



DEEP DIVE SESSION

Early Warning Systems in FCV Settings: Enhancing Operational Impact and Community Resilience.

Friday March 1, 2024
12:00 – 2:00 PM EST
MC 1-100



GFDRR
Global Facility for Disaster Reduction and Recovery



Administered by
THE WORLD BANK
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Early Warning Systems in FCV Settings: Enhancing Operational Impact and Community Resilience

Assessing EWS in FCV countries: a snapshot of the current status



Statement of the problem

Approximately 42% of the world’s poor now live in conflict-affected and fragile states, and that figure is expected to rise to 62% by 2030.¹



Of the top 20 countries most vulnerable to climate change according to the NG-GAIN index, 14 are on the WBG FY24 FCS list.²



Between 2010 and 2019, only 4.1% of the total ODA allocated for DRM was directed toward disaster prevention and preparedness.³

¹ World Bank Group Strategy for Fragility, Conflict, and Violence 2020–2025 (English). Washington, D.C. : World Bank Group.

² World Bank Group: <https://www.worldbank.org/en/topic/fragilityconflictviolence/brief/harmonized-list-of-fragile-situations>

³ UNDRR and WMO (2022) “Global status of multi-hazard early warning systems: Target G”, United Nations Office for Disaster Risk Reduction.

The role of EWS in addressing these challenges

Community access to EWS could result in a **\$35 billion reduction** in asset and well-being losses annually, alongside a notable decrease in mortality rates.

Only half of all countries worldwide are protected by multi-hazard EWS as of 2023.

FCV countries are likely to lag behind even further as ongoing conflict and instability overshadows efforts for disaster resilience.

¹Hallegatte, Stéphane, Adrien Vogt-Schilb, Mook Bangalore, and Julie Rozenberg. 2017. Unbreakable: Building the Resilience of the Poor in the Face of Natural Disasters. Washington, DC: World Bank.

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Strengthening EWS in FCV countries: opportunities through operations.



Reflecting on traditional EWS methodology.

In FCV settings, each component of the EWS value chain faces **specific operational challenges** rooted in insecurity, limited access, and disrupted infrastructure.



The need for context-specific approaches.

Change of focus: pinpointing the most relevant and sustainable segments along the EWS value chain based on the unique contextual dynamics of engagement, whilst emphasizing a user-centric approach that prioritizes the needs and realities on the ground.

White Paper on EWS in FCV settings

Objectives

- Highlight the **missed opportunities** and the associated consequences of **failing to establish EWS** in FCV countries.
- Harness **lessons learned, solutions and innovative approaches** from EWS implementation in FCV settings.
- Provide a **decision tree** for task teams working on reinforcing Hydromet Services and establishing EWS in FCV countries.
- Ensure the **scalability of approaches** to mainstream Hydromet and inclusive EWS in fragile and conflict contexts.

Timeline

White paper: June 2024 –
presentation at UR24 in
Himeji;

Decision tree: FY25.

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Strengthening EWS in FCV countries: key challenges and framework for solutions.



Framework for solutions

Disaster risk knowledge

- Are key hazards and related threats identified?
- Are exposure, vulnerabilities, capacities and risks assessed?
- Are roles and responsibilities of stakeholders identified?
- Is risk information consolidated?

Detection, monitoring, analysis and forecasting of the hazards and possible consequences

- Are there monitoring systems in place?
- Are there forecasting and warning services in place?
- Are there institutional mechanisms in place?

Warning dissemination and communication

- Are organizational and decision-making processes in place and operational?
- Are communication systems and equipment in place and operational?
- Are impact-based early warnings communicated effectively to prompt action by target groups?

Preparedness and response capabilities

- Are disaster preparedness measures, including response plans, developed and operational?
- Are public awareness and education campaigns conducted?
- Are public awareness and response tested and evaluated?

