



# Uttar Pradesh State Disaster Management Authority



**Sri Yogi Adityanath**  
Hon'ble Chief Minister of Uttar Pradesh

**Standard Operating Procedures(SOP)  
on Heat Wave Management  
for Line Departments**

**Standard Operating Procedures (SOP)  
for  
HEAT WAVE MANAGEMENT  
(All Line Departments)**



**UP State Disaster Management Authority**

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### MESSAGE

In recent years, the frequency and intensity of Heatwaves have significantly increased, posing a severe risk to human health, livelihoods and the environment. As institutions of higher education and knowledge, we have a profound responsibility to support proactive climate resilience and promote public safety, especially during extreme weather conditions like Heatwaves.

The Government of Uttar Pradesh, in coordination with the Uttar Pradesh State Disaster Management Authority (UPSDMA), has developed Standard Operating Procedures (SOPs) for all line departments to ensure timely, coordinated and effective response to Heatwave impacts. These SOPs serve as a comprehensive guide for preparedness, mitigation, early warning dissemination and community outreach.

This document aims to contribute to The State's ongoing efforts to enhance its disaster resilience, by aligning The State and regional strategies with global best practices for anticipatory action. It also serves as a valuable resource for all departments and practitioners in strengthening mitigation and preparedness empowering vulnerable populations and ensuring long-term climate adaptation in the face of escalating Heatwaves.

I am grateful to UNICEF which has been very proactive and extremely forthcoming in extending its support to UPSDMA.

I urge all stakeholders-government departments, academic institutions, healthcare units, urban bodies and civil society organizations, to adopt and implement these SOPs with full sincerity and dedication.

  
(Lt Gen Yogendra Dimri)



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## MESSAGE

Heat waves are emerging as one of the most pressing climate-induced challenges in Uttar Pradesh, with increasing frequency, intensity and duration. Rising global temperatures, compounded by local environmental and socio-economic factors, have made heat waves a critical threat to public health, livelihoods, and sustainable development. Addressing this requires a fundamental shift from reactive crisis management to forward-looking, anticipatory action that enables preparedness, minimizes risks, and strengthens community resilience,

"I extend my gratitude to UNICEF and the UPSDMA team for developing this SOP."

Inter-department coordination is very essential for successful implementation of Heat Action Plan. As Heat Action plan strategies and activities are multi-dimensional in nature, therefore, active participation of various line departments is essential for effective implementation of heat action plan. Every department is equally important and have some role to play in order to save loss of lives, livelihood and economy due to extreme heat events. In this document, the roles and responsibilities of key line departments have been enlisted.

(Bhanu Chandra Goswami)

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## Acronyms

**ASHA** – Accredited Social Health Activist

**CSR** – Corporate Social Responsibility

**DDMA** – District Disaster Management Authority

**HAP** – Heat Action Plan

**IEC** – Information, Education and Communication

**IMD** – India Meteorological Department

**IRCS** – Indian Red Cross Society

**MNREGS** – Mahatma Gandhi National Rural Employment Guarantee Scheme

**NDMA** – National Disaster Management Authority

**ORS** – Oral Rehydration Solution

**SAPCC** – State Action Plan on Climate Change

**SDG** – Sustainable Development Goal

**SDMA** – State Disaster Management Authority

**SDRF** – State Disaster Response Fund

**SEOC** – State Emergency Operations Centre

**SHG** – Self Help Group

**SOP** – Standard Operating Procedure

**THR** – Take Home Ration

**UN** – United Nations

**UPSDMA** – Uttar Pradesh State Disaster Management Authority

**WCD** – Women and Child Development

## Preface

Disasters, irrespective of their nature, pose a significant threat to the developmental progress and well-being of communities, especially in a vast and diverse state like Uttar Pradesh. The state, owing to its geographical expanse, climatic variations, high population density, and socio-economic disparities, is highly vulnerable to a range of hazards including floods, droughts, lightning, heatwaves, cold waves, and industrial accidents. The impact of these disasters is often exacerbated by a lack of coordinated and timely response from various line departments involved in disaster management and risk reduction.

Recognizing the importance of preparedness, coordination, and a systematic approach in managing emergencies, the Government of Uttar Pradesh has taken proactive steps to strengthen institutional capacities across departments. The development of Standard Operating Procedures (SOPs) for line departments under Uttar Pradesh State Disaster Management Authority (UPSDMA) is a considered and essential move in this direction. These SOPs are designed to ensure a uniform, structured, and accountable response mechanism at all levels of governance. They lay out clear roles and responsibilities of each department across the disaster management cycle—mitigation, preparedness, response, and recovery.

The SOPs are not just a set of instructions; they are practical tools that enable departments to internalize disaster risk reduction into their routine planning and operations. Each SOP has been prepared considering the department-specific mandates, available resources, and ground realities of Uttar Pradesh. Departments such as Health, Agriculture, Rural Development, Urban Development, Irrigation, Police, Fire Services, Transport, Energy, and Education, among others, play a crucial role in disaster response and recovery. These SOPs clarify departmental responsibilities before, during, and after heat waves, thereby fostering a culture of proactive risk management.

In terms of scope, SOPs cover a wide range of potential emergencies and focus on both hazard-specific and integrated approaches. They provide guidance for department-level actions across different administrative levels—state, district, block, and village. The emphasis is on inter-departmental coordination, effective communication channels, timely resource mobilization, and community engagement. Importantly, these SOPs also reflect the integration of climate resilience, gender-sensitive approaches, and the principles of inclusiveness to protect the most vulnerable sections of society.

The applicability of these SOPs spans across all government and allied institutions that are part of the state's disaster management framework. Whether it is during pre-heat wave planning, heat wave response operations, heatwave preparedness, or rehabilitation efforts after a major incident, these SOPs serve as the backbone of operational readiness. They are intended to be used not just during major calamities but also in routine situations like localized fire incidents,

related to public health during heat waves. Furthermore, these SOPs will support disaster risk governance by enabling capacity-building efforts, drills, simulations, and audits at departmental and inter-agency levels.

This document is also a call to action. It urges every officer, manager, and frontline worker in the line departments to own their role in disaster management. Institutional preparedness begins with individual accountability. With these SOPs in place, Uttar Pradesh is poised to build a more resilient society where disasters no longer derail development but become opportunities to strengthen our systems and resolve. Let this effort be a milestone in Uttar Pradesh's journey towards a safer, more prepared, and disaster-resilient future.

