Supported by:

REGIONAL WORKSHOP ON IMPACT-BASED FORECASTING:

Training-of-Trainers and National Demonstration Planning for Temperature-Related Hazards

SAHF IBF Working Group Implementation Plan Project

09-13 February 2026

Kathmandu, Nepal

Supported by:

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NATIONAL DEMONSTRATION PLAN

Implementation of Temperature based IBF Piloting in Nepal

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1. National Demonstration Plan Overview

A1. Proponent Information	· **Department of Hydrology and Meteorology, Nepal** · Sector Co-Lead (NDDRMA, NAARC, DoH, MoEWI …….etc) -Private and NGOs/INGOs
A2. Focal Contacts	· NMHS Lead Focal (overall): DHM (who-TBD) · Sector Co-Lead: TBD
A3. Demonstration Project Title	: **Implementation of Temperature based IBF Piloting in Nepal**
A4. Geographic Scope	: **Terai regions of Lumbini Province and Madhesh Province**
A5. Seasonal Focus	: Heat and Cold
A6. Duration of Demonstration	2026-03.01 to 2027 02-28 Testing can be done in the first month Heat-focused demos: Mar-June 2026 (implementation); Sep-Nov 2026 Cold-focused demos: Dec--Feb2027 (implementation); Feb 2027

Data availability to support IBF services demonstration

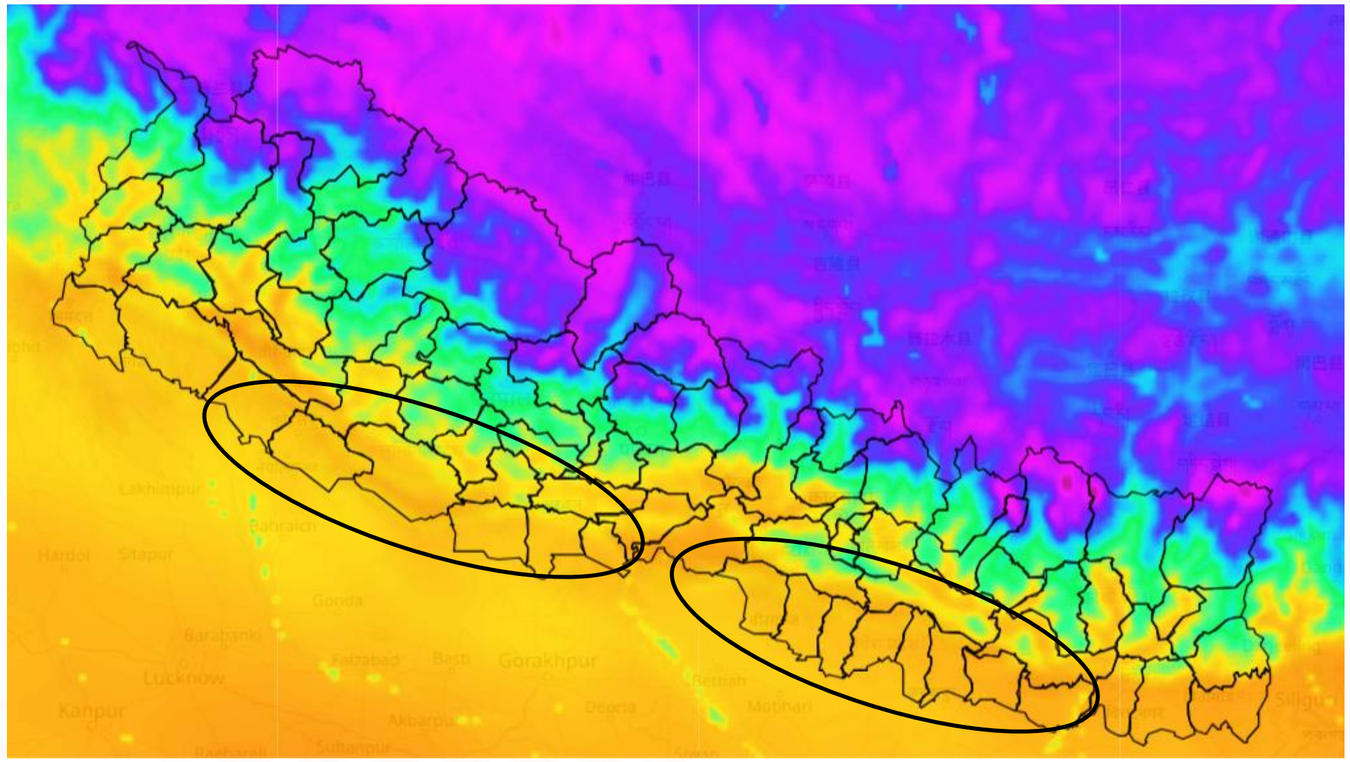
- Hourly temperature, humidity, wind and solar radiation data from Automatic Weather Station
- NWP outputs for precipitation, temperature and winds for upcoming 3 days
- Climatic information (normal, anomalies, percentiles, extremes)

