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RIMES

REGIONAL WORKSHOP ON IMPACT-BASED FORECASTING

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

# Early Action Protocol (EAP)

# What does an Early Action Protocol (EAP) contain?

**The Protocol can guide you on…**

## WHO does WHAT

- An EAP records processes, roles and responsibilities for preparedness and implementation.
- It outlines what readiness and anticipatory actions/early action should be taken.

## WHEN and WHERE

- An EAP provides trigger mechanism(s) based on robust forecasting and risk analysis.
- It outlines where the interventions will target and why.

## HOW

- An EAP explains how the selected actions shall be delivered when a trigger is reached (e.g the human resources needed, the logistic, the cash transfer value, etc.).
- Lastly, it can inform on the total cost of the AA/EA delivery for a given number of beneficiaries.

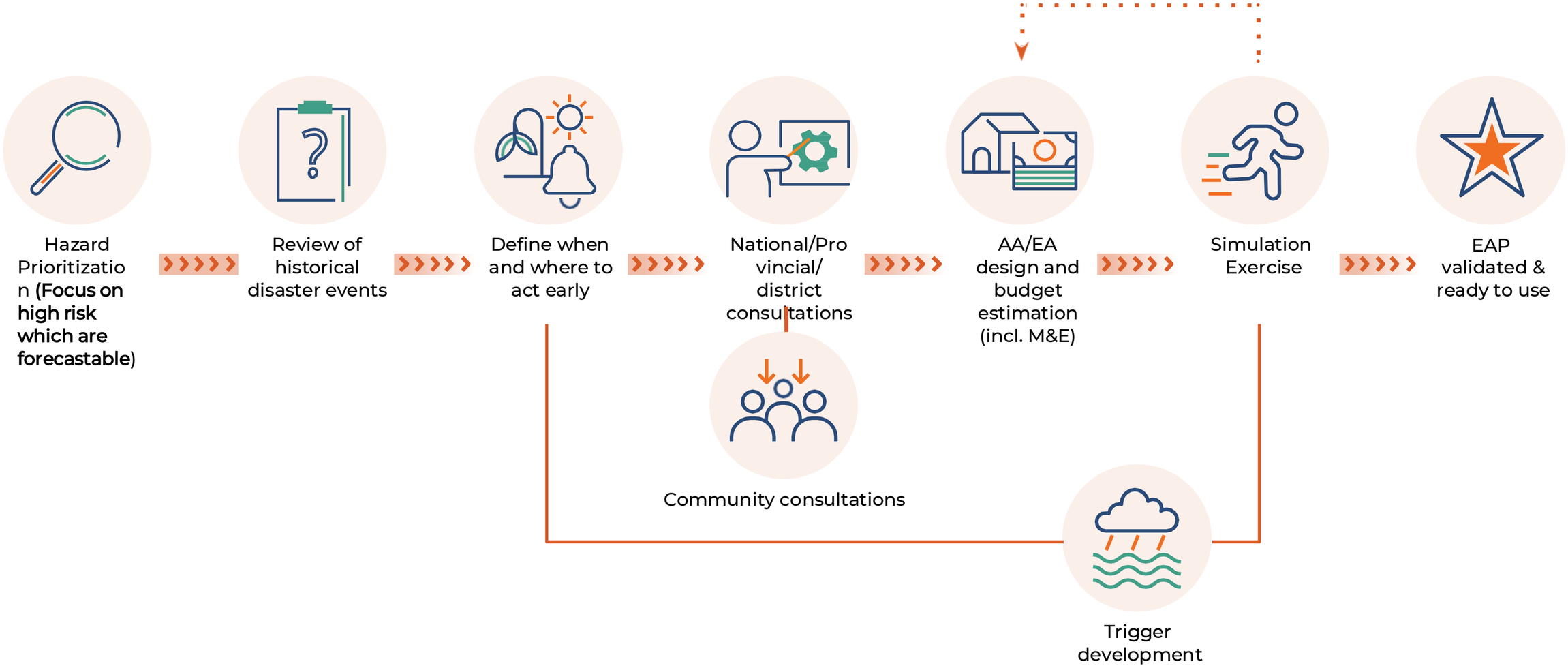
# Can we do AA/Early Action without a protocol?

- **Yes,** it is possible, though it would be limited in scope (short lead time, small scale, limited funding) – for example pre-emptive evacuations can be organised ahead of flooding, based on near real-time monitoring.

- This would not be replicable, as it is highly subjective, and cannot allow adequate levels of financing.

- Integration into existing Disaster Risk Management (DRM) Plans of the Governments (at different levels)

# Step-by-step process for developing an Early Action Protocol



# EAP Basic Template

## Risk Analysis

- Priority hazard and historical impact
- Exposure and Vulnerability
- Priority impact to be addressed by early actions

## Early Action

- Geographic high-risk area of the EAP
- Criteria for beneficiary selection, i.e. how to identify the most vulnerable
- Intervention by sector, incl. list of readiness, pre-positioning, early action activities
- Capacity to deliver early actions

## Trigger

- **Trigger statement/s**: criteria (forecast sources, hazard/impact thresholds, lead time) - activates the simplified EAP
- How was the trigger set?
- Justification of Hazard/impact threshold
- What are the forecast sources, their skill, triggering frequency, false alarms etc.
- Who monitors the forecast?