## Introduction

Heat waves have emerged as a serious and recurring climate hazard in India, with Uttar Pradesh being one of the most vulnerable states due to its vast population, geographic diversity, and high exposure to extreme temperatures during the summer months. Heat waves periods of abnormally high temperatures pose significant threats to human health, livelihoods, agriculture, water resources, and essential public services. In recent years, the increasing frequency, duration, and intensity of heat waves have resulted in heat-related illnesses, deaths, and service disruptions, especially among vulnerable populations such as the elderly, children, outdoor workers, and the urban poor.

To address these challenges effectively, it is essential for government departments to adopt a systematic, coordinated, and timely response. The Heat Wave Standard Operating Procedures (SOPs) serve as a guiding framework for all line departments and local authorities to prepare for, respond to, and recover from heat wave events. These SOPs outline roles, responsibilities, and actionable measures across three key phases, pre-heat wave (preparedness), during heat wave (response), and post-heat wave (recovery and review) with the goal of minimizing heat-related impacts and ensuring continuity of critical services.

The SOPs are designed in alignment with the State Heat Action Plan (HAP) and the National Disaster Management Authority (NDMA) guidelines. They promote inter-departmental coordination, early warning dissemination, public awareness, health preparedness, and long-term resilience building. By following these SOPs, departments can work collectively to protect communities, reduce mortality and morbidity, and enhance the state's capacity to deal with extreme heat events in a changing climate.

The Heat Wave SOP for Uttar Pradesh aims to establish clear guidelines, roles, and responsibilities for various state departments to prepare for, respond to, and mitigate the effects of heat waves. This SOP outlines department-specific actions to reduce public health risks, livelihood threat, ensure resource availability, and coordinate effective responses during extreme heat conditions. Heat waves are extreme weather events that can have severe consequences for public health, water resources, agriculture, power, transportation, and other sectors. This SOP would also cover the learnings and course corrections for a future course of action.

## Rationale

The rationale for developing Standard Operating Procedures (SOPs) on heat waves stems from the growing recognition of heat waves as a major public health and environmental emergency in Uttar Pradesh and across India. With rising global temperatures and increasing instances of extreme heat events, the state is witnessing more frequent, longer, and deadly heat waves that

affect not only human lives but also strain infrastructure, disrupt livelihoods, and impact essential services such as health, water, power, and transport. The impacts are especially severe on vulnerable groups, including the elderly, children, pregnant women, lactating mothers, outdoor laborers, slum dwellers, persons with disabilities, and individuals with pre-existing health conditions. In this context, a structured, well-defined SOP is essential to enable a timely, organized, and effective response to such events.

The SOP provides a uniform framework for all government departments and stakeholders to act in a coordinated manner across the pre, during, and post-heat wave phases. It clearly outlines the roles and responsibilities of line departments—including Health, Disaster Management, Urban Development, Education, Rural Development, Social Welfare, and others—ensuring that preparedness measures are in place, early warning systems are functional, public awareness is enhanced, and critical services are maintained. Without such SOPs, responses can be delayed, fragmented, and inefficient, leading to avoidable loss of lives and suffering.

Furthermore, SOPs help institutionalize heatwave preparedness and resilience at the state and district levels. They promote data-driven decision-making, inter-agency coordination, and community participation, all of which are vital for adapting to the increasing risk of heat waves under climate change. By ensuring that all departments follow a common set of guidelines, the SOP enhances accountability, efficiency, and impact of government interventions, contributing to broader climate resilience and disaster risk reduction goals.

## Overview of Temperature Trends

Uttar Pradesh, located in the northern plains of India, has been experiencing a significant rise in average and extreme temperatures over the past few decades, largely due to climate change, rapid urbanization, and deforestation. Historically known for its hot summers, the state is now witnessing more frequent and intense heatwaves, with maximum temperatures often exceeding 45°C in many districts such as Allahabad (Prayagraj), Kanpur, Banda, Jhansi, and Agra during peak summer months (April to June). Data from the India Meteorological Department (IMD) indicates that annual average temperatures in Uttar Pradesh have increased by approximately 0.5–0.7°C over the last 50 years, with recent decades showing a sharper warming trend, particularly in urban and semi-urban regions.

The frequency of heatwave days—defined as days when the temperature is at least 4.5°C above normal—has notably increased. For example, between 2000 and 2010, most parts of Uttar Pradesh witnessed around 4–8 heatwave days annually, while in recent years (post-2015), this number has risen to 10–15 days, with some districts experiencing even longer and more severe spells. The onset of heatwaves has also shifted earlier in the season, sometimes beginning as early as March, and their duration has become prolonged, putting significant stress on public health, agriculture, and infrastructure. Urban heat island effects caused by dense construction,

concrete surfaces, and loss of green cover have exacerbated temperature extremes in cities like Lucknow, Varanasi, Jhansi, and Meerut.

In the long term, climate models project that Uttar Pradesh may experience a further rise of 1.5–2.0°C in average summer temperatures by 2050, if mitigation measures are not implemented. This poses serious risks to livelihoods, water security, public health, and food production. As such, understanding these temperature trends is critical for developing Heat Action Plans (HAPs), improving early warning systems, and integrating climate resilience into urban planning and rural development policies across the state.

## **Role of Line Departments in Effective Heatwave Management & Response**

Effective heatwave management in a state like Uttar Pradesh requires a coordinated, multi-sectoral approach, with each line department following specific Standard Operating Procedures (SOPs) to reduce risks, protect lives, and ensure uninterrupted services. Pre-heatwave SOPs emphasize preparedness and risk reduction. Departments like Health, Rural Development, Urban Development, Education, and Environment must initiate public awareness campaigns on heatwave safety, ensure availability of drinking water, and promote protective infrastructure (shade, cool shelters). Health departments must pre-position ORS, IV fluids, and medicines, while the Rural and Urban Development departments ensure water supply points, shaded bus stops, and repairs of community water sources. Education departments should adjust school timings, suspend outdoor activities, and train teachers on first aid for heat-related illnesses. The Agriculture and Animal Husbandry departments should issue advisories to farmers and livestock owners on heat stress mitigation. Environment and Forest departments must monitor forest fire risks and implement afforestation drives to reduce the urban heat island effect.