Limited availability of :

- Local level agricltual data, Socio-economic data, population data, land use and land cover data, , factory area, tourist area, schools and hospital area data
- Health (seasonal illness) and demographic data
- Crop calendars, crop varieties, cropping patterns at local levels
- Hospital capacity, School calendars/closure records
- Groundwater level, shallow tubewell, drinking water supply system

Indices, indicators, or parameters currently used to monitor temperature-related hazards

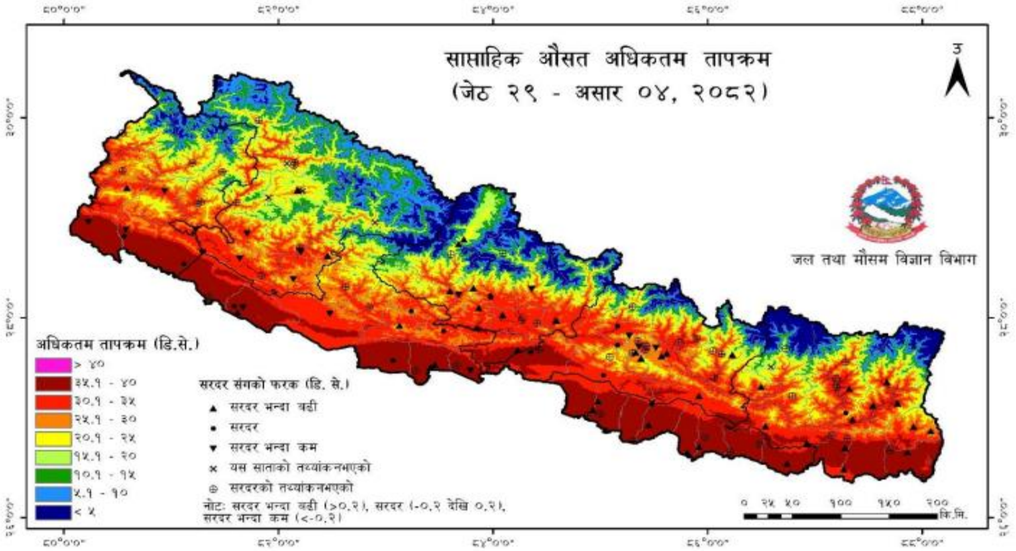
- Maximum and minimum temperature
- Humidity
- Temperature anomalies
- Climate normal (daily, weekly, monthly, seasonal)



Temp output of DHM-WRF and the project area shown by the circle

Temperature-related risk in the pilot area

- **Health risk:**
  - Heat stress, Heat stroke, Dehydration induced health problems
  - Outdoor workers experience heat exhaustion, dehydration, reduced productivity, and increased occupational health risks.
  - Farmers and agricultural labors face reduced crop yields, livestock stress, and longer working hours under unsafe temperatures.
  - Elderly, infants, pregnant women, lactating mother and people with chronic conditions are highly sensitive to temperature extremes, leading to increased cold-related illness and heat-related health emergencies.
- **Agriculture:**
  - increased incidences of pest and diseases, increased demand of irrigation water, agricultural drought, yield loss, crop failure
- **Water and Energy:**
  - Water scarcity (drinking water)



Current products and communication formats issued for temperature-related hazards

Products:

- Daily weather summary from the previous day
- Warning bulletins and advisories (issued if needed)
- Daily weather forecast for temperature
- Climate outlook (monsoon and winter season)

Communication formats:

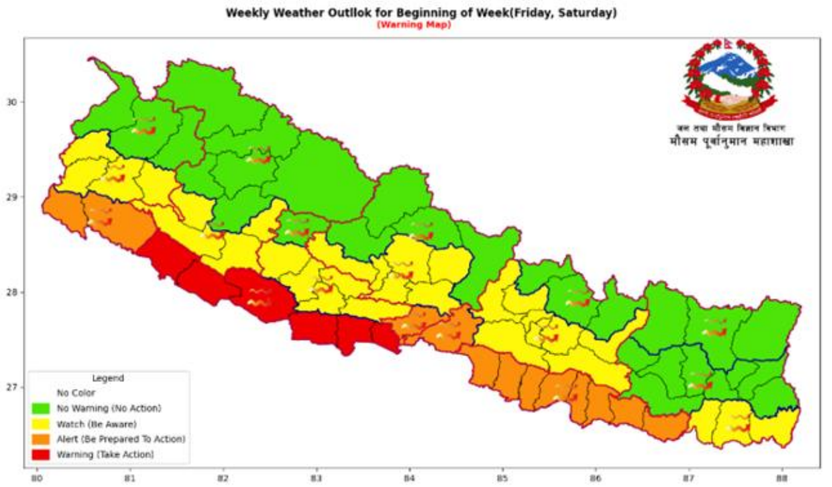
- Bulletins, graphical reports, audio and video

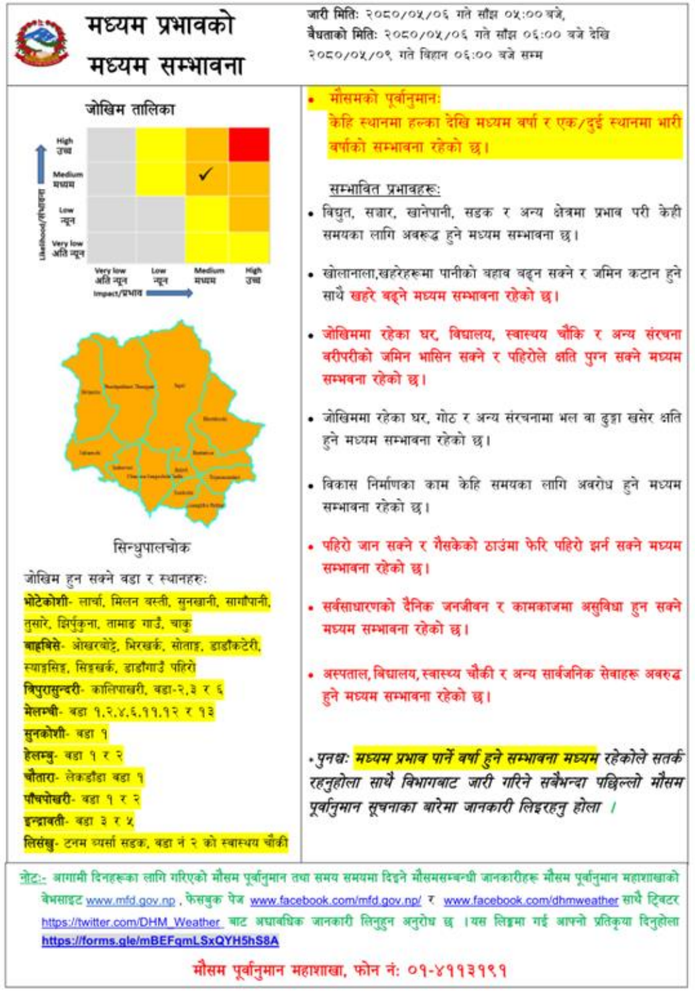
Communication channels:

- Website, email, social media and broadcast medias, Phone call

Current Forecast to Action: Products & SOPs

- Rainfall IBF piloting with the help of UKMet, PIN, IHRR (Started from 4 districts with 16 local levels (2021) now 11 districts, ~35 local levels)
- Color based warnings for Heatwave and Cold Wave
- Draft SoP for temperature forecasting to IBF





तराईका केही ठाउँहरूको बिहान ८:४५ बजेको मौसमी अवस्था

मौसमी केन्द्र	हिजोको अधिकतम तापक्रम	हिजोको न्युनतम तापक्रम	आजको न्युनतम तापक्रम	पारदर्शिता (मि.)	कैफियत
धनगढी	२३.६	८.६	९.०	६०००	-
नेपालगंज	२४.२	९.४	१०.२	३०००	हुस्सु
भैरहवा	२४.५	१०.४	९.८	८००	कुहिरो
सिमरा	२५.७	९.७	१०.०	१५००	हुस्सु
जनकपुर	२५.६	९.२	११.२	१००	कुहिरो
विराटनगर	२६.४	१०.२	१०.९	६००	कुहिरो
चन्द्रगढी	२७.३	१२.३	१२.३	१८००	हुस्सु

नोट :एक किलोमिटर भन्दा कम पारदर्शिता हुँदा कुहिरो र एक देखि पाँच किलोमिटर सम्म पारदर्शिता हुँदा हुस्सु भनिन्छ। तापक्रम डिग्री सेल्सियसमा रहेको छ।

आज दिउँसोको आंकलन (Outlook for today)

