

Cold-Wave Anticipatory Action in Nepal: Learnings and Experiences

SAHF -Regional Workshop on Impact Based Forecasting (IBF)
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Anuj Tiwari
People In Need (PIN) Nepal



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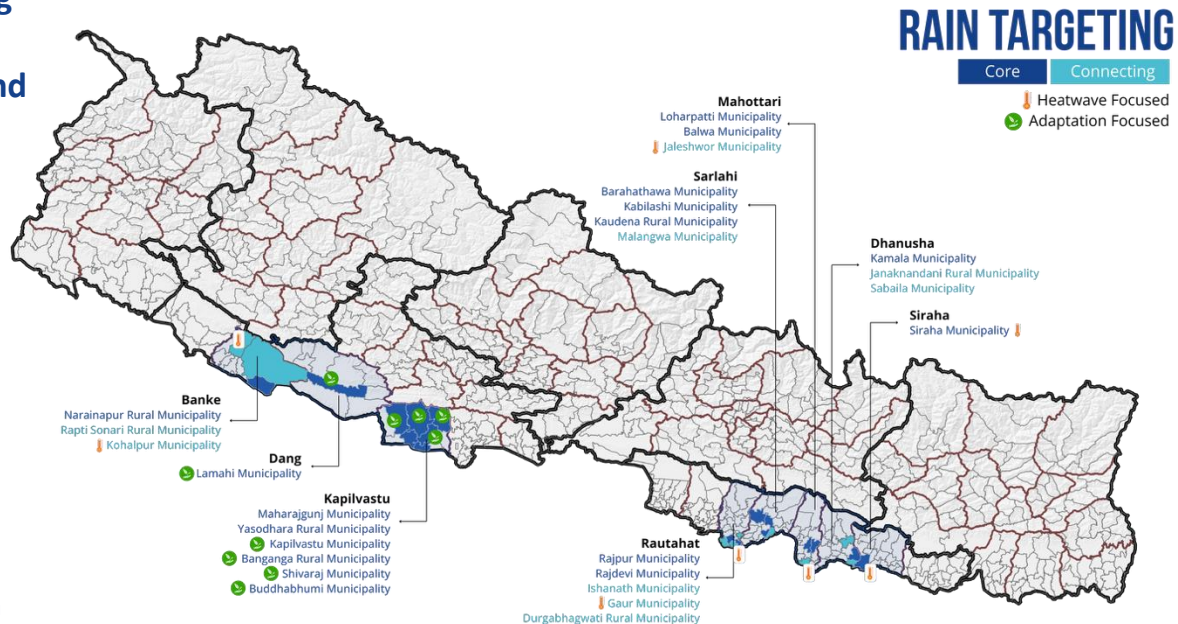


About RAIN

- RAIN is aimed towards **enhancing community resilience** and **strengthening sub-national governmental systems** in **early warning (EW), early action (EA) and adaptation**
- Geographic Focus:** Two provinces in Nepal—Madhesh, Lumbini
- Donor:** Foreign, Commonwealth & Development Office (FCDO)

Project components

- Early Warning and Early Action**
- Community Resilience and Adaptation**
- Inclusion and Localization**
- Shock Responsive Social Protection**

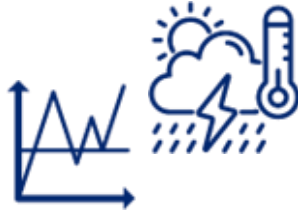


Early Warning System-Early Action (EWS-EA) focus under RAIN



Risk Knowledge/ Assessment

Understanding risk focusing on hazard, exposure and vulnerability through Participatory GIS approach; linkage with national Multi-Hazard Risk Assessment Framework



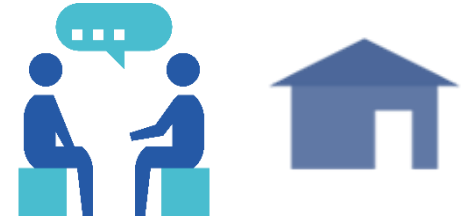
Monitoring and Forecasting

Collaboration with Department of Hydrology and Meteorology (DHM) in increasing the density of climate and river monitoring in Madhesh, and Lumbini; Collaboration with UKMet and Red Cross Climate Center.