During the active heatwave phase, SOPs prioritize rapid response, service continuity, and life protection. The Health Department leads in treating heatstroke patients and issuing regular bulletins about medical advisories. The Emergency Services and Disaster Management authorities coordinate with other departments to open cooling centers, deploy response teams, and manage emergency evacuations in extreme cases. The Power Department must prevent outages and maintain uninterrupted electricity to hospitals and water supply systems. The Social Welfare and Women & Child Development Departments check on vulnerable populations—such as children, elderly, pregnant women, and persons with disabilities—ensuring Anganwadi and old age homes are equipped with cooling aids and hydration. The Fire Services remain on high alert to respond to fires triggered by extreme heat. District Administrations, in coordination with line departments, oversee the implementation of local heat action plans, ensure information flows to the public, and activate command centers if needed.

In the post-heatwave phase, SOPs involve impact assessment, recovery planning, and resilience building. The Health Department documents cases and fatalities, analyzes trends, and updates protocols for future preparedness. The Revenue and Relief Departments assess damage and disburse ex gratia compensation for heatwave-related deaths or losses. Urban and Rural Departments must inspect and reinforce heat-sensitive infrastructure, while the Education and WCD Departments review the effectiveness of outreach and protective measures for children and mothers. Environment and Planning Departments integrate heatwave learnings into long-term urban planning and climate adaptation strategies, such as cool roofing, water-sensitive

landscaping, and resilient housing. All departments must report their performance to the SDMA, participate in debriefings, and update their internal SOPs based on gaps and challenges encountered. Overall, adherence to these SOPs ensures a systematic and proactive approach to heatwave management across Uttar Pradesh.

The Heat Waves SOP is designed in a manner that the line departments and other stakeholders could identify their standard roles in phases of disaster cycle. To effectively manage the growing risk of heat waves in Uttar Pradesh, a phase-wise approach is essential—covering pre-heat wave (preparedness), during heat wave (response), and post-heat wave (recovery) stages. Each phase involves specific actions by line departments, local bodies, and communities to minimize human, economic, and environmental impacts. These phases are specified with the timeline as:

1-Pre-Heat Wave (preparedness) – February-March

2-During heat wave (response) – April-June

3-Post-heat wave (recovery, risk reduction ) – July-January

## Heat Wave Criteria (IMD-Based)

Heat waves need to be considered till maximum temperature of a station reaches at least 40°C for Plains and 30°C for Hilly regions.

### **Based on Departure from Normal:**

- Heat Wave: Departure from normal is 4.5°C to 6.4°C.
- Severe Heat Wave: Departure from normal is >6.4°C.

### **Based on Actual Maximum Temperature:**

- Heat Wave: When the actual maximum temperature is  $\geq 45^{\circ}\text{C}$ .
- Severe Heat Wave: When the actual maximum temperature is  $\geq 47^{\circ}\text{C}$ .

## Departments/Agencies with Roles in Heat Waves Management

1. Uttar Pradesh State Disaster Management Authority (UPSDMA)
2. District Disaster Management Authority (DDMA)
3. Department of Health and Family Welfare
4. Urban Development Department and Municipal Corporations
5. Uttar Pradesh Jal Nigam

6. Education Department
7. Animal Husbandry Department
8. Electricity Department
9. Environment, Forest and Climate Change Department
10. Relief Commissioner's Office/ State Disaster Management Authority
11. Irrigation and Water Resources Department
12. Agriculture Department
13. Rural Development Department/ Panchayati Raj Department
14. Transport Department
15. Information and Public Relation Department
16. Social Welfare Department
17. Department of Women and Child Development
18. Labour Department
19. Uttar Pradesh Fire Services
20. Uttar Pradesh Traffic Police
21. Civil Society Organizations (CSOs)/ Non-Governmental Organizations (NGOs)/Agencies

Source: Indian Meteorological Department, <https://www.imd.gov.in>

# Uttar Pradesh State Disaster Management Authority (UPSDMA)

## Objective

*Coordinate a multi-departmental response to minimize heat wave impacts, focusing on preparedness, mitigation, response, public safety, and resource management.*

## Scope

Applicable across all 75 districts of Uttar Pradesh. Special focus on high-risk districts (e.g., Bundelkhand region, Eastern UP, urban centers like Prayagraj, Varanasi, Lucknow, Kanpur). Includes both urban and rural areas, with attention to vulnerable communities (slum dwellers, daily wage laborers, elderly, children, pregnant, lactating etc.).

**District-Specific Thresholds:** Uttar Pradesh introduced a three-tier color-coded alert system (yellow: 36.7–40.58°C, orange: 39.09–43.30°C, red: 41.48–45.34°C) tailored to each of the 75 districts, based on a 42-year temperature analysis (1982–2023). This enables localized early warnings.

## Roles and Responsibilities

- Uttar Pradesh State Disaster Management Authority: Nodal agency for planning, coordination, monitoring, and guidance. Line Departments (Health, Urban Development, Rural Development, Education, Labour, PRIs): Execute sector-specific interventions.
- District Disaster Management Authorities (DDMAs): Implement district-level plans, ensure field-level coordination.

## Pre-Heat Wave Actions:

- Identify high-risk areas using climate data and demographic information to target resources and support.
- Collaborate with other departments to create a comprehensive heat wave action plan covering communication, resource allocation, and public advisories.
- Launch campaigns through DDMAs in rural and urban areas on heat wave preparedness, focusing on vulnerable groups (e.g., the elderly, children, and outdoor workers).
- Pre-position emergency kits, water supplies, and cooling resources for rapid deployment.
- Conduct vulnerability mapping to identify heat-prone districts, urban heat islands, and high-risk populations such as the elderly, pregnant women, children, and persons with disabilities.