Institutional framework and governance

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Insights from South Sudan



Flood Early Warning in South Sudan

Context & Challenges

Nascent Shift to Disaster Preparedness

- Series of devastating floods (2019-2022) informed gradual shift from humanitarian/emergency response

Crowded Development Space

- Donors and DPs rallying to support GoSS on the FEWS value chain with poor coordination

Unclear Government Mandates

- Overlapping responsibilities; missing regulatory & strategic frameworks; competition over scarce resources

Weak Capacities & Scarce Data

- Lack of functional monitoring stations; poor hydro-met models; fragmented flood risk data; understaffing; hardware/software

Coordination on FEW across World Bank operations

- Regional Climate Resilience Project (RCRP)
- Enhancing Community Resilience and Local Governance Project Phase II (ECRP-II)



Source: AP News

CREWS EAST AFRICA

Strengthening Hydro-Meteorological and Early Warning Services in the East Africa Region

Objective: To scale up Early Warning Services (EWS) in East Africa and improve coverage of impact-based early warning services.

Geographic Coverage & Timeline: East Africa: Kenya, Tanzania, Uganda, Rwanda, Burundi and S. Sudan (2023-2027)

Consortium: WMO (Lead), UNDRR, World Bank (GP Water & GP URL)

Budget: US\$ 7m (South Sudan: US\$ 845,000; World Bank: US\$ 420,000)

National Component 3: Strengthening national capabilities in South Sudan

- i. Assessment of hydromet monitoring network, early warning infrastructure (WMO/WB)
- ii. Development of a roadmap for EWS/ hydromet services strengthening (WMO/WB)
- iii. Strengthen hydrological monitoring for target areas (WB)
- iv. Improving the capacity of South Sudan to generate, customize and disseminate hydromet EWS services (WMO/WB)
- v. Pilot actions for community-level, impact-based flood early warning (WB)



