March 2022, the UN SG set a new target to **ensure that everyone on Earth is protected by early warning systems by 2027.**



# 4 Outcomes of Pillar 3: Warning Dissemination and Communication

## Outcome 1: Governance

All countries have agreed mandates, roles and responsibilities for each actor in the warning dissemination process, established through government policy

## Outcome 2: Infrastructure networks and services

All countries have multichannel dissemination and communication alerting to ensure warnings reach those at risk

## Outcome 3: Inclusion and people-centered approach

Strengthened and expanded alert dissemination and feedback channels reaching all people with actionable information

## Outcome 4: Quality and trust

All countries have the capability for effective, authoritative emergency alerting that leverages the Common Alerting Protocol (CAP), suitable for all media and all hazards.

# Multi-channel Approach for Warning Dissemination and Communication

- In warning dissemination and communication, a **multi-channel approach** increases the effectiveness of an alert and helps address the diversity of communities at risk.
- Digital transformation is bringing huge opportunities to strengthen Pillar 3, reaching more people through information and communication technologies (ICTs)

CELL BROADCAST

CAP

CONNECTIVITY MAP

SATELITE

AI

COMMUNITY TRUST

# Cell Broadcast

## Fast, Reliable Emergency Alerts Straight to User's Phones

**Instant Delivery**

Alerts reach phones in seconds, even during network congestion

**One-to-Many Technology**

Alerts sent to all devices in a targeted area

**Works on All Networks**

2G, 3G, 4G/LTE, 5G & beyond

**Grabs Attention**

Loud alert + vibration, even if on silent

**Unmissable**

Appears directly on screen, overriding other apps

**Personalised Language:**

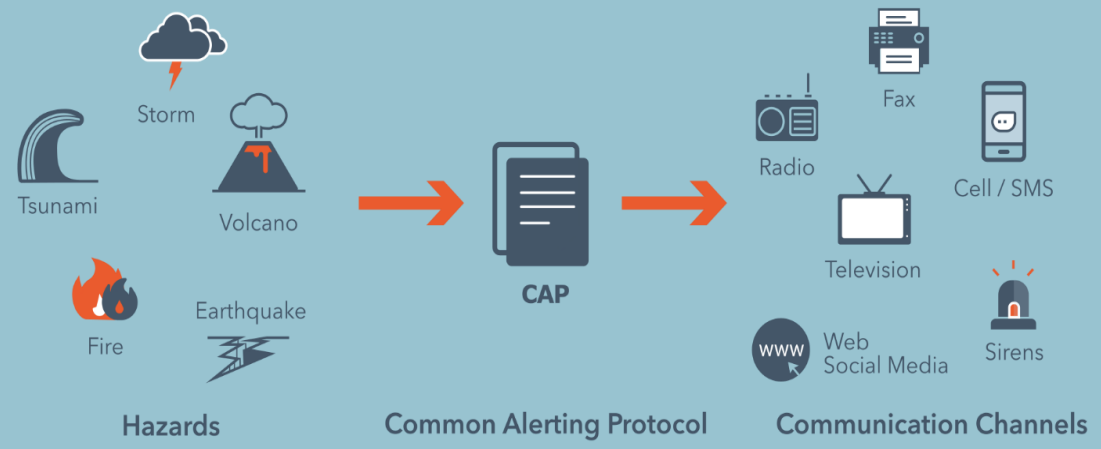
Delivered in the user's preferred language

# Cell Broadcast

## Fast, Reliable Emergency Alerts Straight to User's Phones

# Integrating Common Alerting Protocol (ITU-T X. 1303)

- International standard format for emergency alerting to ensure the interoperability and consistency of alerts via different communication networks.
- Integrating CAP into Multi-Hazard Early Warning Systems
- Local agreement of the CAP specificities and the feedback between Authorities and Mobile Network Operators before implementation