- Establish a dedicated heatwave early warning system in collaboration with the Indian Meteorological Department (IMD) to ensure continuous monitoring and real-time information sharing.
- Coordinate with line departments to push departmental preparedness and adherence of State Heat Action Plan.
- Disseminate public awareness messages through campaigns in local languages, focusing on heatwave prevention, symptoms of heatstroke, and emergency response, targeting all communities, including marginalized groups.
- Develop partnerships with national and international humanitarian organizations to enhance preparedness and resource mobilization.
- Coordinate with India Red Crescent Society (IRCS) to provide training and capacity-building programs for district-level authorities, first responders, and community volunteers on heatwave mitigation and response strategies.
- Coordinate with DDMA's to ensure pre-positioning of essential relief supplies, including oral rehydration salts (ORS), cooling facilities, shaded rest areas, and water supply infrastructure in heat-prone areas.

#### **During Heat Wave Actions:**

- **State Emergency Operations Center (SEOC) Activation:** Operate SEOC for real-time coordination and resource deployment across affected areas.
- **Heat Wave Warnings and Alerts:** Collaborate with the Meteorological Department to issue heat wave warnings through various channels, ensuring timely public and departmental notifications.
- **Cooling and Hydration Points:** Establish cooling centers and water distribution points in collaboration with the Urban Development and Water Resources Departments.
- **Issue directives to DDMA's:** to ensure timely relief to heat wave victims according to SDRF guidelines.
- Constitute teams for real time monitoring of implementation of Heat Waves relief and mitigation actions by different departments.

#### **Post-Heat Wave Actions:**

- **Evaluation and Feedback:** Conduct debriefings with all departments, evaluate the response effectiveness, and gather feedback.
- **Report and Recommendations:** Develop an after-action report summarizing the response, challenges, and recommendations for improving future heat wave preparedness and response.

# District Disaster Management Authority (DDMA)

## Objective

*Coordinate, implement and monitor district level preparedness, response and mitigation actions to minimize heat wave risks and impacts.*

## Scope

This SOP outlines the framework for the District Disaster Management Authority (DDMA) in Uttar Pradesh to prepare for, respond to, and mitigate the impacts of heat waves. It aims to reduce heat-related morbidity and mortality, protect vulnerable populations, and ensure coordinated action across government agencies, non-governmental organizations (NGOs), and communities. The SOP aligns with the Uttar Pradesh Heat Wave Action Plan, National Disaster Management Authority (NDMA) guidelines, and the Disaster Management Act, 2005. It covers prevention, preparedness, response, and recovery phases, focusing on districts prone to extreme heat, particularly from March to June, and in rare cases, extending to July. It applies to:

- All government departments under DDMA
- Urban and rural local bodies
- Healthcare facilities
- Educational institutions
- Civil society and NGOs
- Vulnerable populations (e.g., elderly, children, outdoor workers, slum dwellers)

## Roles and Responsibilities

The DDMA, chaired by the District Magistrate, is responsible for coordinating heat wave management efforts at the district level. Key responsibilities include:

### ▪ Preparedness and Planning

- Develop District Heat Action Plan (HAP): Formulate and update a district-specific HAP annually, incorporating short-term measures (e.g., early warning systems, public alerts) and long-term strategies (e.g., infrastructure upgrades like cool roofs, enhanced greenery).
- Risk Assessment: Identify heat wave-prone areas and vulnerable populations (e.g., elderly, children, outdoor workers, slum dwellers) using data from the Indian Meteorological Department (IMD) and local health records.
- Resource Mapping: Maintain an inventory of cooling centers, water points, medical facilities, and firefighting equipment for heat-related emergencies.
- Capacity Building: Conduct training programs for health workers, local administration, and volunteers on recognizing and treating heat-related illnesses (e.g., heat stroke,

dehydration).

- Public Awareness: Disseminate information through print, electronic, and social media on heat wave prevention, including do's and don'ts (e.g., staying hydrated, avoiding outdoor activity during peak heat).

#### ▪ **Early Warning and Communication**

- Collaboration with IMD: Establish a system to receive and disseminate heat wave alerts and forecasts from the IMD. Issue warnings when temperatures exceed above the normal maximum.
- Alert Dissemination: Use the SACHET mobile application and other platforms (e.g., SMS, radio, social media) to notify communities of impending heat waves, including specific do's and don'ts.
- Inter-Agency Coordination: Ensure seamless communication with the State Disaster Management Authority (SDMA), health departments, and NGOs to activate response mechanisms.

#### ▪ **Response During Heat Waves**

- Activation of Cooling Centers: Set up and publicize cooling centers in public buildings (e.g., schools, community halls) equipped with water, oral rehydration salts (ORS), and basic medical supplies.
- Health System Readiness: Ensure primary health centers (PHCs) and hospitals are equipped to treat heat-related illnesses. Train medical staff to identify symptoms like heat cramps, exhaustion, and stroke.
- Water and Relief Distribution: Coordinate with municipal authorities to provide drinking water points and shaded areas in public spaces, especially in urban heat islands.
- School and Work Adjustments: Advise schools to adjust timings or close during extreme heat and issue guidelines for outdoor workers to limit exposure during peak hours (11 AM–4 PM).
- Monitoring and Reporting: Record heat-related illnesses and casualties through health facilities and report to the SDMA for state-level analysis.

#### ▪ **Mitigation and Recovery**

- Infrastructure Development: Promote long-term measures like cool roofs, reflective pavements, and urban afforestation to reduce urban heat island effects.
- Post-Event Analysis: Conduct a review after each heat wave to assess response effectiveness, update the HAP, and address gaps in implementation.
- Community Resilience: Engage local NGOs and community groups to promote sustainable cooling solutions (e.g., passive cooling technologies) and build awareness for future heat waves.

## ▪ **Coordination and Monitoring**

- Ensures compliance with SDMA guidelines and coordinates with departments like health, public works, and education.
- Regular Meetings: Hold pre-summer planning meetings and post-event debriefs to refine strategies and ensure equipment readiness (e.g., firefighting tools for heat-related fires).