Communication and Dissemination

Collaboration with private sector (telecom service provider) for improving risk communication focusing on existing barriers (literacy, disability, linguistics, etc.); Activation of DHM toll free number 1155; Engagement with Local Government and at-risk communities for community centric risk communication and dissemination.



Response Capacities

Collaboration with Provincial Government (PGs), Local Government (LGs) and communities for improving response capacities (EWS-EA training, construction of safe shelters, improvement of evacuation routes, etc.); Coordination with DHM, National Disaster Risk Reduction And Management Authority, PGs and LGs for improved response; Linking EWS with EA.

Cold Waves in Nepal

A recurring winter hazard with wide-ranging impacts

Cold waves occur annually in Nepal, particularly in the Terai, affecting people's health, livelihoods, agriculture and daily life—disproportionately impacting vulnerable and marginalized populations.



822

recorded deaths

1974–2013 | DesInventar
(MoHA Nepal Disaster Report 2015)



647

recorded cold-wave incidents

1974–2013 | DesInventar
(MoHA Nepal Disaster Report 2015)



116

recorded deaths

2011–2026 | BIPAD Portal
(NDRRMA, as of 2026)



117

recorded cold-wave incidents

2011–2026 | BIPAD Portal
(NDRRMA, as of 2026)



Figures are from two different databases and time periods. They are **not cumulative**.

01

HUMAN HEALTH

- Increased risk of hypothermia, pneumonia, acute respiratory infections, influenza, COPD and asthma.
 - Children under 5 and older people are most affected.
- Cold conditions can lead to higher morbidity and mortality.



02

AGRICULTURE & LIVESTOCK

- Damage to winter crops such as potato, mustard and tomato.
- Historical recorded crop damage: 26,906 ha (1974–2013 | DesInventar).
- Livestock and poultry can suffer disease and losses.



03

LIVELIHOODS & ECONOMY

- Daily-wage workers lose income when work is disrupted.
- Households face higher expenses for food and heating.
- Poor and marginalized households have fewer resources to cope with prolonged cold.



04

DAILY LIFE & SERVICES

- School closures and reduced attendance.
- Poor visibility and disruption to transport.
- Increased demand for healthcare services.
- Inadequate shelter, clothing and heating increase exposure.



WHO IS MOST AT RISK?

Children, older people and other vulnerable groups are more likely to experience severe impacts.



Children under 5



Older people (60+)