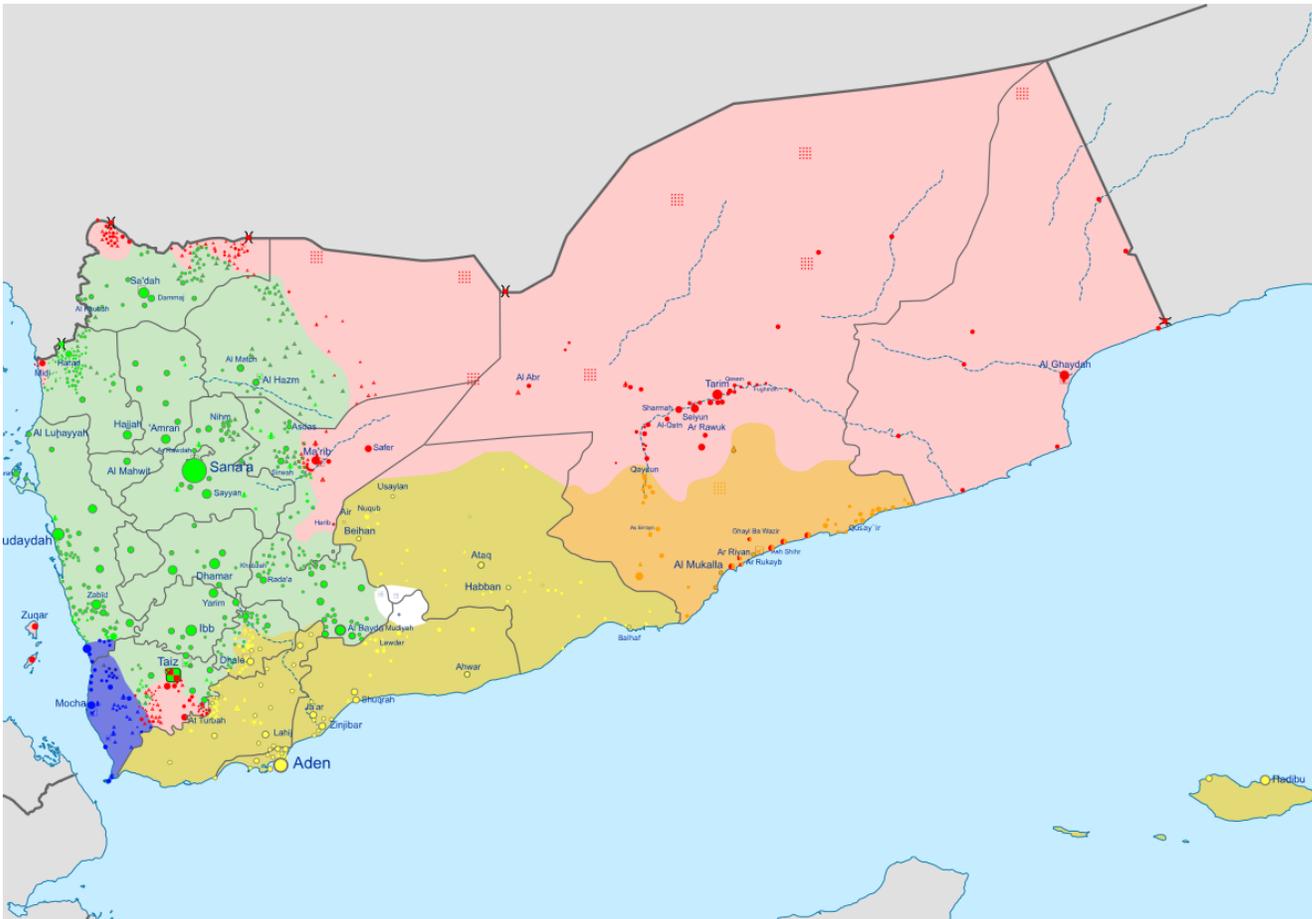
Source: Action Against Hunger

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Insights from Yemen



Yemen – Working in a fragmented environment



- 10 years of ongoing conflict
- One of the worst humanitarian crises in the world
 - **80 % of population need humanitarian assistance (2023)**
- 100 thousand lives lost
- **One of largest displaced populations in world**
- **GDP has contracted by about 40 % cumulatively since 2015**
- Reconstruction needs assessed
 - **US\$20 - 25 billion over five years. (50% of pre war GDP)**

Yemen – Natural disasters in an active war zone

Yemen has been hit hard by natural hazards in the last 20 years.

- At risk from → Severe floods, Droughts, Epidemics, Storms, Cyclones and, landslides.

Floods pose the greatest threat

- affected +821,000 people and killed +695 people.

Two major recent climate disasters:

- **The floods of 2020.**
 - estimated US\$117 million in damages to urban infrastructure.
- **The floods of 2022**
 - **+US\$570 million in direct economic damages**, mostly on agriculture sector,
- **Drought of 2022.**
 - +6 month

Climate disasters in a conflict zone :

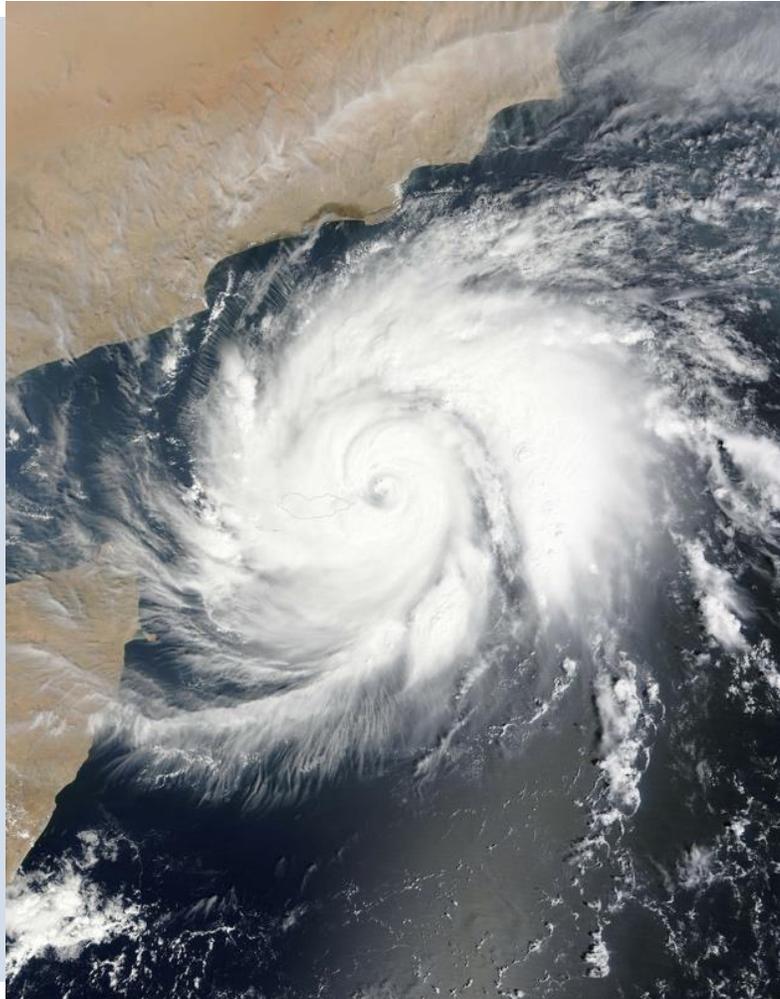
- Varying degrees of local capacity
- Disproportionately affect
 - → displaced + the poor.
- Cause further displacement
- Dislocate explosive remnants of war (UXO)
 - moved into farmland, leaving farmers displaced.



