EARLY WARNING SYSTEMS AND ANTICIPATORY ACTION

A Lifeline for Underprivileged Communities

Mudassar Naveed
CEO, Universal Service Fund (USF)

Universal ICT Service

To ensure that telecommunications services are accessible to the widest number of people (and communities) at affordable prices

ICT Inclusion / Inclusivity

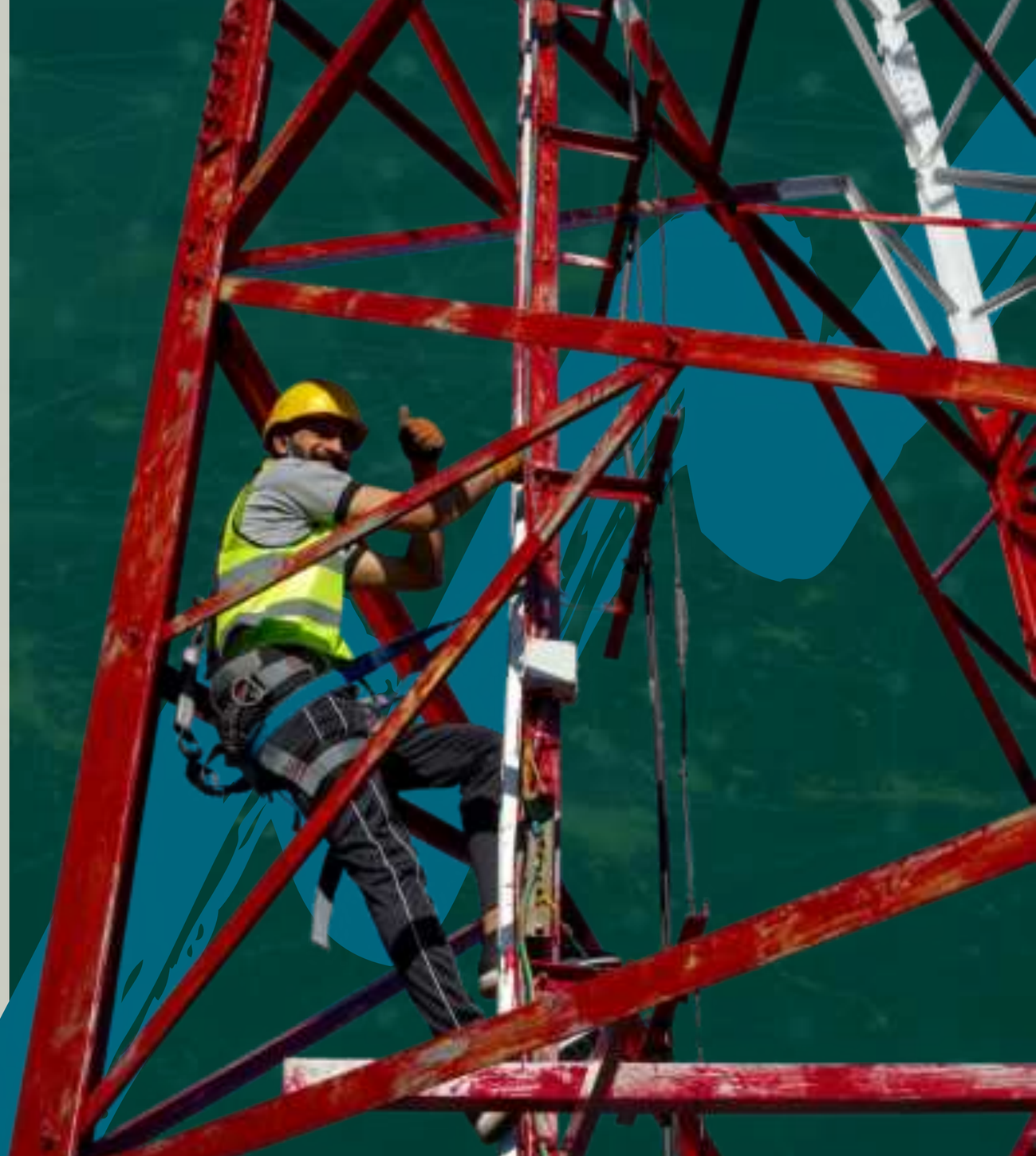
Ability of individuals & groups, including the most disadvantaged, to access and use Information & Communications Technologies (ICTs)

Vision

To empower unserved & underserved communities through Information and Communication Technologies (ICTs) to achieve a digitally inclusive Pakistan.