# Collaborating on Common Alerting Protocol

**Catalytic Actions, together with WMO and IFRC:**

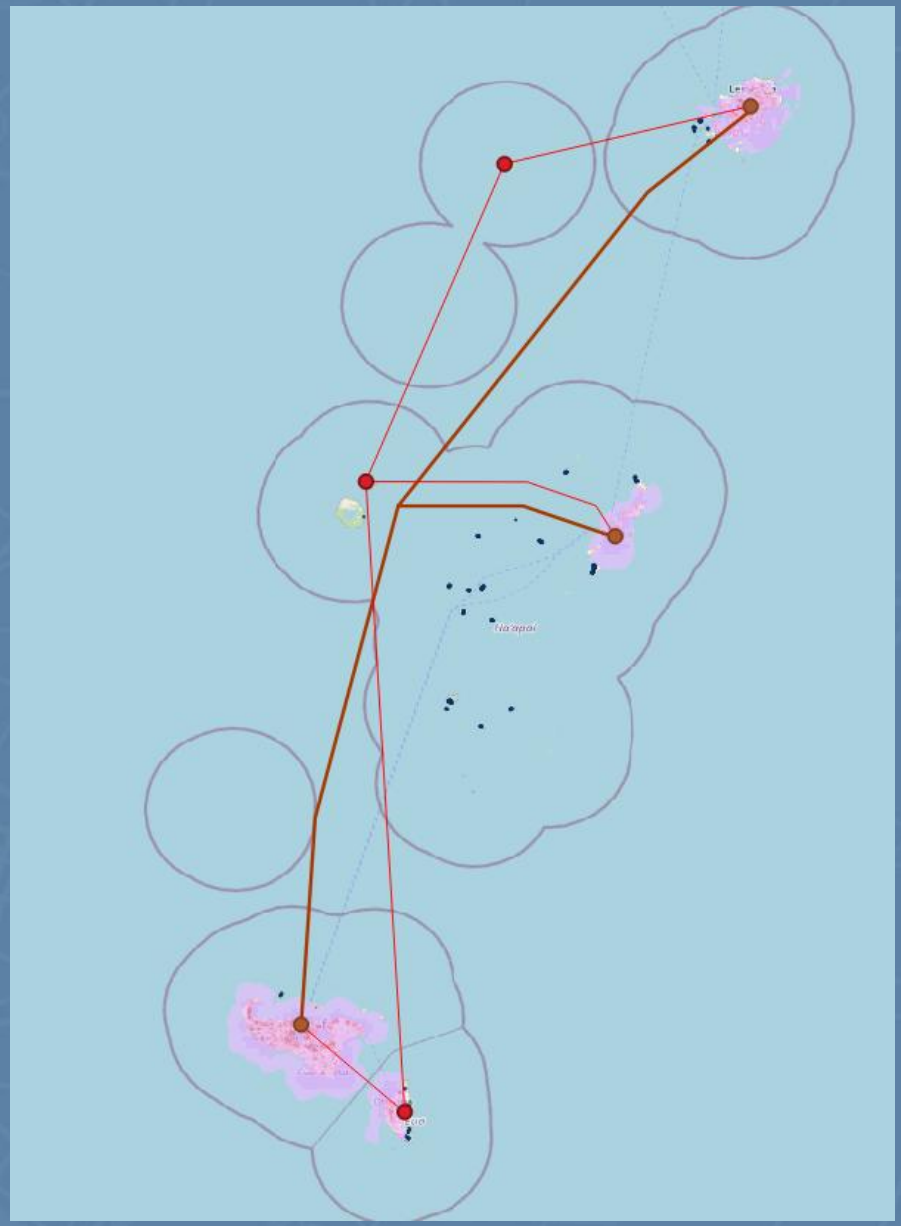
- Establish a CAP Help Desk to support countries
- Establish CAP editor and Alert Hub
- Joint training of various sectoral ‘clients’ to support the use of CAP messages in decision making
- Develop an attribution statement for redistributors, such as the private sector, when using alerting information
- Develop global, regional and national dashboards that display active early warning messages / alerts

# Connectivity Assessment for Saving Lives

ITU's Disaster Connectivity Map – designed to monitor the connectivity status during and after disasters – has been activated over 60 times, including:

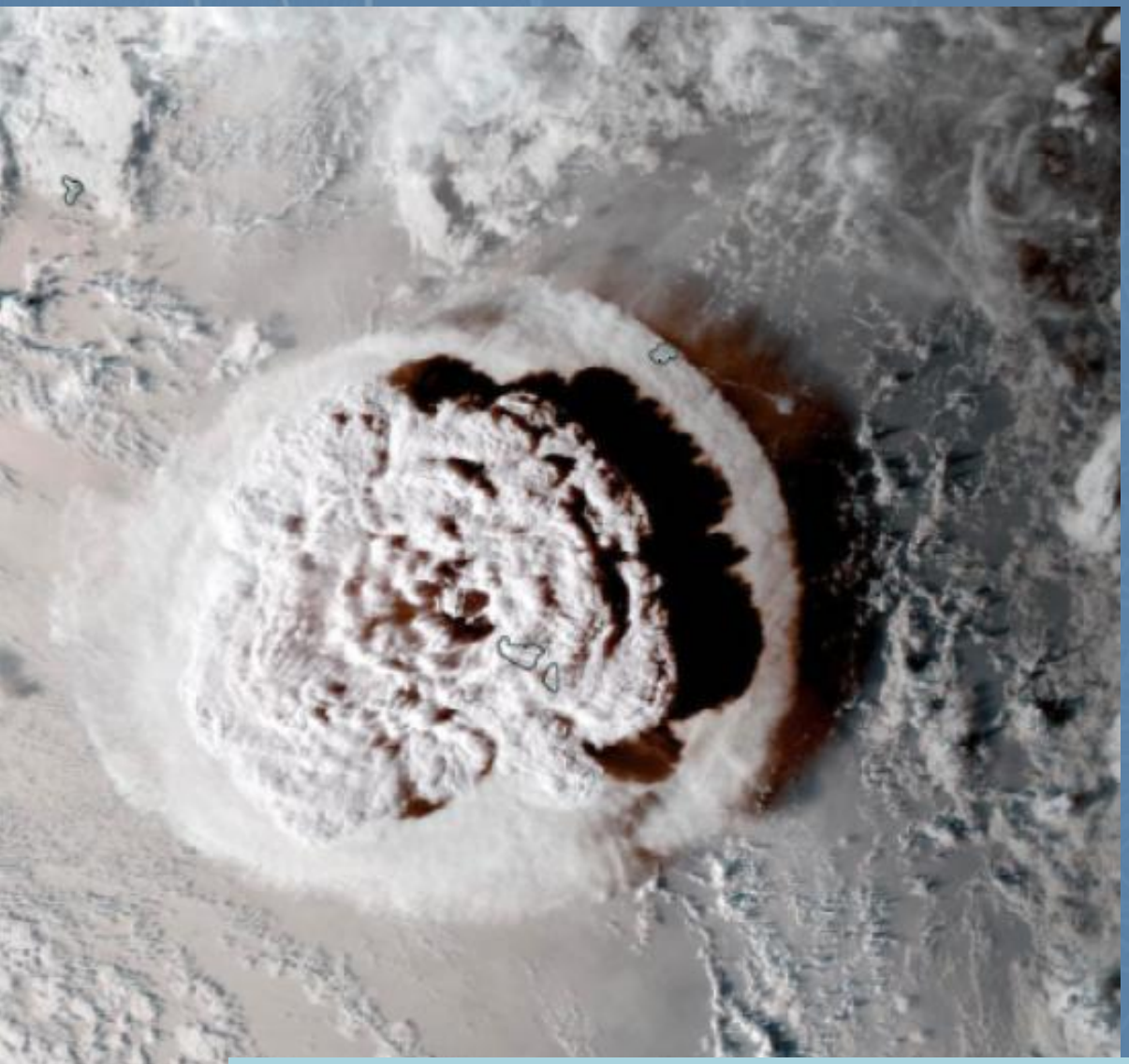
- La Soufrière volcano | St Vincent and the Grenadines | April 2021
- Mt Semeru volcano | Indonesia | Dec 2021
- Hunga Tonga–Hunga Ha'apai volcano | Tonga | Jan 2022

The DCM supported first responders to identify connectivity outages and facilitate targeted allocation of resources to repair mobile networks and restore connectivity.