# EAP Basic Template

## EAP Activation Process

- Early Action Implementation Process
- Trigger Activation System
- Selection of Beneficiaries or target population

## Budget or Finance

- Readiness Cost
- Prepositioning
- Early Action Cost

## Capacity

## Roles and Responsibilities of Actors

## Partnership & Coordination

# Early Action Protocols (EAPs)/AAP for Temperature related Hazard

- **Agency Specific**
- **Often tied to some humanitarian financing model or protocol**
- IFRC – Disaster Response Emergency Fund (DREF) – Anticipatory Pillar: National Societies EAP (Full or Simplified)
- UN OCHA and the Central Emergency Response Fund (CERF)
- Start Network – Start Fund and Start Ready
- WFP – Anticipatory Action (AA) Trust Fund
- FAO – Special Fund for Emergency and Rehabilitation Activities (SFERA)
- Others from Non-government/humanitarian agencies (at more local or project level)

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# EARLY ACTION PROTOCOL SUMMARY

**Bangladesh | Heatwave EAP**

17 August 2023

*Bangladesh Red Crescent Youth Volunteers celebrating heat action day 2023 to raise heatwave awareness (Photo credit: BDRCS)*

| | |
|---|---|
| EAP №:<br>**EAP2023BD05** | EAP timeframe:<br>**5 Years** |
| EAP approved:<br>**27/07/2023** | Early action timeframe:<br>**2 Months** |

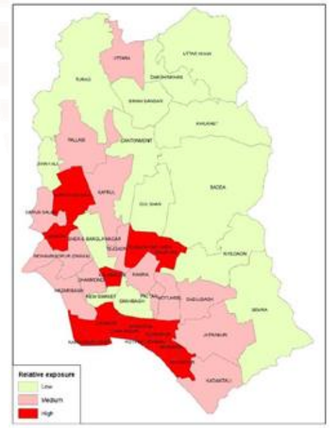
**Budget: 499,930 CHF**
**To assist: 123,700 people**

## Target City : Dhaka

### Forecast and lead time for this EAP:

✓ **Pre-Activation:** When ECMWF and/or GFS issue a forecast temperature of at least 38°C (1 in 7-year return period) for 2 consecutive days or more and the heat index is 38 or more for 2 consecutive days……the expected lead time is 5-7 days.

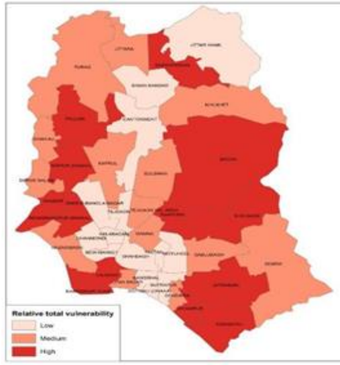
✓ **Activation:** When BMD and either ECMWF or GFS issues a forecast of temperature of 38°C (1 in 7-year return period) for 2 consecutive days (or more) and the heat index is 38, then BDRCS with support from IFRC will activate the EAP for a heatwave and implement early actions in the highly exposed areas……the expected lead time will be in the range of 2-3 days.




*Map of Dhaka city with relative exposure (Source: IFRC IM)*

### Early Action

- Early Warning Messages (EWM) and awareness generation:
- Distribution of safe drinking water and oral saline (same beneficiaries from EWM)
- Multi-purpose Cash Grants (MPCG) where each household will receive BDT 4500
- Two cooling stations
- Ambulance support inc. Persons from the cooling station




*i) Relative vulnerability to heatwave in Dhaka city*

### Prioritized Impacts (to be address through early action)

- Negative impact on livelihoods: outdoor workers, such as rickshaw/van pullers, workers, vendors lose working hours/days due heat and illness.
- Negative impact on health: i.e., heat rash, hyperthermia, Acute Respiratory Tract Infection (ARI)1 from excessive sweating, heat stroke, heat exhaustion, diarrhoeal diseases, dehydration, cardiovascular and respiratory problems
- Increase in health expenditure: particularly for those living in informal settlements

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# SIMPLIFIED EARLY ACTION PROTOCOL

Myanmar | Urban Heatwaves

| | | | | |
|---|---|---|---|---|
| sEAP №: **sEAP2024MM01** | Operation №: **MDRMM022** | Total Budget: **CHF 200,000** | Readiness: **CHF 55,442** | |
| | | | Prepositioning: **CHF 45,722** | |
| | | | Early Action: **CHF 98,837** | |
| People targeted: **10,220 People** | sEAP approved: **25/11/2024** | sEAP timeframe: **2 Years** | sEAP lead time: **5 days** | Operational timeframe: **4 months** |
| Prioritized geographical areas: **Urban areas of Yangon and Mandalay** | | | | |

## Target City : Urban areas of Yangon and Mandalay

### Targeted townships

- Yangon: Hlaingtharya, Shwepyitha, Dagon Seikkan, Dagon South, Dala.
- Mandalay: Patheingyi, Amarapura, Pyigyitagon.