Climate change will increase likelihood of conflicts. Yemen will not be the exception

1. It will increase significantly temperatures, water stress, and will reduce agricultural yields
 1. It will **create displacement most likely to cities**

Cyclone Tej – Oct 2023



- **Extremely Severe Cyclonic Storm (Cat 1-3 storm)**
 - US\$ 250 million in damages.
 - Destroyed various displacement camps
- **Still some early warning and local capacity:**
 - Local authorities in Hadhramaut, Al Mahrah and Socotra governorates **declared a state of emergency and activated their emergency operations rooms** (local monitoring a response coordination committees).
 - In Al Maharah, authorities called **on citizens in coastal areas to temporarily move to the nearby shelter centers (mainly schools)** designated by the emergency committee in the governorate.
 - As precautionary measures, schools were suspended in all governorates.

Assessment of Disaster Risk Management Capacity for Weather and Climate Hazards in Yemen

Objectives:

- Carry out an assessment of the current state of DRM capabilities in Yemen that can serve as a first step toward the development of a National DRM Strategy
- Assess the capacity of Hydro-meteorological and Early Warning Services institutions in Yemen and identify policies and investments for their modernization and capacity building.

Early Preparedness and Response Capacity

- Assessment of existing challenges in disaster preparedness, emergency planning, and response.

Assessment of Hydromet Services and EWS.

- Assessment of Monitoring and Observation Systems.
- Assessment of Hydrological and Meteorological Forecasting.
- Understanding Early Warnings Provided by International Development Organizations

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The case of Haiti: Progress Despite Harsh Conditions



Haiti, a Challenging Environment



(EFE/Johnson Sabin)

- Escalating violence and social instability
- Chronic institutional weakness, low governance
- Multiple competing priorities

Specific Challenges in the Operability of an EWS in Haiti

- Technical
- Financial
- Populations
- Coordination
- Cconstraint Mobility



(Felipe Jacome)

Surmounting Challenges

- Continuous institutional and technical support and expertise
- Flexibility with firms and TA support
- Enhance technical capacity
- Engage local communities in hydromet maintenance
- Foster public-private partnerships
- Promote community awareness



(DGPC, SIMEX 2023)

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The case of Afghanistan



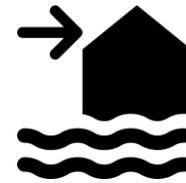
AFGHANISTAN

Country Context

- High **susceptibility** to natural hazards (hydromet hazards in particular);
- High **vulnerability** of the population because of prolonged civil conflicts and wars;
- 6th in the Global Climate Risk Index 2000-2019
- **500,000** people affected by weather-related hazards yearly;
- Persisting deficiencies in hydromet data and network;
- Limited DRM practices (from planning to response);



Most common and impactful natural hazards



**FLOODS &
FLASH-FLOODS**

Most frequent hydromet natural hazard historically, affecting over 100,000 people annually, and causing damages of over USD 54 M/year.