Hunga Tonga - Hunga Ha'apai Volcano and Tsunami | Tonga | 15 January 2022
Population beyond reach of fixed broadband, 2G and 3G+ networks

# Early Warning Connectivity Map



Hunga Tonga - Hunga Ha'apai Volcano and Tsunami | Tonga | 15 January 2022

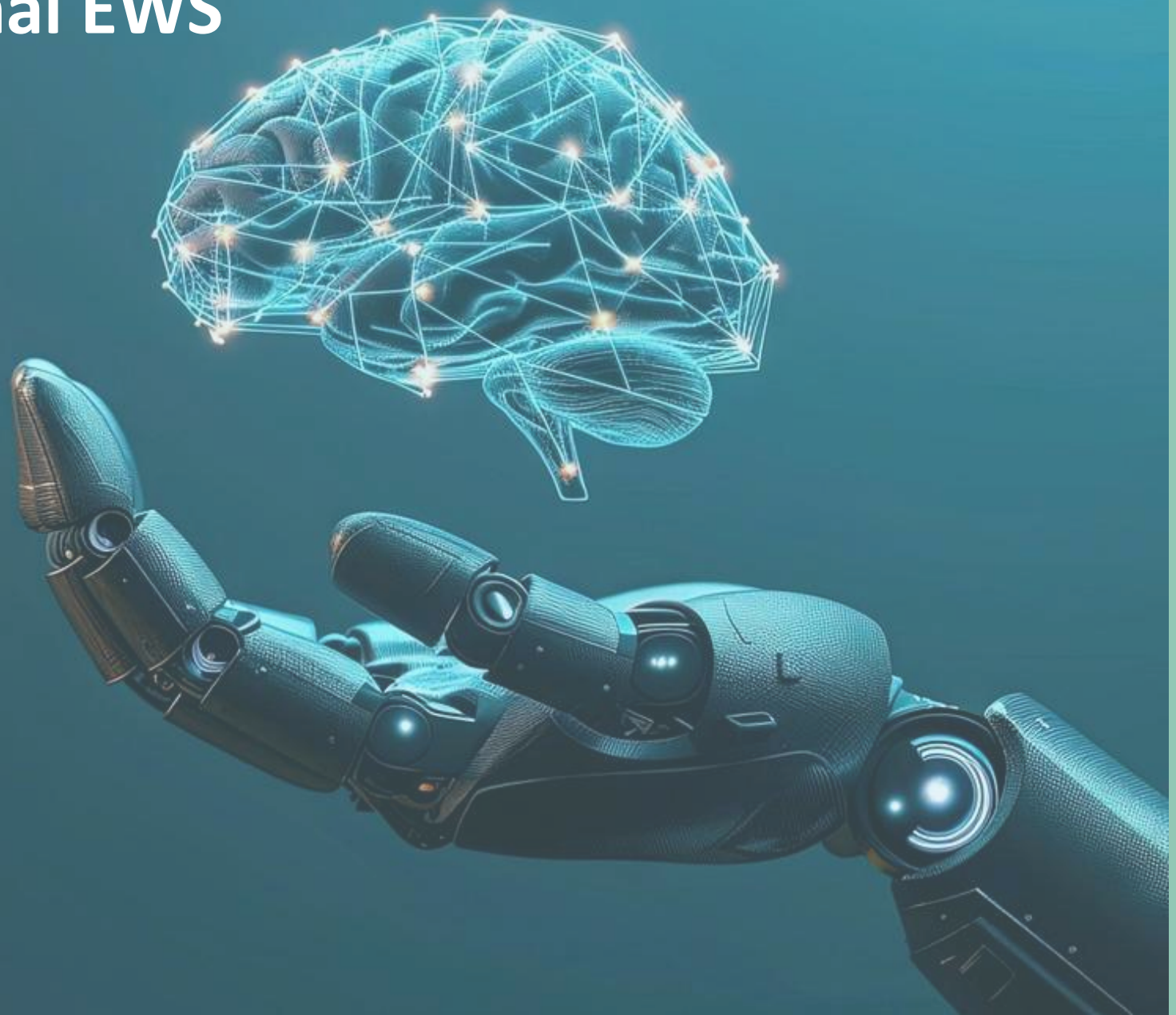
- ITU collaborates with Microsoft AI for Good Lab, Planet, and the Institute for Health Metrics and Evaluation (IHME) at the University of Washington.
- Integrates AI with satellite imagery to create high-resolution population density maps and visualize connectivity data, to highlight areas where people are vulnerable to hazards due to limited access to emergency notifications.
- These results guide data-driven decisions on warning dissemination strategies and guide mobile infrastructure investment to ensure no one is left behind.