### Early Action

— Early warning messaging and awareness on heatwaves:

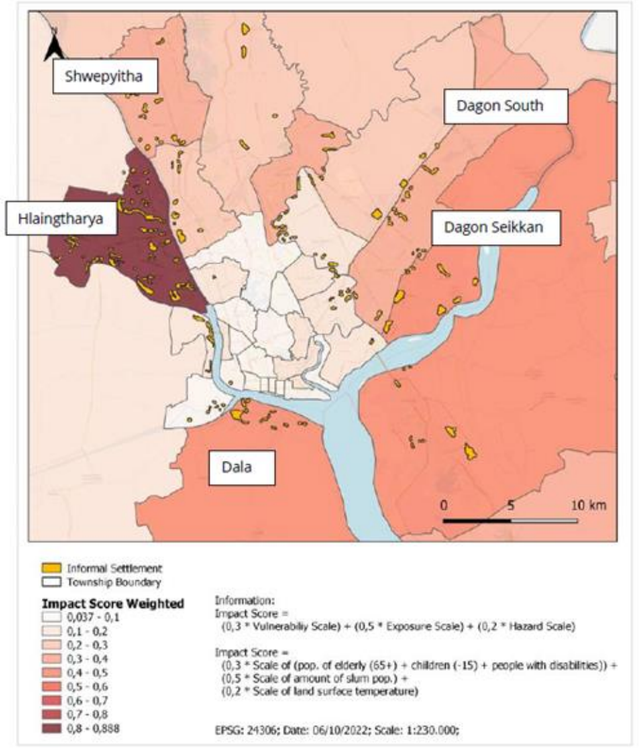
— First Aid posts, shaded cover and water stands:

— Cash assistance:

### Prioritized Impacts (to be address through early action)

— Increased health problems across most vulnerable people

— Loss of Income of outdoor workers/daily wage laborers due to loss of working hours, heat related illness




Heat risk map – Yangon, with selected most at-risk townships.

# SIMPLIFIED EARLY ACTION PROTOCOL

**Nepal | Urban Heatwave**

*Kiosk and free drinking water and electrolyte distribution at Siddharthanagar - June 16, 2024 (Photo Credit: Nepal Red Cross Society, Rupandehi District Chapter)*

| sEAP №: | Total Budget | Readiness: | Prepositioning: | Early Action: |
|---|---|---|---|---|
| **EAPYYYYCCXX** | **CHF 218,350** | **CHF 113,932** | **CHF 28,217** | **CHF 73,361** |
| **People to be assisted:** | **sEAP approved:** | **sEAP timeframe:** | **sEAP lead time:** | **Operational timeframe:** |
| **8000 people** | **DD/MM/YYYY** | **2 Years** | **3 days** | **3 months** |

Prioritized geographical areas:

**Heat Hotspots Wards and Urban areas of Biratnagar Metropolitan, Nepalgunj Sub metropolitan, Dhangadi Sub metropolitan and Siddharthanagar Municipality**

**Target Cities :** Biratnagar Metropolitan, Nepalgunj Sub metropolitan, Dhangadi Sub metropolitan and Siddharthanagar Municipality

## Targeted Wards/Areas

- Heat Hotspots Wards and Urban areas of above 4 cities

## Early Action

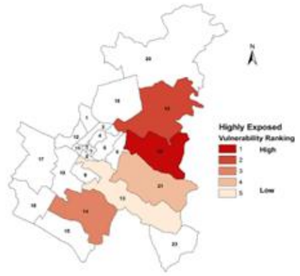
- Disseminate Heatwave Forecast and Early Warning Messages
- Storage and distribution of safe drinking water and electrolytes
- Activation of Rapid Response Team (RRT)/ Medical Response Team (MRT) and Female Community Health Volunteers (FCHVs)
- Distribution of multipurpose cash to the most vulnerable population
- Distribution of hand fan, gamchha (local towel), cap, umbrella
- Installation of cooling and misting system

## Prioritized Impacts (to be address through early action)

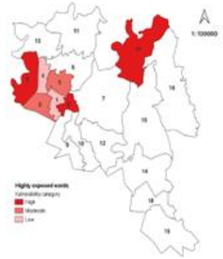
- Increased risks on health and lives
- Loss of Income of due to loss of working hours, heat related illness

Annex 2: Heat Hotspots in Nepalgunj, Biratnagar, Dhangadi and Siddhartha Nagar (Source: Heat Action Plans (HAPs) of respective cities)