Pregnant & lactating women



Persons with disabilities

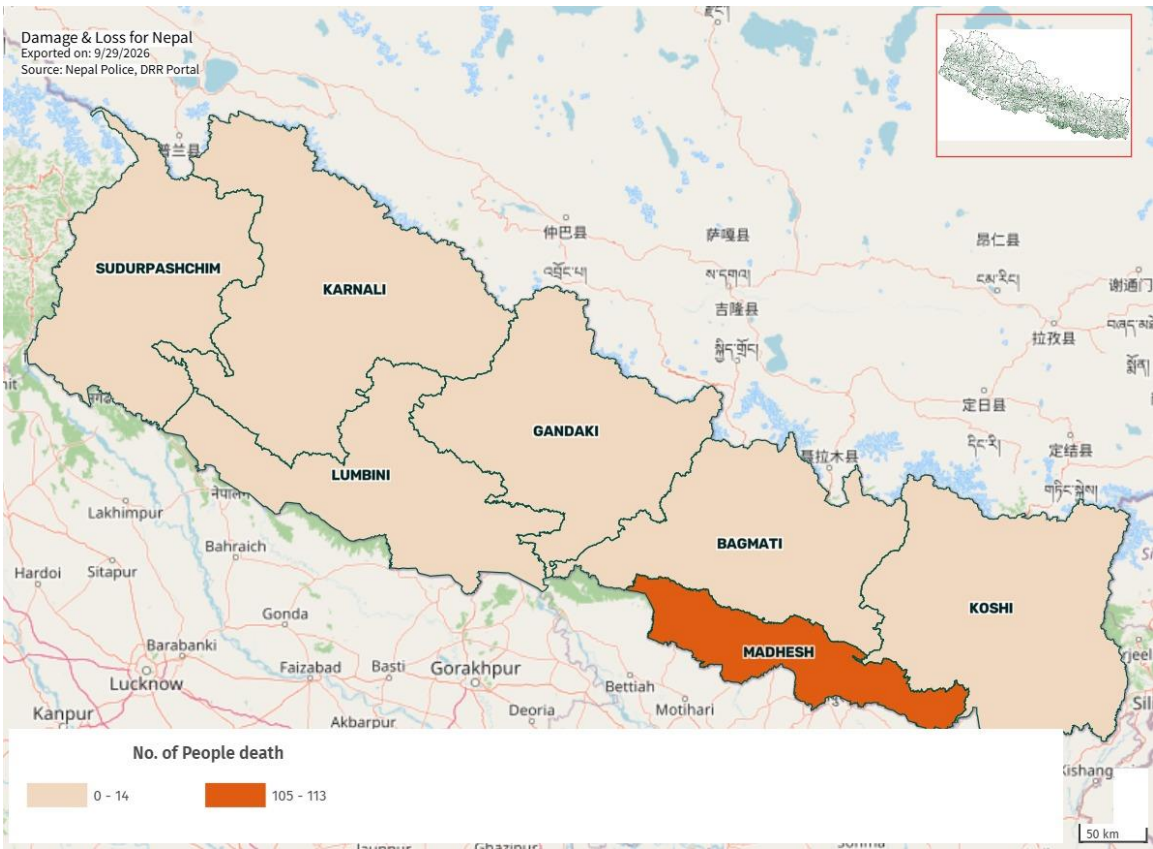


People with chronic illness

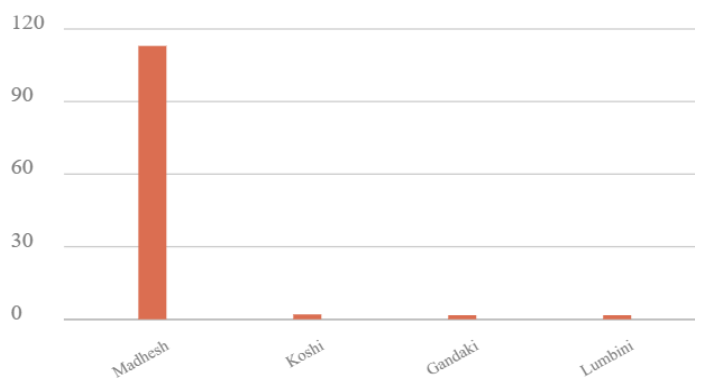


Low-income & daily-wage households

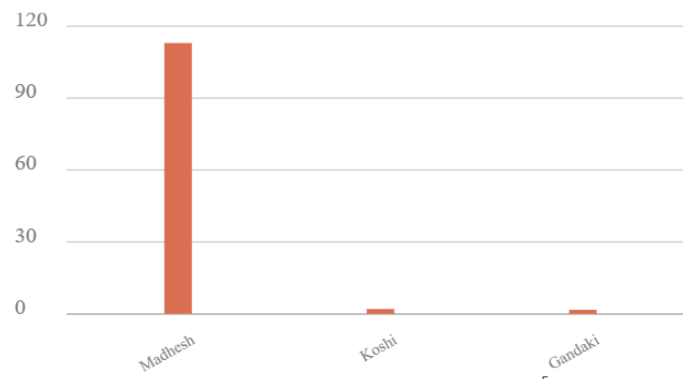
Spatial Distribution of Cold-Wave Incidents and Deaths



province-wise distribution of Incidents



province-wise distribution of People death



Cold wave: Threshold, Trigger and IBF

- Since there is no standard threshold and trigger for cold wave or cold-spell, PIN has been supporting Nepal Meteorological Department (NMD) to categorize localized impacts and develop sector specific thresholds/triggers with the technical support of UK-MET Office.
- These thresholds and triggers will be then tested across RAIN implement local levels to generate Impact Based Forecasting (IBF) for cold wave.