## **Pre-Heat Wave Actions:**

- Identify high-risk zones and vulnerable populations across the district, particularly targeting groups such as outdoor labourers, elderly residents, children, and individuals with health conditions.
- Develop district-specific heatwave contingency plans in alignment with the state heat action plan and SOPs.
- The DDMA aligns district-level plans with the state's broader Heat Wave SOP, working closely with the Uttar Pradesh State Disaster Management Authority (UPSDMA) to ensure consistency and support.
- Disseminate public awareness messages through campaigns in local languages, focusing on heatwave prevention, symptoms of heatstroke, and emergency response, targeting all communities, including marginalized groups.
- Establish coordination mechanisms with local line departments, I/ NGOs, UN, and business community to enhance resource availability and logistical preparedness.
- Ensure availability of medical supplies, hydration points, and cooling spaces in high-risk areas before the onset of the heatwave season.
- Implement long-term urban planning interventions such as green corridors, tree plantations, rooftop gardens, and shaded public spaces to reduce urban heat intensity.
- Coordinates with the India Meteorological Department (IMD) and UPSDMA to receive heat wave warnings and share them promptly with the public, especially as temperatures approach severe levels.
- Use local media, mobile alerts, loudspeaker announcements, and village-level communication networks, the DDMA ensures that timely alerts reach all communities within the district, including remote and rural areas.
- Depending on the severity of the forecast, the DDMA activates specific warning protocols within the SOP, which may include limiting outdoor activities or advising temporary closures of schools or changes in timing of schools.
- Launch awareness drives at the district level to inform the public about heat wave risks and safety tips, including the importance of staying hydrated, avoiding peak sun hours, and recognizing signs of heat stroke.

- Drive special programs for schools, colleges, and communities are organized to spread knowledge on preventative measures and heat safety practices. In addition, DDMA officials often coordinate with local NGOs to improve outreach.
- For workers in industries such as construction or agriculture, the DDMA promotes workplace policies on hydration and rest breaks, as well as guidelines on adjusting working hours during peak heat periods.

**During Heat Wave Actions:**

- Deploy emergency response teams to distribute water, provide medical assistance, and set up temporary heat relief centers in public spaces such as bus stations, markets, and workplaces.
- Activate local communication channels to disseminate heatwave alerts, safety advisories, and emergency contact details in local languages.
- Coordinate with the Health Department to ensure adequate staffing and medical supplies in hospitals and Heat Stabilization Centers dealing with heat-related illnesses.
- Mobilize transport services to provide free or subsidized transportation for vulnerable groups to access cooling shelters and medical facilities.
- Strengthen monitoring and data collection efforts, documenting cases of heatstroke, dehydration, and other related health impacts for future planning.
- Establishes cooling centers in community halls, schools, and other public spaces to offer temporary shelter for individuals without adequate cooling facilities.
- Set up temporary water stations in marketplaces, transit points, and high-traffic areas to provide easy access to drinking water during extreme heat conditions.
- Ensure district hospitals, community health centers, and primary health care centers are prepared to handle increased cases of heat-related illnesses, with an adequate stock of medical supplies like oral rehydration solutions (ORS).
- Ensure ambulance and emergency medical response teams are kept on alert for rapid deployment to attend to heat-stressed individuals, with priority given to high-risk areas identified during the planning phase.
- Coordinate with local government departments, including health, education, water supply, and rural development, to implement heat wave response measures collectively.
- Collaborates with NGOs, religious institutions, and local community groups to strengthen outreach and ensure comprehensive service provision, particularly in marginalized areas.
- Encourages industries and businesses to adopt safety measures for outdoor workers, including guidelines for cooling measures and flexible work schedules.

### **Post-Heat Wave Actions:**

- Conduct post-event evaluations in collaboration with health authorities and emergency response teams to assess the effectiveness of response measures.
- Analyze gaps and challenges faced during the emergency response, integrating lessons learned into future preparedness and contingency planning.
- Develop long-term heatwave resilience initiatives, such as improving water supply systems, expanding green infrastructure, and enforcing heat-resistant building codes.
- Impact Evaluation: After the heat wave subsides, the DDMA assesses the impacts on health, infrastructure, and economic activities. This includes tracking heat-related morbidity and mortality within the district.
- Mobilizes additional resources, if needed, to support communities affected by the heat wave, providing medical aid, drinking water, and any necessary relief assistance.
- Revise and update the district Heat Action Plan and SOP to improve the district's preparedness for future heat waves, adapting strategies that were effective and identifying gaps to address in the next season.
- Support communities, schools, and health workers to build local resilience, focusing on training in first aid, emergency response, and recognizing symptoms of heat-related illnesses.
- Promotes local efforts such as tree planting for shade, public drinking water systems, and cool roof technology to reduce community vulnerability to extreme temperatures.

# Department of Health & Family Welfare

## Objective

*Minimize heat-related illnesses and fatalities by providing effective public health interventions, medical care, and preventive measures timely.*

## Scope

Applies to all health facilities, personnel, and public health programs under the Uttar Pradesh Health Department, in coordination with the National Centre for Disease Control (NCDC) and District Disaster Management Authorities (DDMAs).

## Roles and Responsibilities

- **State Health Department:** Coordinate with IMD and UPSDMA for heat alerts, ensure hospital preparedness, and issue public health advisories.
- **District Health Officers:** Implement SOPs, monitor heat-related cases, and ensure medical supply availability.
- **Hospitals/Clinics:** Set up heat stroke wards, train staff, and maintain cold chain for medicines.
- **ASHA/ANM Workers:** Conduct community outreach on heat wave prevention.

## Pre-Heat Wave Actions:

- **Heat Health Awareness Campaigns:** Launch campaigns on recognizing symptoms of heat-related illnesses (e.g., dehydration, heat stroke), the importance of hydration, and protective measures.
- Conduct workshops by March annually, involving NCDC guidelines.
- **Hospital Preparedness:** Ensure all hospitals and health centers are well-stocked with IV fluids, Oral Rehydration Salts (ORS), and necessary medications for heat-related conditions.
- **Cooling Centers in Health Facilities:** Establish temporary cooling centers within hospitals, especially in areas prone to heat waves, and ensure adequate ventilation.
- **Establishment of heat isolation wards:** Allocate wards/beds for patients suffering from heat stroke in all health facilities.
- **Training Medical Staff:** Train healthcare providers in identifying and treating heat-related illnesses and ensure protocols are in place for handling an influx of patients.
- **Coordination:** Coordinate with private/corporate hospital facilities for allocation of wards/beds during peak of heat waves if the number of patients increases and beyond

the capacity of public facilities. Issue directives to district authorities in this regard with guidelines.

