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CASE STUDY

PREPAREDNESS

Impact-Based Early Warning for Inclusive Early Action in IGAD

The EarlyWarning4IGAD initiative co-funded by the EU and supported by UNDRR is strengthening impact-based early warning systems in the IGAD region by integrating exposure and vulnerability data into flood and drought forecasting. Implemented through ICPAC, UNU-EHS and CIMA Research Foundation, the initiative supports more targeted, inclusive and actionable early warning and early action approaches for vulnerable populations in Kenya and Ethiopia.



PHOTO | HASSAN ALI ELMI | AFP

EXECUTIVE SUMMARY

- 01 COUNTRY/REGION/LOCATION**
IGAD region, with pilot implementation in Kenya and Ethiopia.
- 02 RISK ADRESSED**
Floods, droughts and cascading climate-related disaster impacts
- 03 IMPLEMENTATION PERIOD/TIMEFRAME**
2024–2026 under the Intra-ACP DRR Programme and EW4All agenda
- 04 ACTORS/IMPLEMENTING AND LOCAL PARTNERS**
ICPAC, UNU-EHS, CIMA Foundation, UNDRR and National DRM, Hydromet actors
- 05 KEY BENEFICIARIES**
At-risk communities, women, persons with disabilities and displaced populations

CONTEXT AND CHALLENGE

The Greater Horn of Africa faces recurrent droughts, floods and climate-related shocks that increasingly affect livelihoods, food security and human mobility.

Existing early warning systems in the region have largely focused on forecasting hazards, with limited integration of exposure, vulnerability and anticipated impacts. As a result, warnings often remain too generic to trigger timely and targeted early action, particularly for highly vulnerable groups such as women and girls, persons with disabilities and people living in camp settings.

Strengthening actionable impact-based early warning is therefore critical to improve preparedness, anticipatory action and inclusive disaster risk management across the IGAD region.

WHY THIS ACTION MATTERS?

The initiative contributes directly to the transition from hazard-based forecasting to people-centred and impact-based early warning systems aligned with the UN Early Warnings for All initiative.

By integrating social vulnerability, exposure and impact forecasting into existing regional systems, the project helps governments and humanitarian actors anticipate who is most at risk, why, and what actions are needed before disasters occur.

This improves preparedness, supports more inclusive disaster risk governance and strengthens the operational value of regional early warning systems for decision-making and anticipatory action.

See the intervention and results on page 2 →



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INTERVENTION AND APPROACH

The initiative developed and piloted a methodology for integrating exposure and vulnerability information into existing early warning and decision-support systems in the IGAD region. Through collaboration between ICPAC, UNU-EHS, CIMA Research Foundation and UNDRR, the project assessed existing regional early warning systems and identified gaps in the integration of impact and vulnerability information.

The project combined hazard forecasting with participatory vulnerability profiling, statistical analysis, geospatial datasets and consultations with affected

communities and DRM actors. Particular attention was given to women and girls, persons with disabilities and people living in camp settings.

The initiative also strengthened the East Africa Hazard Watch and Drought Watch platforms by incorporating impact-based forecasting approaches and actionable risk information. Capacity-building activities supported national and regional stakeholders in understanding and operationalising impact-based early warning and anticipatory action approaches.

PROGRAMME OUTPUT ALIGNMENT



OUTPUT 3.1 : PREPAREDNESS

This action contributes to the DRRP Preparedness output by strengthening multi-hazard early warning systems, improving regional DRM coordination, integrating exposure and vulnerability information into early warning systems, and supporting inclusive anticipatory action and preparedness capacities in IGAD Member States.



Local consultations with community members formed a key component of the vulnerability profiling process, ensuring that the perspectives of women, persons with disabilities and displaced populations were reflected in the design of impact-based early warning systems.

RESULTS AND CHANGE

1 The initiative strengthened regional momentum towards inclusive and actionable impact-based early warning systems in the IGAD region. It demonstrated how vulnerability and exposure information can be operationally integrated into flood and drought forecasting to support targeted preparedness and anticipatory action.

2 The project produced vulnerability profiles and conceptual risk indicators for vulnerable population groups in Kenya, improving understanding of differentiated disaster impacts and barriers to early action. Findings informed recommendations for inclusive warning dissemination, accessible preparedness measures and stronger institutional coordination.

3 The initiative also contributed to strengthening ICPAC regional platforms and promoted a more people-centred approach to early warning aligned with the Sendai Framework and Early Warnings for All agenda.