DROUGHT

Recurrent phenomena in Afghanistan (return period for a major drought is approx. ten years)



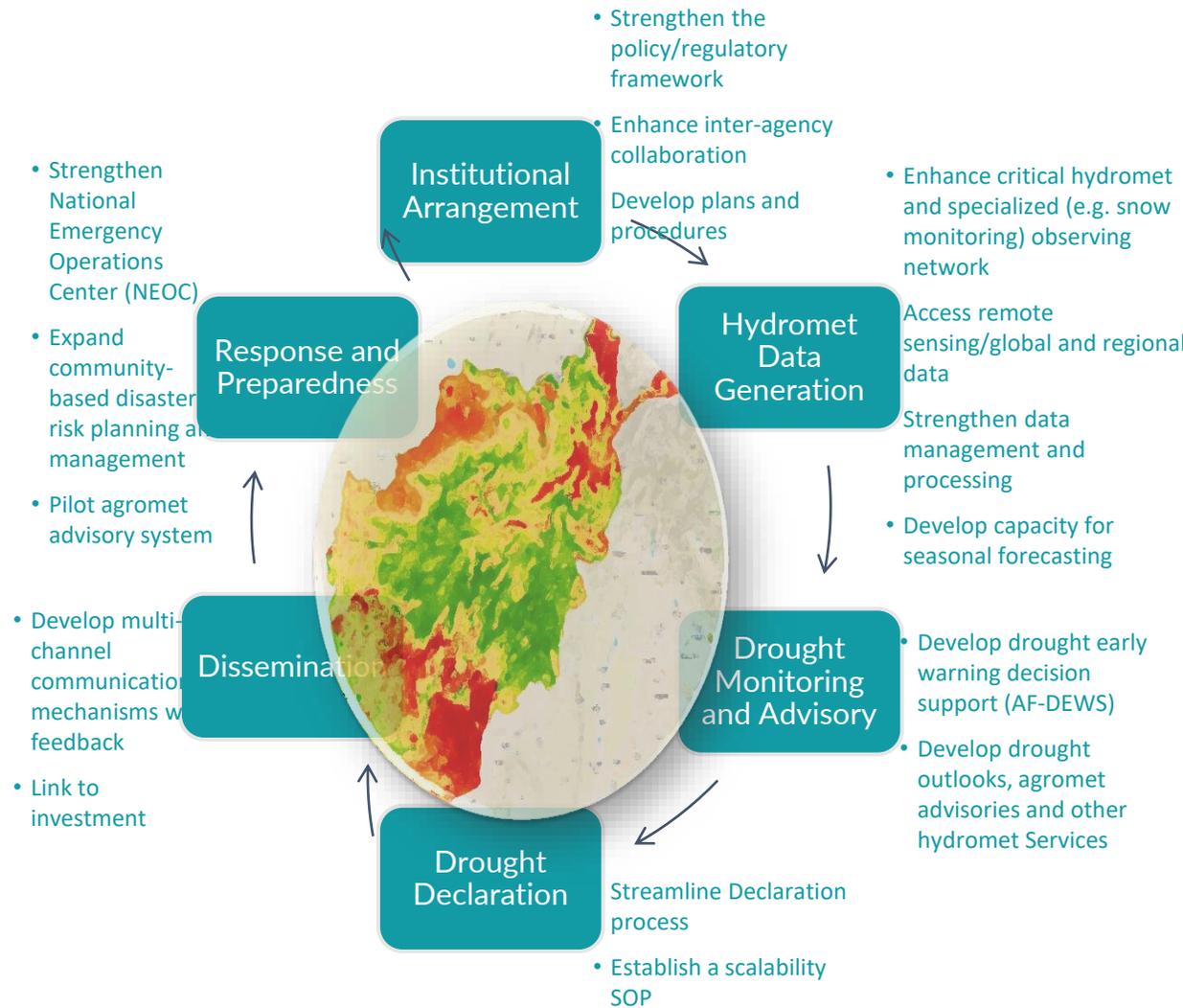
AVALANCHES

Third deadliest natural hazard, with 2 M people considered as exposed to avalanche risk and 15% of roads.