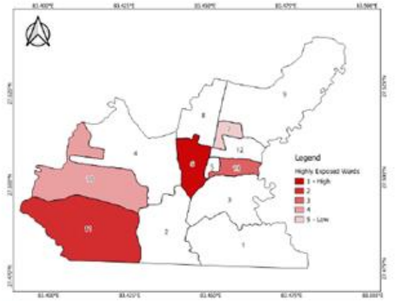
(b) Nepalgunj



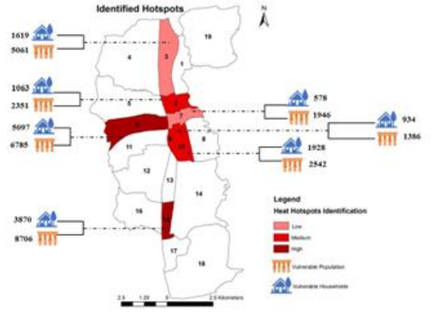

(c) Dhangadi



(d) Siddharthanagar




(e) Biratanagar



# National Early Action Protocol (Government) - Bangladesh Example

German Red Cross

IFRC

**Final draft of**

**National Early Action Protocol for Heatwave**

Submitted By

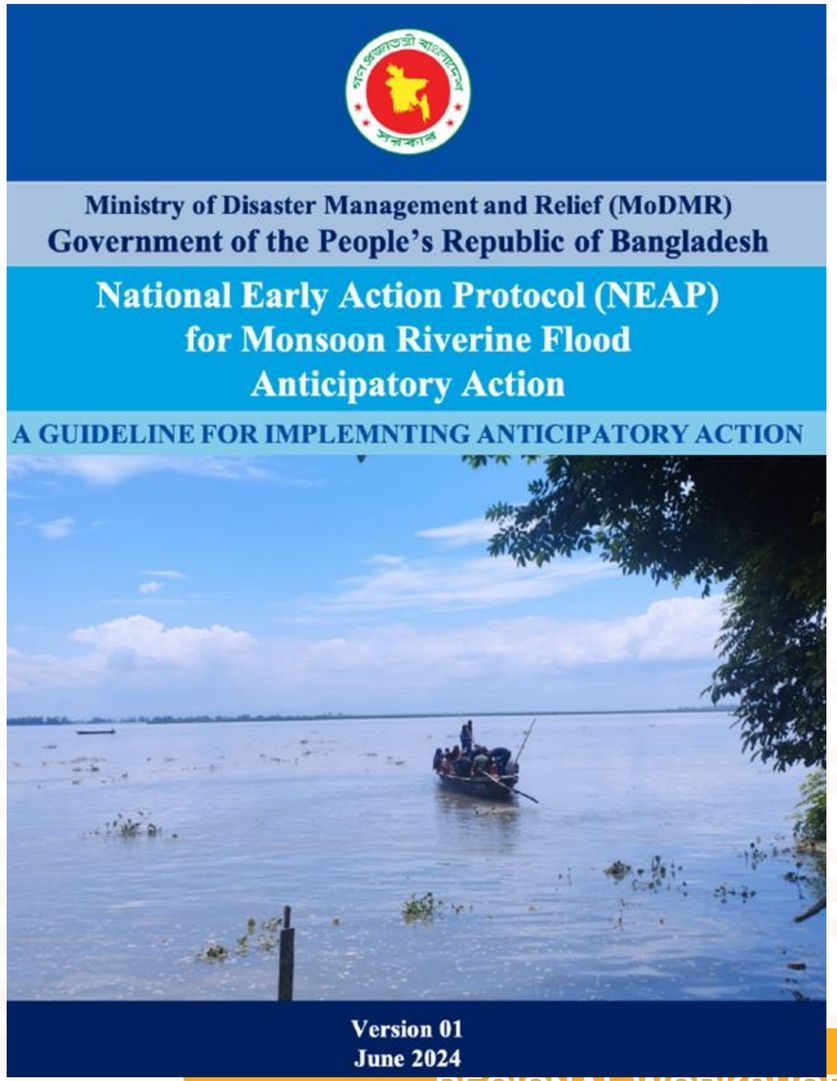
EIMS

Environment and Infrastructure Management Solutions (EIMS)

Submission Date: 30 June 2025

## Table of Contents

# National Early Action Protocol (Government) - Example




A standardized, harmonized protocol for all stakeholders to guide in implementing anticipatory actions for riverine flood-prone areas of Bangladesh covering the Ganges-Brahmaputra River basins during the monsoon season

**Scenario-based Trigger and Early Action Matrix**
(Trigger scenario, early actions, responsible institutions)

# Heatwave Anticipatory Action in Rajshahi City, Bangladesh

- Develop heat index and identify relevant thresholds to trigger early actions– when.
- Detect vulnerable wards to pilot heatwave early actions in Rajshahi City– where.
- Assess the impacts of the heatwave on various vulnerable groups– who.
- Propose options to connect social protection systems with EWEA to minimize the overall impacts on community people– what [for whom].