**During Heat Wave Actions:**

- Emergency Medical Services: Increase the availability of ambulances, especially in high-risk zones, to respond quickly to heat-related emergencies.
- Public Health Advisories: Issue advisories with actionable tips (e.g., avoiding outdoor activity during peak hours, staying hydrated) and provide information on cooling center locations.
- Monitoring and Reporting: Set up a monitoring system for tracking heat-related illnesses and fatalities to respond promptly and inform the public about health risks.
- Increase hospital bed capacity for heat-related cases.
- Deploy mobile medical vans in high-risk areas.
- Monitor heat illness data via Integrated Disease Surveillance Programme (IDSP).

**Post-Heat Wave Actions:**

- Impact Assessment: Conduct an analysis of heat wave impacts on public health and submit a report, including suggestions for resource allocation and areas for improvement.
- Assess and review gaps and shortage of infrastructure, skills and capacities and report to authorities for improvements and supports.
- Compile heat-related illness and mortality data by July.
- Conduct review meetings with DDMA/UPSDMA to assess response effectiveness.
- Update SOP based on lessons learned and new IMD/UPSDMA thresholds.

# Urban Development Department and Municipal Corporations

## Objective:

*Ensure public facilities provide adequate protection from extreme heat for urban residents.*

## Scope

This SOP applies to all Urban Local Bodies (ULBs) in Uttar Pradesh, including 17<sup>1</sup> Municipal Corporations, 200 Municipal Councils, and 517 Nagar Panchayats, under the administrative control of the DoUD. It outlines proactive and reactive measures to address heat waves, focusing on infrastructure, public health, and community outreach.

## Roles and Responsibilities

### Urban Development Department

- Provide grants to ULBs for heat wave mitigation projects, such as cool roofs, green infrastructure, and water supply enhancements.
- Appoint nodal officers at state and district levels to oversee heat wave action plans and conduct regular reviews via video conferencing.
- Collaborate with departments like Health, Environment, and Disaster Management for integrated heat wave response.

### Municipal Corporations

- **Water Supply Management:**
  - Ensure continuous clean drinking water supply in urban markets, intersections, and public spaces.
  - Repair and maintain water pumps, pipelines, and hand pumps; distribute chlorine tablets in water-scarce areas.
  - Deploy water tankers in areas facing shortages and install water coolers in public areas.
- **Public Infrastructure:**
  - Sprinkle water on roads to reduce surface heat.
  - Provide shaded areas in parks and public spaces.
  - Install Smart City LED screens and PA systems for heat wave safety messages.
- **Green Initiatives:**
  - Implement cool roof programs and increase green cover (e.g., Raebareli's green township plan).
  - Rejuvenate water bodies and incorporate green measures into urban planning (e.g., Varanasi's Pond rejuvenation).
- **Awareness Campaigns:**
  - Conduct public awareness drives through print, electronic, and social media to

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<sup>1</sup> Data source: DoUD website

- educate residents on heat wave safety.
- Collaborate with NGOs and community organizations for outreach.

## **Standard Operating Procedures**

### **Pre-Heat Wave Actions:**

- **Public Cooling Spaces:** Set up cooling centers, shaded areas, and drinking water points in parks, bus stops, and market areas.
- **Community Awareness Programs:** Conduct public education on heat wave safety and available resources.
- **Prepare Water and Drainage Systems:** Inspect water supply lines and drainage systems to prevent heat-related infrastructure failures.
- **Coordinate and design traffic protocols** especially for crowded areas with Traffic Police and City Police for smooth management of traffic during heat waves.

### **During Heat Wave Actions:**

- **Operation of Public Cooling Centers:** Ensure all cooling centers are functional and staffed to help the public manage extreme temperatures.
- **Maintain Public Sanitation and Hydration:** Distribute water in heavily populated areas and set up hydration points in public spaces.
- **Monitor Public Areas:** Increase monitoring in high-footfall areas and support street vendors with water access and cooling materials if possible.
- **Set up shades/tents** where traffic waits for traffic signals, especially in crowded areas.
- **Coordinate with Civil Society Organisations /corporates** to establish water points /Pyaus with proper safety arrangements.
- **Activate/establish city heat waves control rooms** (ward wise if possible) for grievance redressal and public feedback.
- **Use social media platforms** to encourage and propagate good practices and preparedness. Also display/demonstrate facilities and initiatives taken by the government to mitigate heat waves.

### **Post-Heat Wave Actions:**

- **Feedback Collection:** Collect feedback from residents on facility availability and effectiveness.
- **Urban Heat Resilience Planning:** Integrate green spaces, reflective building materials, and other heat-reducing infrastructure in future urban planning.

## **Innovative Measures**

- **Cool Roofs:** Expand the cool roof program to all ULBs, following the Lucknow pilot's success in reducing indoor temperatures.
- **Green Infrastructure:** Mandate urban forests and permeable surfaces in Tier 2 and Tier 3 cities to reduce UHI effects.
- **Passive Cooling:** Incorporate ancient Indian architectural designs for naturally ventilated buildings, as recommended by the IPCC.
- **Smart City Integration:** Leverage Smart City technologies for real-time monitoring and communication during heat waves.

### **Monitoring and Accountability**

- **Nodal Officers:** Ensure accountability through regular reporting by state, district, and municipal nodal officers.
- **Public Dashboard:** Track progress on cooling initiatives, green cover, and water supply via a transparent dashboard.
- **Collaboration:** Foster partnerships with NGOs, research institutions, and private sectors for coordinated implementation.

# Uttar Pradesh Jal Nigam

## Objective:

*Ensure infrastructure and water security readiness before heatwave season for ensuring uninterrupted access to safe drinking water to reduce heat-related illnesses and to build resilience for future heatwaves.*

## Scope

This SOP applies to all UPJN operations, including urban and rural water supply schemes, sewerage systems, and ongoing projects under the Jal Jeevan Mission (JJM), during declared heat wave conditions as per the India Meteorological Department (IMD) criteria (e.g., maximum temperature  $\geq 40^{\circ}\text{C}$  in plains or  $\geq 4.5^{\circ}\text{C}$  above normal).

## Roles and Responsibilities

- UPJN Headquarters (Lucknow): Coordinate with UPSDMA and district authorities; issue directives; monitor implementation.
- Regional/District Offices: Execute SOP at the local level, report issues, and liaise with District Disaster Management Authorities (DDMAs).
- Field Staff (Engineers, Technicians, Workers): Implement operational measures, report on-ground challenges, and ensure compliance with safety protocols.