ENETAWF (Inv) and AF-ECLIM (TA Program)

To increase the food and nutrition security of the most vulnerable households and to build systems for early warning and response with pre-arranged financing

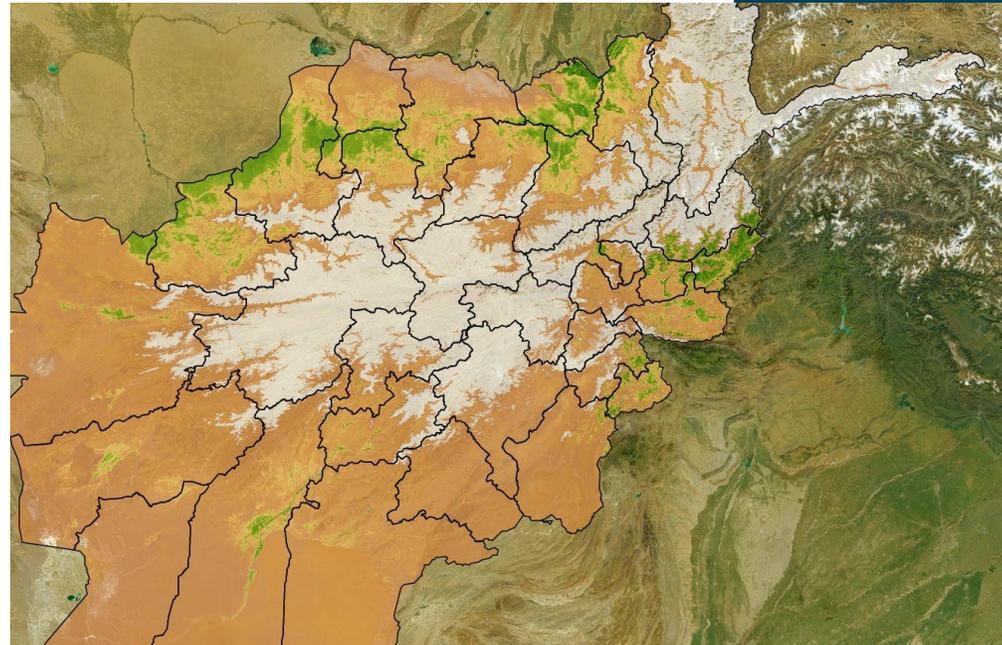
- ✓ Strategy to transition away from emergency humanitarian aid to government-led development-oriented response to food insecurity and shocks
- ✓ **Early Warning, Hydromet Services and Community Resilience**
- ✓ **Robust TA program** to lay the groundwork and support innovative solutions: CBDRM, Drought EW, Hydromet Support



Afghanistan Drought Early Warning Decision Support **AF-DEWS**

Building consensus, increase coordination and support decision making for drought monitoring

- Cloud-based platform designed to provide simple, timely and reliable information on the status of drought;
- Relying on near real-time and ready to use satellite based remote sensing drought indices;
- Flexible and adaptable pool from which to select the preferred drought indicator (meteorological, agricultural and hydrological drought);

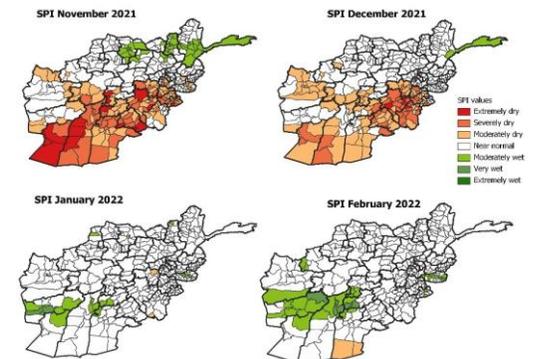
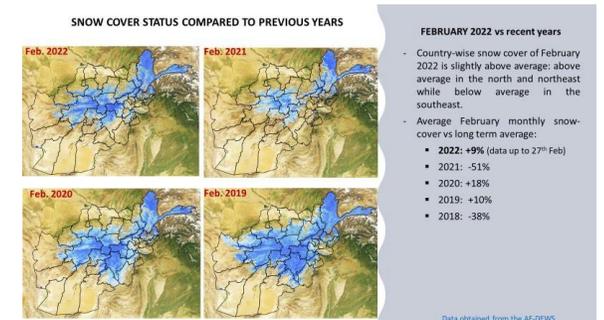