# Approach for identifying the Early Actions

**Community consultation**

**Consultation with the key national and city stakeholders**

**Identifying the proposed Early Actions**

1. Anticipatory Actions (AA)
2. Disaster Risk Management (DRM)
3. Both AA and DRM

**Analytic Hierarchy Process (AHP) analysis**

1. Socially Acceptable
2. Technically Possible
3. Institutionally Capable
4. Positive Economic Return

**Validation: by communities and stakeholders**

**Early Actions (EA):**

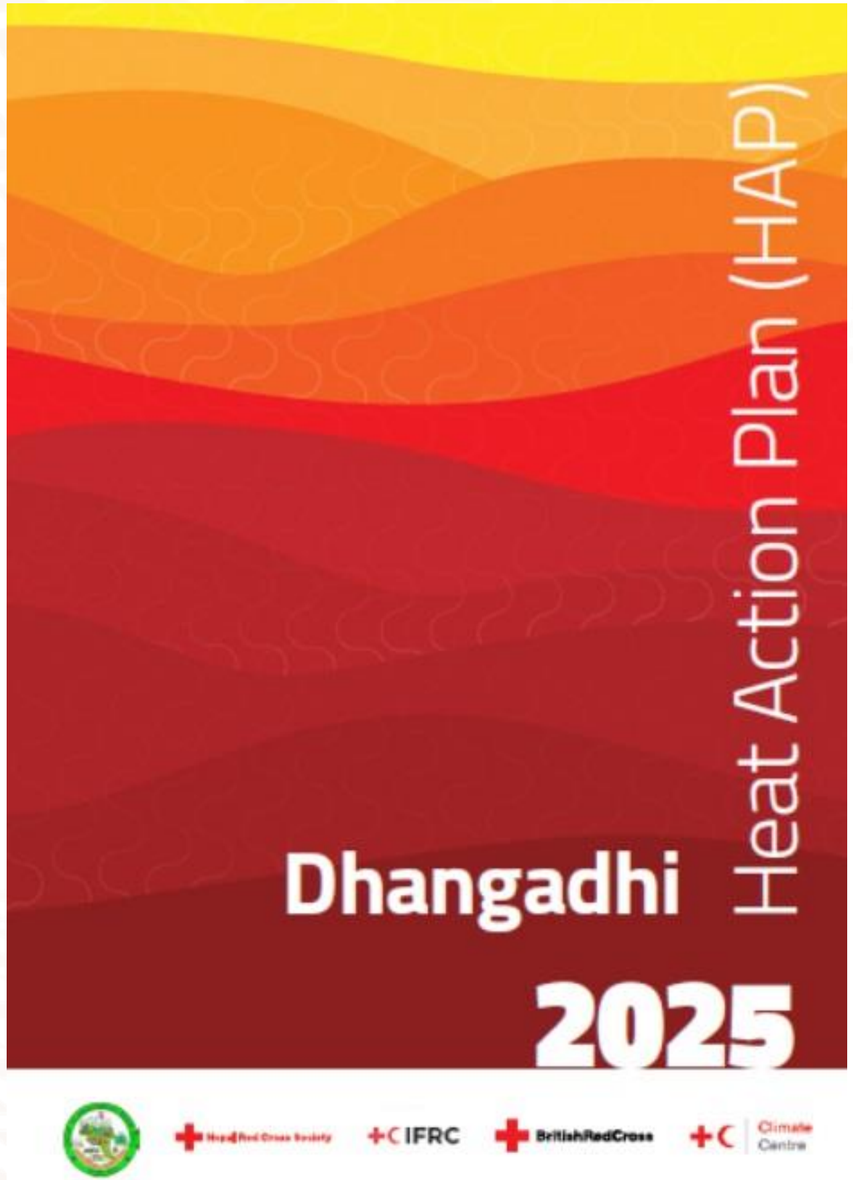
3 most prioritised EA in 1st stage

5 prioritised EA in 2nd stage

| Anticipatory Action (AA) | Disaster Risk Management (DRM) Interventions | DRM+AA Interventions |
|---|---|---|
| Medical camp & free medicine distribution<br>Financial help during the heatwave<br>Fruit and food baskets<br>Cooling Space | One-time monetary help to attach board under tin-roof.<br>One-time monetary help to improve the ventilation of the kitchen.<br>Establishing tube wells.<br>Installing solar or charger fan.<br>Installing deep motor pumps.<br>Providing them with livelihood opportunities.<br>Installing shed areas in the school premises.<br>Installing cold water filters in schools.<br>Providing shade over the diving seat of Rickshaw Pullers. | Prior warning through the miking system.<br>Prior warning through SMS.<br>Phone awareness-building training. |

# Heat Action Plan (HAP)

- The Heat Action Plan (HAP) outlines strategic actions to reduce seasonal heat risks.
- Combines immediate response measures with long-term urban planning to address extreme heat.
- Focuses on protecting vulnerable populations most affected by heatwaves.
- Defines coordinated roles and responsibilities of key stakeholders.
- Specifies actions before, during, and after heatwaves to minimize health risks and the fatalities associated with extreme heat.



## Study Approach

1. **Literature Review**
   Review and analyze scientific databases (e.g., Google Scholar, Web of Science, ScienceDirect), government reports, NGO publications, and newspaper articles to understand specific heat-related risks and impacts.