Mission

Improving lives of un-served & under-served communities by making High Speed Internet available and affordable for all.



OUR PROGRAMS

Mobile Coverage & Broadband Connectivity (NGBSD)

Next Generation Broadband for Sustainable Development (Rural/Remote areas)

- **Basic Telephony**
- **Mobile Broadband through 3G / 4G**

Optic Fiber Cable (OFC)

Extension of Fiber Optic Connectivity to unserved Tehsil HQs, Union Councils, Fiber to Sites

Mobile Coverage & Broadband Connectivity (NGBSD)

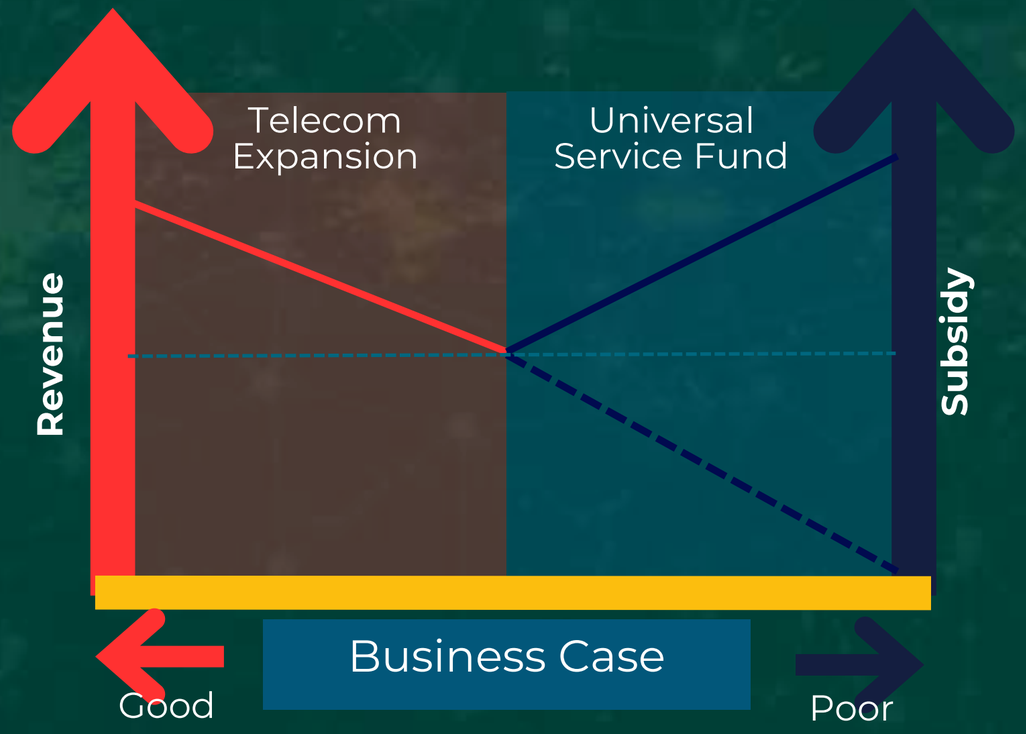
(Highways/Motorways, Tourist Destinations)

For National Highways & Motorways, Tourist Destinations

VOICE & BROADBAND PENETRATION

FROM ISOLATION TO CONNECTION

Importance of USF in Rural and Remote Areas



Challenges in Providing Connectivity to Un-served & Under-served Areas

- Difficult Terrain
- Sparse Population
- Harsh Weathers
- No Electricity
- No Backhaul
- Poor Logistics
- Business Case

UNIVERSAL SERVICE FUND

DIGITAL PAKISTAN

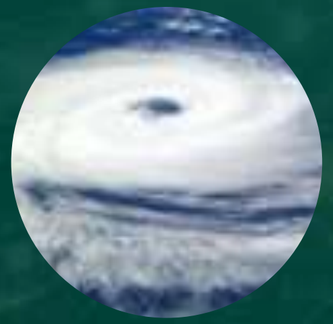
TRANSFORMATIVE ROLE IN BRIDGING THE DIGITAL DIVIDE

Empowering Rural and Remote Communities in Pakistan.