# Satellite Direct-to-Device Alert Dissemination

- ITU works closely with the satellite industry to develop, test and deliver direct-to-handset solutions.
- Global coverage – including for communities in remote areas without connection.
- Ensure people at risk could be alerted even when the connectivity is down/affected by disasters
- The Case of Europe: Galileo's Emergency Warning Satellite Service

# Integrating AI in national EWS

- Accelerating innovation and technology, with a focus on AI and private sector collaboration.
- AI transforms disaster management practices & enhances monitoring, analysis, and forecasting of hazards.
- Optimises information delivery to communities at risk, ensuring timely response to warnings.
- AI Sub-Group for EW4All:cultivating public-private partnerships globally; **focus on developing & bringing AI technologies & tools to countries**



# Community Involvement and Trust

## Making sure alerts are understandable and actionable

Effective early warning services are co-designed with the communities and have feedback mechanisms to help ensure **messages reach people through preferred and trusted communication channels, in actionable formats.**

The ITU is working together with IFRC to involve communities in warning dissemination and message design, which is also closely linked to and will facilitate the work under pillar 4.

Early Warnings for All

# Pillar 3 Implementation & Partners

# ITU Portfolio of Services on EWS

**Technical Assistance On CAP & Mobile EWS**

1

**Phase 1: Foundational Work**

Gap Analysis. Stakeholder Mapping. National Roadmap Support. NETP Framework & Implementation.

2

**Phase 2: ICT Networks Assessment**

Disaster Connectivity Map. National ICT Resilience Assessment. Post-Disaster Assessment. AI-solutions Catalogue.

Inclusion in Mobile-Enabled Risk Communications. Community Trust Index.

3

**Phase 3: Technical & Feasibility Studies**

Preliminary Assessments on Cell Broadcast Implementation => Functional Requirements of CAP & Mobile (LB-SMS or CB) National Warning System

=> Feasibility Study =>Technical Specifications of a CAP & Mobile National Warning System's Implementation (Functional & Non-Functional Requirements)

4

**Phase 4: Tender Support**

Tender Documents for CAP & Mobile (LB-SMS or CB) National Warning System Implementation: 1. Instructions to Economic Operators, 2.Conditions of Contract, 3. Terms of Reference with the Expected Results and the Project Management, 4. Technical Specifications, 5.Managed Services SLA Requirements.

5

**Phase 5: Deployment Support**

Support during the tender procedure (Evaluation of the Technical Offers).

Support during the implementation phase (Project Management, Quality Assessment at Reception, support in terms of implementation challenges)

**Capacity Building** Pillar 3 Workshops. CAP Workshops & Trainings. Technical Expert Group on Mobile EWS. Exercises. ITU online Academy (CAP & NETP)

# Hand-in-hand with key stakeholders

- National and local disaster management agencies
- Scientific and technical agencies such as meteorological and hydrological organizations
- Telecommunication organizations:
  - National telecommunication regulators
  - Satellite operators
  - Mobile Network Operators
  - GSMA
  - Global Satellite Operator‘s Association (GSOA)
- Media organizations (e.g. television, radio and social media) and amateur radio
- Community-based and grassroots organizations


# Thank you

*Scan to learn more*