2. **Weather Data**
   Understanding temperature and humidity variation from 1990 to 2023 and define heatwaves according to the DHM classification of mild, moderate, and extreme.

3. **Stakeholder Workshop (launching)**
   Identify key Stakeholders and present the heatwave risks in Dhangadi based on desk research; obtain buy-in from key stakeholders, including the Dhangadi municipality.

4. **Heat Steering Committee Formation**
   Forming a heat action core team with the key city stakeholders to conduct regular consultations for planning and decision-making. This includes facilitating data collection, engaging with various city stakeholders, and organizing workshops.

5. **Heat Hotspots analysis- where to act**
   Exposure analysis; socio-economic vulnerability analysis; physical vulnerability analysis; adaptive capacity analysis; heat hotspot mapping and vulnerability ranking

6. **Stakeholder Workshop (outlining the actions)**
   Orienting stakeholders about heat risk, its impact, and their roles; presenting heat risk findings alongside heat threshold analysis and gathering stakeholders' input; and outlining measures for heatwave preparedness, response, adaptation, and long-term urban planning.

7. **Community engagement**
   A community heat perception study was conducted, involving 986 household surveys and twenty-five focus group discussions (FGDs) to collect primary data. The aim was to understand the perspectives of various vulnerable groups and to incorporate the community's knowledge and aspirations regarding heat risks and their impacts on health, livelihoods, and well-being

8. **Identification of Heat Threshold - when to act**
   Meteorological data (ambient near surface air and dew point temperature) from ERA5 analysis; trigger for the heatwave alert

9. **Key Informants Interviews (KII)**
   Identifying key stakeholders and interviewing them to gain in-depth insights on their understanding of heatwave risk, its impacts on communities, different urban systems, coping mechanisms, and suggested interventions.

10. **Stakeholder Workshop (validation)**
    Validating the findings and actions regarding heat risks over various time scales by city stakeholders and the heat steering committee, and developing a holistic and inclusive Heat Action Plan for Dhangadi city.

11. **Finalization of HAP**
    Incorporate feedback from stakeholders and officially hand over the HAP to the municipality.

# Key Elements of HAP

**Preparedness:** Preparing for a heatwave is essential and involves taking specific steps in advance to improve responses and coping strategies during the event. Effective preparedness can significantly reduce both recovery costs and the suffering of residents in the city.

**Response:** Heatwave response refers to the actions taken to protect individuals and the community from the harmful effects of extreme heat. These measures are typically implemented when a heatwave is anticipated or occurring.

**Long term measures**: Long-term measures are essential in addition to response and preparedness efforts, as they address the root causes of heatwave impacts. These measures ensure that communities are sustainable and resilient in the face of increasing climate challenges.

# Activities for Preparedness

| | |
|---|---|
| **Strengthening Governance for Heat Resilience** | **1. Identifying key stakeholders**<br>**2. Establishing dedicated heat resilience teams or task forces within municipal government**<br>3. Appointing a Heat Officer to lead the Heat Action Plan |
| **Education** | **4. Planning for changing school schedules in the morning during / Scheduling examinations before the start of the heat period**<br>5. Workshops for teachers regarding heat protection tips and materials that they can disseminate in classrooms |
| **Health** | **6. Adding additional hospital beds and managing fans and coolers**<br>7. Updating existing databases regularly, including hospital admissions and emergency case records to track heat related cases<br>**8. Arranging capacity building programmes for healthcare professionals**<br>9. Stockpile emergency supplies such as bottles water ,electrolyte drinks, first aid kits, and cooling supplies |
| **Water ATM/ Cooling Centers** | **10. Installing Water ATMs**<br>11. Setting up cooling centres; Creating community cooling centers in public buildings |
| **Incentives** | **12. Providing incentives for low-income households such as hand or electric fans/ solar energy** |
| **Plans and Policies** | **13. Changing workers schedules and shifts**<br>**14. Developing a ward/ municipal level plan for heat response/action activities**<br>15. Reviewing plans for water allocation and plan to avoid power cuts during heat events<br>16. Updating Climate/ Disaster/ Heat Action Plans and Policies |
| **Awareness and Capacity building** | **17. Developing heat awareness messages and raising awareness through distributing pamphlets; TV and radio broadcasts; and social media postings (Facebook, Twitter)**<br>18. Capacity building for occupationally exposed groups and their supervisors<br>19. Conducting a community awareness campaign for women on heat education<br>20. Training to Red Cross volunteers and individuals working with disaster response to effectively identify signs of heat-related illnesses<br>21. Installing LED screens with rolling temperature and humidity<br>22. Awareness regarding not to burn forest or jungles as it impacts the health, environment and increases the temperature |