Afghanistan Drought Early Warning Decision Support (AF-DEWS) Tool

- Handover of the tool in collaboration with IWMI (the developer and in charge of O&M) to UN partners (WFP or FAO).
- AF-DEWS is intended to serve as public goods to help drought risk monitoring and decision support.
- Conversation has been initiated with Regional Hydromet Knowledge Network/Platform (e.g. SAHF) and UN Partners (e.g. WFP and FAO) on potential collaboration to ensure sustained management, information sharing and application of the tool.

Drought advisory

- **40 bulletins produced** (weekly/bi-weekly);
- **100 stakeholders reached** within WBG and amongst development partners and UN humanitarian agencies.
- Primarily aimed at **assessing and communicating** the state of drought in Afghanistan;
- Provides additional **weather and climate information** (e.g., short-, medium- and extended-range forecasts and extreme event forecast);
- Provides critical information to support food security decisions;
- Intended to support in-country agencies (building consensus and enhance coordination), it is now focused to support humanitarian agencies in preparing timely responses ahead of potential drought events;



CBDRM value chain

A comprehensive approach to mainstream DRM practices in rural communities

- Combining **participatory** activities (e.g., disaster risk assessments) with ad-hoc GIS data and analytics for the specific community;
- Resulting in the development of informed and community-led **risk profiles** for specific hazards (e.g., landslide, avalanches, floods, etc.) & community driven **risk management plans**;
- Piloted in 10 CCAP communities between 2020 and 2021;
- Included the establishment and equipping of a Disaster Risk Management Resource Center at MRRD (to produce the GIS and satellite images analytics);
- Intended to be further scaled-up through the ENETAWF;
- Produced a **knowledge product** with the lessons learned generated by the pilot project, for similar FCV/country contexts;
- Develop a cloud-based and geospatial-referenced database to archive and made available the risk mitigation measures developed through the pilot;

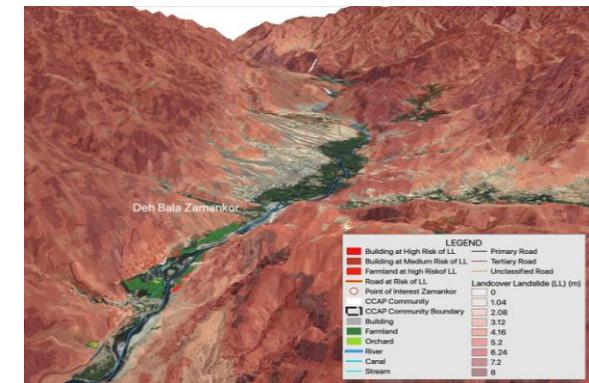
CBDRM-EW Value Chain



Community-Driven DRM Planning



Community Risk Profile





Decision Support for Hydromet services

Flash Floods Guidance System
Hydromet Atlas



Weather, Climate, and Water in Afghanistan

A Visual Guide to the National Hydrology and Meteorology Services



Way Ahead: Tackling the FCV & Disaster Nexus



- Leveraging simple to deploy innovative approaches and ICT technologies for information sharing
- Supporting cross-fertilization among different programs within the Bank
- Enabling implementation through alternative modalities, including UN agencies, regional platform (e.g., SAHF)

RESOURCES

E-learning course on Managing Disasters in Fragile and Conflict-Affected settings



Crisis Preparedness Gap Analysis (CPGA):
<https://www.worldbank.org/en/topic/fragilityconflictviolence/brief/cpga>

E-learning course on Designing Inclusive, Accessible Early Warning Systems



Disaster-Fragility, Conflict and Violence Nexus: GFDRR thematic area web page:
<https://www.gfdr.org/en/disaster-fcv>



www.gfdrr.org/disaster-fcv

Disaster-Fragility, Conflict and Violence Nexus



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