- **Connectivity for the Underserved**
- **Economic Empowerement**
- **Inclusive Development**
- **Universal Information Access**
- **Early Warning Systems**

CATEGORY OF DISASTERS FOR EWS

Anticipate. Alert. Act – Harnessing EWS to Save Lives and Build Resilience



Meteorological

Hydrological

Geological

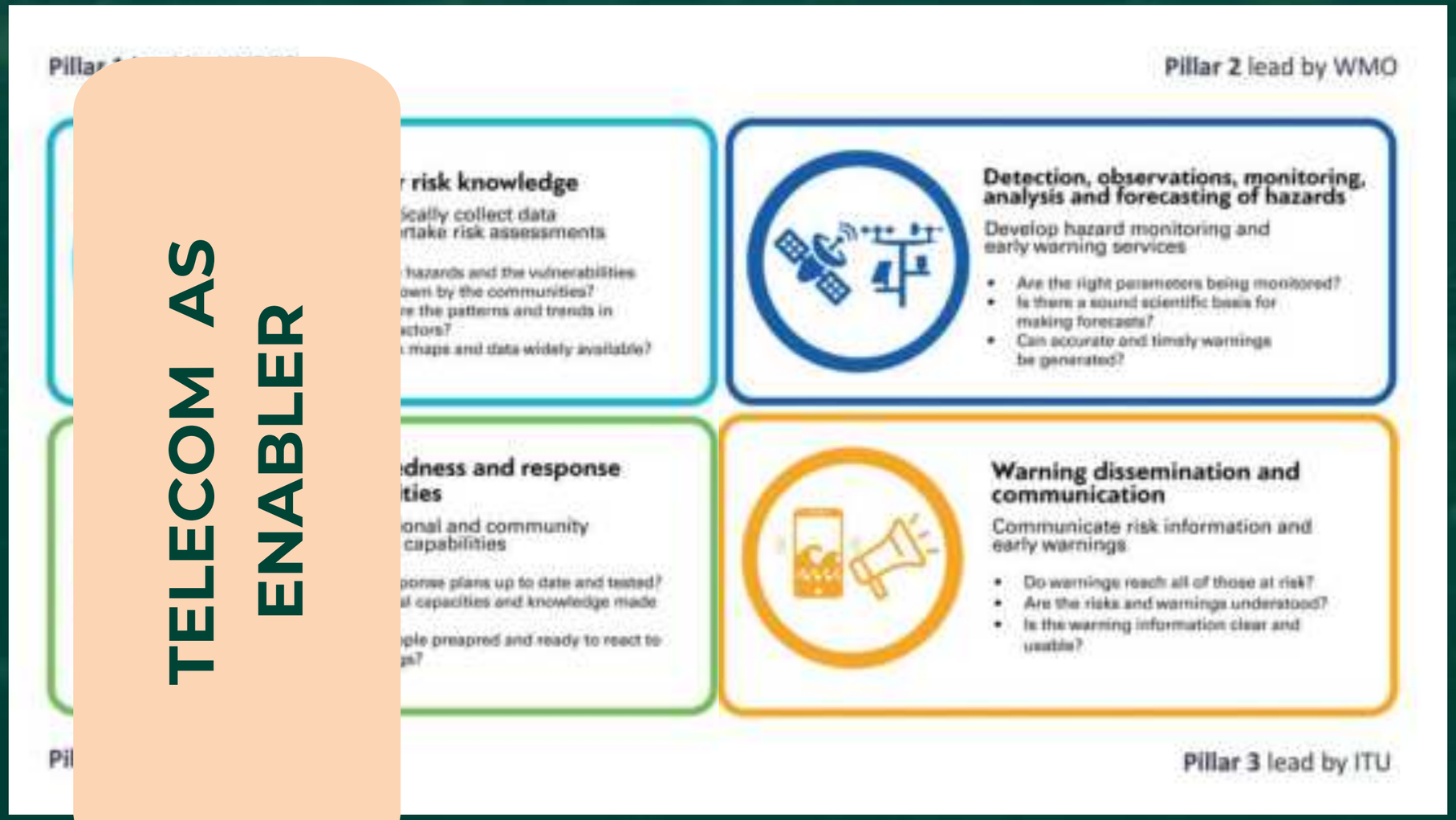
Biological

Cyber

Industrial

Early Warnings for All Initiative

TELECOM AS ENABLER



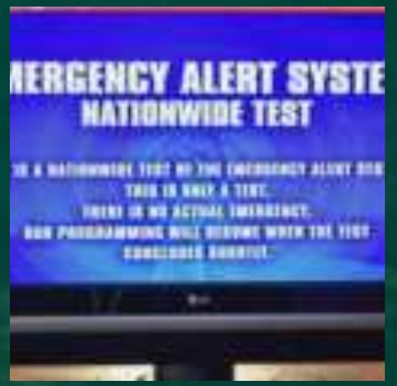
MEANS OF PUBLIC WARNING – ALERT DISSEMINAITON