# Activities for Response

| | |
|---|---|
| **Heat Relief Distribution** | **1. Distributing heat relief supplies such as water, electrolyte beverages, and cooling towels to affected communities.**<br>2. Distributing reusable soft plastic ice packs.<br>3. Drinking water distribution to the public through tankers.<br>**4. Door-to-door outreach in high-risk neighborhoods to distribute heat relief supplies.** |
| **Alert and Awareness Programs** | **5. Providing alert messages to residents.**<br>6. Raising awareness by distributing pamphlets; TV and radio broadcasts; and social media postings.<br>7. Awareness through LED boards by sharing temperature and awareness messages.<br>8. Operating a telephone helpline for elderly people. |
| **Medical Support and Care** | **9. Deploying medical units such as Rapid Response Teams (RRT) to provide on-site medical care and assistance to those affected by heat-related illnesses.**<br>10. Increasing staffing at hospitals to attend to the influx of patients during a heat alert.<br>**11. Keeping the data of each patient coming to healthcare facilities suffering from heat illness and producing weekly reports of the public health impact.** |
| **Community Support and Outreach** | **12. Activating cooling centers.**<br>**13. Water Bell for students (reminders for drinking water).**<br>**14. Installing water pots for animals.** |
| **Resource Management** | **15. Making sure water and electricity supplies are available to hospitals and other critical facilities during heat events.**<br>16. Wetting pavements (concrete surfaces) in public spaces. |
| **Worker Protection** | **17. Enforcing regulations to protect outdoor workers from excessive heat exposure.** |
| **Action Plans** | 18. Activating heat response plans city-wide.<br>19. Continuously monitoring the activities listed under the plan.<br>20. Conducting post-event assessments to evaluate the effectiveness of heatwave response efforts and identify areas for improvement. |

# Activities for Long- term Measures

| | |
|---|---|
| **Urban Greening Initiatives** | **1. Roadside plantation, plantation in parks, maintenance of green areas.**<br>**2. Promoting green roofing.**<br>3. Increasing roof reflectivity.<br>4. Increasing cool permeable pavements. |
| **Water Management** | **5. Building new ponds or enlarging existing ponds or water bodies and protecting water bodies.**<br>6. Promoting rainwater services.<br>7. Promote sprinkler irrigation and spray parks. |
| **Health and Emergency Response** | **8. Establishing dedicated heat wards in government hospitals.**<br>**9. Quantifying heat-related data**<br>**10. Implementation of cool roofs and green coverage to enhance heat resilience in a healthcare facility.** |
| **Agriculture and Food Security** | **11. Promoting fish farming.**<br>**12. Distributing heat-resistant seeds and drought-tolerant crops to farmers.** |
| **Policy and Governance** | **13. Incorporating into building codes to standardize good practices.**<br>**14. Offering incentives or rewards for residents who implement heatwave mitigation measures, such as installing reflective roofing or upgrading insulation.**<br>15. Mainstreaming heat risk into city/municipality planning. |
| **Education and Awareness** | **16. Establishing partnerships with educational institutions to incorporate heatwave preparedness into school curricula.**<br>**17. Raising awareness of energy-efficient appliances such as the use of LED bulbs or CFL bulbs.** |
| **Sustainable Infrastructure Development** | 18. Replace tin roofs in schools with cooling roofs.<br>19. Promoting sustainable transportation options, such as cycling lanes, pedestrian-friendly streets, and car-free zones. |

FIGURE 26. STAKEHOLDER COORDINATION

**STAGE 1**

- Stakeholders mapping & coordination for planning
- Strategy/identification of the response activities for heat season
- Developing the communication plans
- Update the HAP if needed
- Resource allocation (for both short-term response and long-term adaptation)
- Planning of the long-term adaptation measures

**Proposed stakeholders**

- DHM
- Heat Task Force
- Dhangadhi Ward Committees
- LDMC and WDMC
- Department of Urban Development and Building Construction


**STAGE 2**

- Activate the heat alert and protocols based on DHM alerts or seasonal forecasts (February-March for preparedness; April-June for response)
- Inform key stakeholders for the response measures
- Initiate the implementation of long-term adaptation measures (e.g, reflective roofing, housing ventilation, green spaces)

**Proposed stakeholders**

- DHM
- LDMC and WDMC
- Heat Task Force
- Department of Urban Development and Building Construction

**STAGE 3**

- Issue a media advisory to inform the public on how to stay safe during a heatwave
- Awareness campaign
- Coordinate and proceed with implementation of long-term adaptation measures)

**Proposed stakeholders**

- LDMC and WDMC
- Dhangadhi Ward Committees
- Media channels such as Dhangadhi Khabar, Atariya Online, Dinesh FM etc.
- Department of Urban Development and Building Construction
- Department of Health Services

**STAGE 4**

- Conduct the response activities planned such as activating cooling centres, distributing of drinking water)
- Stakeholders' coordination for the implementation

**Proposed stakeholders**

- Heat Task Force
- Local Emergency Operation Centre (LEOC) and District Emergency Operation Centre (DEOC)
- LDMC and WDMC
- Department of Urban Development and Building Construction

**STAGE 5**

- Stakeholders' coordination for after-action review
- Documentation on lessons learnt
- Recommendations sharing
- Develop relief and recovery plan for follow-up actions
- Evaluate the effectiveness of both immediate response and long-term adaptation measures

**Proposed stakeholders**

- Heat Task Force
- Dhangadhi Ward Committees
- LDMC and WDMC
- Department of Urban Development and Building Construction

# Heat thresholds: issuing heat alert / heat–health advisory

**Forecast Lead time: 3 days**

Is $HI_{max}$ > = 40.1 °C
for two consecutive days ?