EARLY CONCRETE UPTAKE IN ONGOING INVESTMENTS:

ADVANCING IMPACT-BASED EW SERVICES IN EAST AFRICA

ICPAC integrated impact-based forecasting concepts into East Africa Hazard Watch and Drought Watch enhancement processes, supporting more actionable regional early warning services.



ENSURING EARLY WARNINGS REACH THOSE MOST AT RISK

The vulnerability profiling methodology informed inclusive early warning recommendations for women, persons with disabilities and displaced populations in Kenya.

KEY ENABLERS OF SUCCESS



STRONG REGIONAL
INSTITUTIONAL
COORDINATION



PARTICIPATORY
VULNERABILITY
PROFILING



INTEGRATION OF
SCIENCE AND LOCAL
KNOWLEDGE



ALIGNMENT WITH
EW4ALL AGENDA



SOURCES

- [ICPAC EarlyWarning4IGAD Project](#)
- [UNDRR Case Study on Vulnerability Profiles and IbEW](#)

- [CIMA Foundation EWS4IGAD Project](#)
- Pfeiffer et al. (2025), Bridging the gaps: Vulnerability profiles to strengthen impact-based early warning and early action for



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CASE STUDY

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PREPAREDNESS

The East Africa Drought Watch platform incorporates vulnerability and exposure information to highlight potential drought impacts on refugee camps and other at-risk populations, supporting more people-centred and anticipatory drought risk management.

East Africa Flood Watch integrates hazard forecasts with exposure and vulnerability data, enabling decision-makers to assess potential impacts on populations, including persons with disabilities and other vulnerable groups, and to support more targeted preparedness and anticipatory action.

Information on residents of Dadaab Refugee Camp (Garissa County) for May 2021

While the majority of camp residents are predominantly reliant on humanitarian assistance to meet their food needs, small-scale food production for self-consumption occurs to a limited extent. Droughts can affect this activity.

Parts of Dadaab are exposed to drought (CDI Watch) in May 2021. Crops production might be affected differently depending on its current stage (planting, growing, or harvesting).

As of May 2021, an estimated 226,624 people live in Dadaab.

- 32,339 children between 0–4 years old, and 54,021 children between 5–11 years old are estimated to live in the camp as of May 2021. Children are prone to undernourishment if prolonged drought occurs.
- 9,494 elderly people are estimated to live in the camp as of May 2021. Elderly are prone to health-related problems which can exacerbate if drought occurs.
- The female population of the camp is 115,534 as of May 2021. Women holds important roles in managing the health and nutrition of the family as they are the primary caregiver.

Flood impacts on the population (county)

General population
4992 people might be affected by flood height of 25 cm.
2262 people might be affected by flood height of 100 cm.

People with reduced mobility
883 young (0-5 years old) and elderly (65 years old) might be affected by flood height of 25 cm.
400 young (0-5 years old) and elderly (65 years old) might be affected by flood height of 100 cm.

People with disability
30 people with disability might be affected by flood height of 25 cm.
14 people with disability might be affected by flood height of 100 cm.

Children, elderly and people with disability will require additional support in case of evacuation.

Impacts and information on people with disability
There are 20044 people in IGAD living with disabilities.
0.2% of the male population lives with disability.
0.5% of the female population lives with disability.
The disability conditions pose difficulties for people during floods, especially in terms of evacuation and reception and acting on early warning information.
Means of specialized alert technologies and approaches such as through audio, sign languages and Braille are necessary to ensure that warning information can be delivered to these population.

Monitoring Data | **Forecast Data**

COMBINED DROUGHT INDICATOR (CHIRPS)
Current Drought Conditions (10-day CDI)
2025 May, Dekad: 3rd

LEGEND
Dekadal Crop Loss - All

- No Loss
- 1k - 5k tonnes (Watch)
- 5k - 15k tonnes (Warning)
- 15k - 50k tonnes
- 50k - 100k tonnes (Alert)
- 100k - 200k tonnes
- 200k+ tonnes (Severe)

The map shows 10-day (dekadal) crop loss data. Dekads are 10-day periods: 1st (1-10), 2nd (11-20), 3rd (21-end of month).
More details - Crop Loss Monitoring

The enhanced East Africa Drought Watch platform translates drought monitoring data into potential agricultural impacts, enabling authorities and partners to identify areas at risk of crop losses and support timely preparedness and anticipatory action across the region.