कोशी तराई	केही स्थानहरूमा लागेको हुस्सु/कुहिरो मध्यान्नपछि सुधार हुने सम्भावना रहेको छ।
मधेश	केही स्थानहरूमा लागेको हुस्सु/कुहिरो मध्यान्नपछि सुधार हुने सम्भावना रहेको छ।
बागमती तराई	केही स्थानहरूमा लागेको हुस्सु/कुहिरो मध्यान्नपछि सुधार हुने सम्भावना रहेको छ।
गण्डकी तराई	केही स्थानहरूमा लागेको हुस्सु/कुहिरो मध्यान्नपछि सुधार हुने सम्भावना रहेको छ।
लुम्बिनी तराई	केही स्थानहरूमा लागेको हुस्सु/कुहिरो मध्यान्नपछि सुधार हुने सम्भावना रहेको छ।
सुदूरपश्चिम तराई	हुस्सु/कुहिरो लागेको छैन।

IBF Components: Understanding the location, प्रभाव तालिका (Impact table) र Risk metrix

एकदम न्यून प्रभाव	न्यून प्रभाव	मध्यम प्रभाव	गम्भिर/उच्च प्रभाव
सञ्चार सेवा एकाछिन अवरुद्ध हुने	सञ्चार सेवा केही दिन (?) अवरुद्ध हुने	सञ्चार सेवा धेरै दिन (?) अवरुद्ध हुने	सञ्चार सेवा लामो समय (?) अवरुद्ध हुने
सबै सवारी साधन निर्वाध चल्ने	हल्का सवारी साधन पार नहुने	हल्का तथा मध्यम सवारी पार नहुने	कुने प्रकारको सवारी नचल्ने
ढुङ्गा, पानी जहाज चल्ने	स्वीकृत रूटमा बाहेक कुने प्रकारको जहाज चल्न दिइने छैन।	कुने पानी जहाज/डुङ्गा चल्न दिइने छैन।	कुने पानी जहाज/डुङ्गा चल्न दिइने छैन।
उडान रद्ध नहुने	हल्का/साना जहाज उडाउन रोक लाग्न सक्छ।	संभवतः धेरै उडान रद्ध हुनेछन्	सबै उडान रद्ध हुनेछन्।
कृषिमा कुने क्षति नहुने	धान बालिमा धेरै क्षति हुन सक्छ किन भने धानमा फूल खेल्दैछ । केही केरा बोट नुम्ल्रे, केही ढल्ने र सामान्यतया पात क्षति हुने ।	धान र मकैमा प्रतिकूल प्रभाव पर्न सक्छ। लगभग सबै केराका बोट, आँप, इपिलइपिल र यस्ते रूखहरू ढल्ने र भाँचिने । वर्णसङ्कर जातका नरिवलका रुख बाङ्गिने वा भाँचिने	धान र मकैमा ठूलो क्षति हुन सक्छ । केरा खेती सबै नष्ट हुने । नरिवलको तृक्षारोपणमा ठूलो क्षति हुन सक्छ, मिचने, भाँचिने, वा उखेलिने ।
भवन संरचनामा कुने क्षति नहुने	भवन/संरचनामा न्यून क्षति	भवन/संरचनामा आंशिक (?)	भवन/संरचनामा पूर्ण (?) क्षति

Aimed Outcomes to achieve

- Early warning (Better temperature forecast, Anomaly forecast, HI forecast, Temperature advisories with verification mechanism) at least 72 hours before
- Improved Early warning and advisories dissemination through temperature based IBF
- Reduction in heat and cold related illness/Impacts
- Early protective actions such as adjusting school hours and preparing emergency rooms
- Reduction in agricultural productivity will be minimized
- Better management of Water availability
- Increased awareness to people
- Proper feedback mechanism from communities

Support required by RIMES, UKMO or other organizations

- NWP forecast validation
- Ensemble NWP forecast
- Downscale of the RIMES NWP products
- Support to run WRF-DA and increase lead time (HPC and Server Support)
- Technical guidance
  - To make thresholds
  - Indices development (WBGT, UTCI, HI)
  - Risk Maps
  - Vulnerability and exposure data collection and analysis
- Developing and finalizing EAPs and SOPs/ Manuals and criteria for Heat wave and Cold wave
- Capacity development (Forecaster, Health staff, Local government officials, Community level stakeholders)-Educational/capacity development tours
- Scaleup the current IBF practices.
- Human resources to work in IBF sectors in dedicated manners.
- Beside heat, need support in Multihazard and Multisectoral IBF.

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THANK YOU!