## Standard Operating Procedures

### Pre-Heatwave Actions:

- Stockpiling of spare parts and creation of rapid response team with minimum staff- one Junior Engineer (leader), plumbers, mechanics, electrician, water quality technician with testing kit and sample collection unit, fitters etc. with vehicle filled with fuel. The number of teams can be decided based on the severity and geographical area covered by the team. The response time of the team should not exceed more than 2 to 3 hours.
- Identification of overloaded water point and repositioning of spare parts and training to the local people who can take preventive maintenance at regular interval and minor repair. This is imported for the isolated/hard to reach areas. Preventive maintenance should be undertaken to all water points in general and in hotspots areas in particular just before the beginning of heatwaves March/April
- Keep the drainage clean and make the people aware on household water treatment (to remove microbial contamination). This will be further ensured during heat waves

- Assess vulnerable urban and peri-urban areas where water scarcity is anticipated.
- Map water-stressed zones (often slums, dry rural belts).
- Pre-season maintenance of water supply pipelines, tubewells, pumping stations, and hand pumps.
- Check overhead tanks, reservoirs, and refill logistics.
- Prepare for emergency tanker supply for areas with single-source dependence.
- Stock chlorine and purification equipment to maintain water quality.
- Issue guidelines for district authority to coordinate with the District Disaster Management Authority (DDMA) and local urban bodies.
- Develop a Heatwave Water Response Plan aligned with IMD's seasonal alerts.
- Promote water conservation tips through municipal channels (posters, media, mohalla/ward announcements).

#### **During Heatwave Actions:**

- Maintain continuous water supply, especially during peak heat hours (11 AM–5 PM).
- Activate mobile water tankers in affected urban and rural areas.
- Ensure functional public drinking water booths (pyaus, jal chatris) at hospitals, bus stands, markets, etc.
- Activate the rapid response/maintenance team to undertake urgent repair/maintenance (minor and major) as planned during Pre phase period
- Make continuous communication through print/electronic media “whom and how to contact in case of any problem in water supply”- something like call center that can deploy the RRT as per complaint received. Deployment of the person in the control room in each district/block.
- Ensure appropriate and adequate water bodies are available (with water) to ensure livestock/fauna get water for their survival during the health waves (for villages and urban areas)
- Keep the drainage clean and make the people aware of household water treatment (to remove microbial contamination)

#### **Emergency Measures:**

- Rapidly repair any breakdowns (e.g., pipe bursts, motor failures) within minimal response time.
- Special attention to slums, low-income colonies, isolated villages.
- Installation of public water kiosks (Pyaus) to set up drinking water stations in crowded places like markets, bus stops, and railway stations.
- Cooling centers with water access to collaborate with municipal bodies to establish shaded areas with drinking water.

- Emergency water supply coordination to work with disaster management authorities for contingency plans.
- Frequent water quality testing: Prevent contamination and waterborne diseases like diarrhea and cholera.
- Chlorination & treatment of water sources as and when required to mitigate and control waterborne diseases.
- Collaboration with meteorological departments to prepare for increased demand during forecasted heat waves.
- Urban planning involvement to promote heat-resilient infrastructure with adequate water provisioning.
- Industry regulation to monitor excessive water use by industries to prioritize drinking water needs.

**Monitoring:**

- Real-time monitoring of water quality and quantity.
- Regular disinfection of water storage points to prevent waterborne diseases.

**Grievance Redressal:**

- Set up/strengthen helplines for water complaints related to shortages or contamination.

**Post-Heatwave Actions:**

- **Damage Assessment:** Evaluate infrastructure stress/damage during heatwave (e.g., overworked pumps, burst pipes).
- **Water Resource Restoration:** Repair damaged assets and replenish water sources.
- Based on the assessment, undertake long term measures for source sustainability and to minimize use of tinkering during health waves
- In water stressed areas activities requiring high water (drinking quality) can be stopped to ensure drinking water sources should not go dry during peak summer. This can be done pre-Heatwaves also.
- Promote conjunctive use of water \_ use different water sources for different purposes as per their suitability (quality and quantity and availability with no/minimum treatment)
- Enforcement of pollution control measures to protect water bodies

**Documentation and Reporting:**

- **Submit detailed reports** to Urban Development Department/DDMA on water supply issues faced and mitigation measures taken.
- **Strategic Planning** to recommend long-term measures like, Rainwater harvesting revival. Decentralized water storage creation (like community tanks). Heat-resilient water supply infrastructure projects.

# Education Department

## Objective:

*Minimize heat impacts on school operations including students, teachers and non-teaching staff to ensure uninterrupted continuation of schooling*

## Scope

Applicable to all government, aided, and private educational institutions across urban and rural areas of Uttar Pradesh. Emphasis on high-risk districts (e.g., Bundelkhand, Purvanchal, Central UP), as identified by UPSDMA and IMD alerts.

## Roles and Responsibilities

- School Heads / Principals / Educational Institution Authorities
- Teachers and Administrative Staff
- Basic Shiksha Adhikari (BSA) and DIET coordinators
- Students and their parents/guardians

## Pre-Heat Wave Actions:

- Circulate Do's and Don'ts for heat protection to schools.
- Prepare guidelines to modify school timings (early morning shifts) during extreme heat.
- Develop and implement school-based heatwave preparedness plans.
- Organize educational programs on heatwave safety, targeting students, teachers, and staff.
- Promote tree plantation in and around school premises for natural shade.
- Integrate alternative energy solutions, such as solar-powered cooling systems in school buildings.

## During Heat Wave Actions:

- Reschedule school timing according to the heat waves warning issued by the authorities (IMD, UPSDMA or as per early warning issued by the Authority).
- Ensure no outdoor activities during peak hours (12 PM – 4 PM).
- Immediate medical support for heat-affected students.
- Ensure availability of clean drinking water and hydration stations in all schools.
- Implement temporary cooling measures such as air circulation fans and shaded outdoor areas.
- Provide immediate medical assistance for students affected by heat-related illnesses.
- Issue directives to the district authority to coordinate DDAM and the Health Department to stock ORS in schools.