Cold Wave Early warning and Early Action

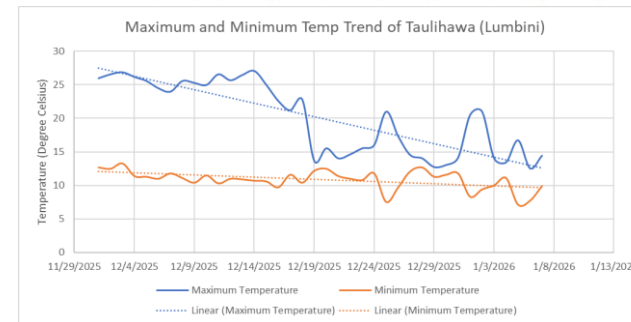
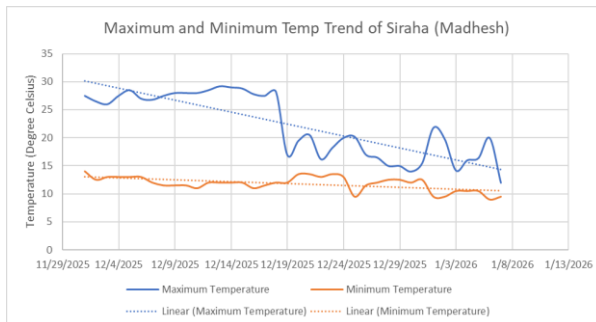
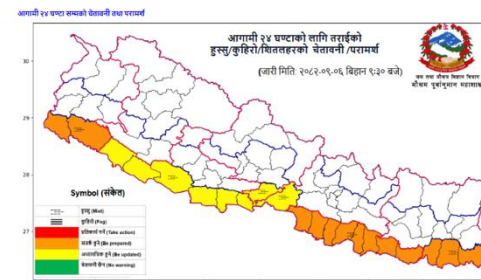
- **Nepal Meteorological Department (NMD)** started cold wave monitoring and forecasting from December 2025
- **Preparation and Monitoring**
From 28 December 2025 to 7 Jan 2026
- **PIN led Activation with local government**
From 8 –10 January 2026

आज दिउँवारीको आँखाबाट (Outlook for today)

कोशीलाई	श्री. स्वास्थ्यका लागि हुनुहुनेछ। अत्यन्त कमजोर हुने सम्भावना रहेको छ।
मेची	श्री. स्वास्थ्यका लागि हुनुहुनेछ। अत्यन्त कमजोर हुने सम्भावना रहेको छ।
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पश्चिमी र पश्चिमी (Outer Outer Warning)