Anticipate. Alert. Act – Harnessing EWS to Save Lives and Build Resilience

Internet
(Web, Social Media, Email)

Mobile Phones

TV / Radio



Fixed Phones

Acoustic Devices & Sirens

THE VITAL ROLE OF TELECOMMUNICATION IN EARLY WARNING SYSTEMS

Connecting Communities, Saving Lives: Empowering EWS Through Telecom

TELECOM AS ENABLER

Real Time Alerts

Telecom networks enable rapid dissemination of alerts via SMS, Cell Broadcast, Apps, Text-to-Voice ensuring communities are informed quickly during emergencies.

Geo-Targeting

Telecommunication systems can send targeted alerts (Location based SMS) to high-risk areas, avoiding unnecessary panic in unaffected regions.

Push / Pull Alerts

Telecom networks are used to issue alerts or access information for various issues:
Pull : Traditional – user accesses the werbsite, social media, USSD
Push : Alert triggered & disseminated in real time to target community

IoT Enabled Automation with AI

Uses sensors and AI to predict and disseminate warnings: Smart sensors for water levels, seismic activity, or air quality. AI models predicting disaster patterns and providing early insights.

Large Population Reach / Local Content

Telecommunication networks are pivotal in connecting populations across diverse geographies, ensuring access to essential services and localized information.

Post-Disaster Communication

Telecom operators play a key role in restoring communication systems after disasters, enabling coordination for relief and recovery efforts.

UNIVERSAL SERVICE FUND

DIGITAL PAKISTAN

REAL-WORLD IMPACT OF EARLY WARNING SYSTEMS

Telecommunication: The backbone ensuring connectivity for disaster preparedness and response

USF's Role: Extending connectivity to underserved areas, enabling disaster alerts for remote communities.

Availability & Reliability: Telecom networks ensure uninterrupted voice and data services for alerts.

Infrastructure Sharing: Collaboration among operators ensures wider reach and redundancy-free networks.

National Roaming: Seamless connectivity on highways and motorways during emergencies.

Types of Alerts: Rain, flash floods, torrential rains, earthquakes, AQI, smog, and weather updates.

UNIVERSAL SERVICE FUND

DIGITAL PAKISTAN

UNIQUE CHALLENGES IN REACHING THE UNREACHABLE

Post Disaster Challenges in Initiating the Rehabilitation Process

UNIVERSAL SERVICE FUND

DIGITAL PAKISTAN

LACK OF OR NO ACCESSIBILITY

Access Path Blocked by Mud/Water/Snow/Debris post-disaster (Horizontal Inaccessibility)

UNIVERSAL SERVICE FUND

DIGITAL PAKISTAN

HEAVY RAINFALL AT SITE

Access Pathway Submerged /Blocked in Water after Heavy Rainfall

UNIVERSAL SERVICE FUND

DIGITAL PAKISTAN

MATERIAL LOSS

Solar Panel and Equipment Damaged by High Wind Pressure

REHABILITATION AND WAY FORWARD

Post-disaster recovery and strategic steps for future readiness: Strengthening EWS

DISASTER → **DAMAGE** → **RECOVERY**

UNIVERSAL SERVICE FUND

DIGITAL PAKISTAN

CONNECTING COMMUNITIES FOR A SAFER FUTURE

Building a Resilient EWS Framework

Strengthen Partnerships between government agencies (USF- MoIT, NDMA, PTA) and telecom operators.

Expand Connectivity

to underserved areas with innovative technologies like low-cost IoT sensors.

Inclusive Design ensuring accessibility for women, elderly, and differently-abled individuals.

Resilient Backup Systems

a robust backup system for communication continuity post-disaster.

UNIVERSAL SERVICE FUND

DIGITAL PAKISTAN

THANK YOU

Together, we can empower communities to face future challenges