YES

NO

Continue Monitoring

Issue Alert **Level 1**

- Alert vulnerable groups such as infants, children, pregnant women, the elderly (generally over 65 years), outdoor workers, and those with pre-existing health conditions, as they are at high risk.
- Constantly monitor temperature/humidity and heatwave conditions.

Is $HI_{max}$ > = 41.6 °C
for one or more consecutive days?

YES

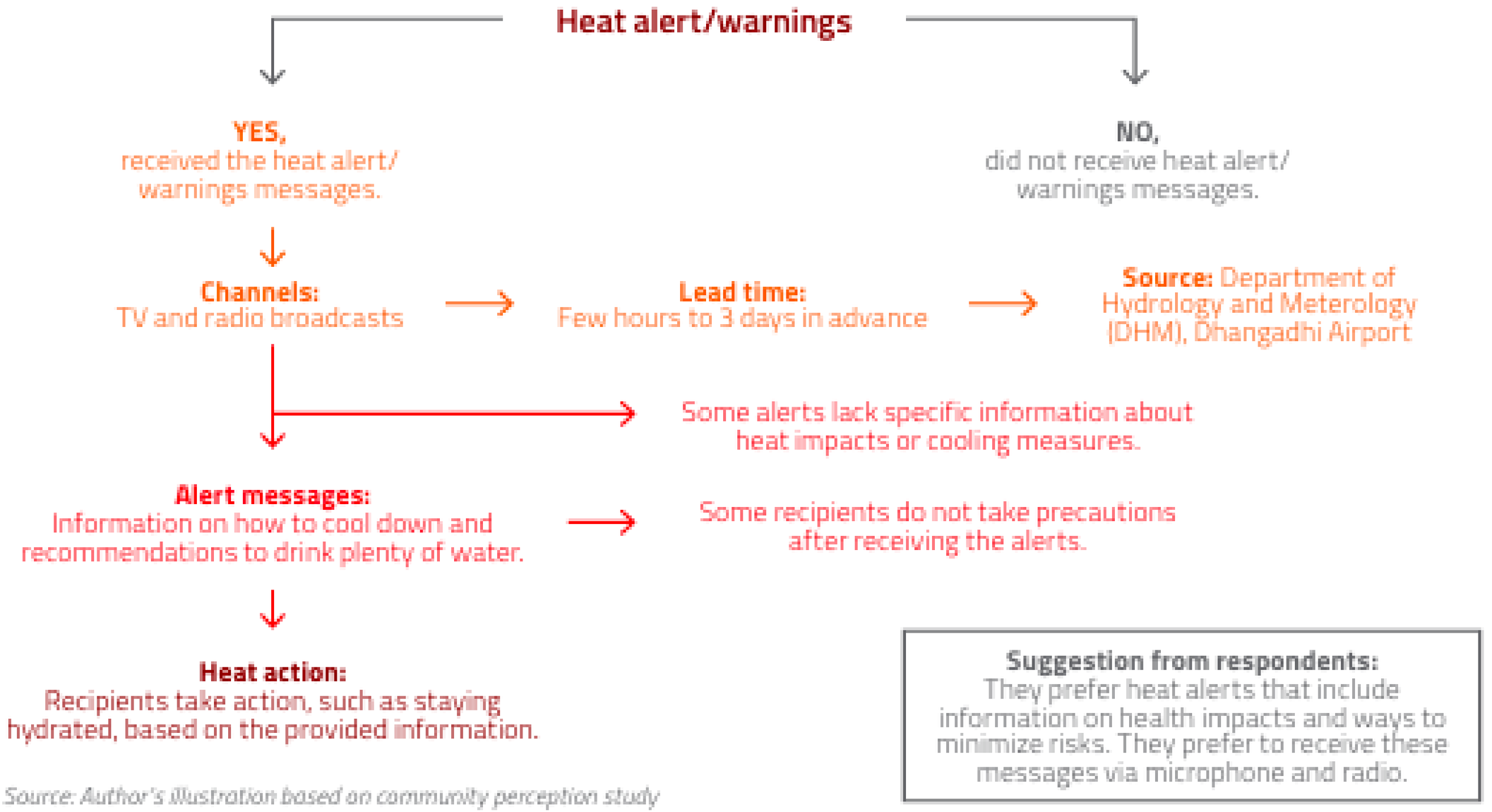
NO

Continue Monitoring

Issue Alert **Level 2**

- Follow the advisory issued by the local government
- Roll out the heat response and adaptation measures.

FIGURE 20. HEATWAVE ALERT MESSAGES




*Source: Author's illustration based on community perception study*

# Example: Standard Operating Procedure (SOPs) for Household (HH) Visits in Nepalgunj, Nepal


Source: Author's illustration, based on stakeholders' feedback and mutual agreement