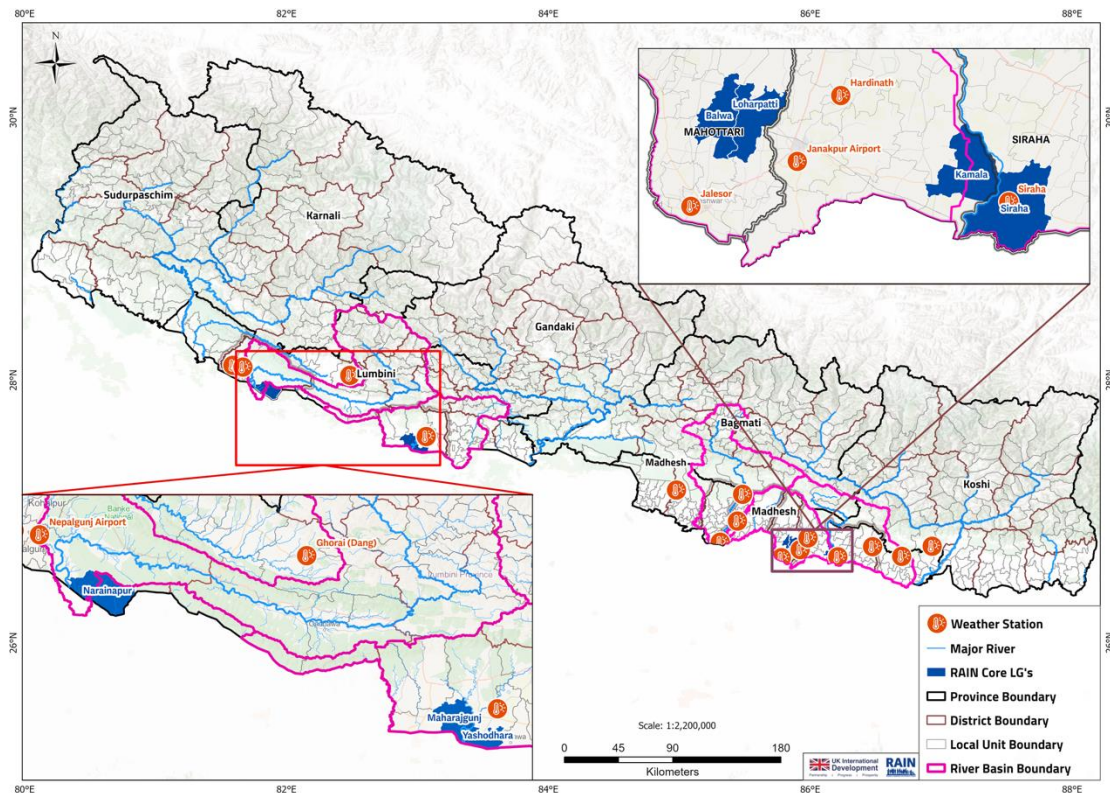
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Decreasing trend of both maximum and minimum temperature across both provinces showed possibility of cold wave conditions

Cold wave Early Action Targeted Areas

- ❖ **Madhesh Province:** Siraha, Loharpatti, Balwa, Kamala Municipalities
- ❖ **Lumbini Province:** Narainapur, Maharajgunj and Yasodhara Municipalities
- ❖ **Beneficiary Identification and Verification:** (Dec 28 2025-Jan 7, 2026)
- ❖ **Relief Distribution:** (Jan 8-10, 2026)



Cold wave: Early Warning

Early Warning Dissemination

- ❖ Dissemination of weather forecasts and advisories to Community Disaster Management Committees (CDMCs) using various channels
- ❖ Using Multi-hazard sirens in local languages
- ❖ Sign language video awareness video

Early warning process

Forecast Monitoring → Impact identification → Warning Dissemination
→ Local level coordination

Government-led approach through municipalities, wards, LDMCs and community structures



Cold Wave: Early Action

Targeting Vulnerability, Not Numbers

Distribution of Winterization Kits to most vulnerable under the leadership of Local Government

- ❖ Landless Dalit households
- ❖ Households with chronic illness
- ❖ Targeted 1100 HHs: 785 Senior Citizens , 443 Persons with disabilities and 23 Pregnant and lactating women children under five



Key learnings and Challenges

- ❖ Early warnings create impact only when they are linked with timely early action.
- ❖ Redundant multiple channel risk communication essential to reach last-mile households.
- ❖ Joint meetings with local government to identify vulnerable and marginalized groups.
- ❖ Local government led coordination ensures trust, efficient targeting and community ownership.
- ❖ Lack of defined thresholds and triggers. Using the observed impact information from ground for swift action provides opportunity for early action.

Thank you

Anuj Tiwari

Emergency and Anticipatory Action Coordinator

People In Need (PIN), Nepal

anuj.tiwari@peopleinneed.net



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