**Post-Heat Wave Actions:**

- Review policies on academic calendars and exam schedules.
- Assess school preparedness and identify areas for improvement in heatwave response.
- Design heat-adaptive school infrastructure with improved ventilation and insulation.
- Integrate climate change and heatwave awareness into the school curriculum for long term preparedness.
- Authorized district authority to coordinate and mobilize local CSR/CSOs supports in building heat resilient infrastructures in schools.

# Animal Husbandry Department

## Objective:

*Minimize heat-related illnesses and fatalities by providing effective livestock care and management awareness, medical care, and preventive measures.*

## Scope

The SOP applies to all livestock, including cattle, buffalo, sheep, goats, and poultry, managed by farmers and livestock rearers across Uttar Pradesh. It is implemented in coordination with district authorities and the Uttar Pradesh State Disaster Management Authority (UPSDMA), aligning with national guidelines from the Department of Animal Husbandry and Dairying (DAHD).

## Key Measures

### Shelter and Environmental Management

- **Shade Provision:** Ensure all livestock have access to shaded areas or shelters to minimize exposure to direct sunlight. Cattle sheds should be covered with materials like fodder, coconut fronds, or tarps to reduce heat.
- **Ventilation:** Maintain well-ventilated shelters to prevent heat buildup. Use fans or natural airflow where possible to keep humidity levels comfortable.
- **Cooling Techniques:** Cover animals, particularly buffaloes, with wet gunny bags or damp cloths to lower body temperature during peak heat hours.

### Hydration and Nutrition

- **Water Supply:** Provide clean drinking water at least five times daily for milch animals and twice daily for others. Encourage water intake by mixing feed with water or using oral rehydration solutions for dehydrated animals.
- **Feeding Adjustments:** Offer protein-rich feed during cooler hours to maintain nutrition. Avoid feeding during peak heat to prevent digestive stress.
- **Grazing Schedules:** Restrict grazing to early morning (before 11:00 AM) and late evening (after 4:00 PM) to avoid high temperatures.

### Health Monitoring and Veterinary Care

- **Heat Stress Symptoms:** Train farmers to recognize signs of heat stress, including excessive salivation, increased water intake, reduced fodder consumption, mouth

breathing, or seeking shade excessively.

- **Veterinary Services:** Ensure access to veterinary hospitals and mobile veterinary units for immediate treatment of heat-related illnesses. The department operates 18 veterinary hospitals in districts like Ghaziabad, providing care for sick animals.
- **Preventive Health Checks:** Conduct regular health checkups during heat wave periods to identify and address vulnerabilities early.

### **Farmer Education and Awareness**

- **Advisories:** Issue regular advisories to farmers through SMS, radio, or local veterinary centers, detailing heat wave safety measures, such as adjusting grazing times and providing shade.
- **Training Programs:** Organize workshops to educate livestock rearers on heat stress management, focusing on practical techniques like shelter modification and hydration strategies.
- **Community Outreach:** Collaborate with rural development agencies to disseminate information on protecting animals during heat waves.

### **Coordination with District Disaster Management Authority**

- **Heat Wave Thresholds:** Adhere to district-specific heat wave thresholds set by UPSDMA, ranging from yellow alerts (36.7°C–40.58°C) to red alerts (41.48°C–45.34°C), to activate protective measures.
- **Early Warning Systems:** Monitor IMD weather forecasts to implement SOP measures proactively, ensuring timely interventions.
- **Inter-Departmental Collaboration:** Work with Health, Urban Development, and Rural Development departments to integrate animal welfare into the broader heat wave action plan.

### **Infrastructure Support**

- **Veterinary Facilities:** Leverage existing infrastructure, such as the veterinary hospitals and animal service centers in districts, to provide care during heat waves.
- **Mobile Units:** Deploy mobile veterinary units to remote areas to ensure access to medical care for livestock.
- **Shelter Upgrades:** Encourage farmers to upgrade cattlesheds with heat-resistant materials and improved ventilation systems.

### **Implementation Strategy**

- **District-Level Execution:** District veterinary officers and chief veterinary officers oversee local implementation, tailoring measures to regional conditions.
- **Monitoring and Reporting:** Regular reports on heat wave impacts and SOP compliance

are submitted to the Animal Husbandry Department and UPSDMA.

- Resource Allocation: Allocate funds and resources for veterinary care, water supply, and shelter upgrades, especially in high-risk districts.

#### **Pre-Heat Wave Actions:**

- Ensure availability of drinking water and proper shade for livestock in every cowshed.
- Issue advisories for cattle management during heat.
- Issue operational directives to district authority to launch campaign for seasonal vaccination to protect heat related or summer disease in cattle.
- Issue advisories for farmers on feeding and hydration requirements during extreme heat.
- Issue directives for the constitution of mobile team with local support (Vet-Paramedics and vaccinators)
- Pre-position veterinary medicines and equipment.

#### **During Heat Wave Actions:**

- Veterinary emergency support for heat-stressed animals.
- Water sprinklers at Gaushalas and animal shelters.
- Issue advisories for farmers on feeding and hydration requirements during extreme heat.
- Activate mobile team in the areas where water availability is compromised.
- Launch awareness drives for cattle owners (dos and don'ts', feeding and grazing advisory)
- Organize fodder camp in drought situation.

#### **Post-Heat Wave Actions:**

- Assess livestock losses and provide compensation support.
- Assess and document areas of improvement.
- Identify resources and practices what worked well and what worked not well.

# Electricity Department

## Objective

*To ensure a reliable, sustainable, and resilient energy supply during heat waves to mitigate power outages, support critical infrastructure (e.g., hospitals, cooling centers), and reduce the socio-economic and health impacts of extreme heat in Uttar Pradesh.*

## Scope

Includes all 75 districts of Uttar Pradesh, with a focus on heat wave-prone regions like Bundelkhand, Purvanchal, and urban centers (e.g., Lucknow, Jhansi, Kanpur, Agra) where power demand surges due to high temperatures (often exceeding 45°C). Prioritizes rural areas with frequent outages and urban areas with overloaded grids. Covers the pre-heat wave season (February-March) for preparedness, the heat wave period (April -June, extendable based on IMD forecasts), and post-heat wave recovery (July onwards). Aligns with the Uttar Pradesh Heat Wave Action Plan 2025, which emphasizes proactive measures from March to July.

## Key Responsibilities

- **Power Supply Management:** Ensuring uninterrupted electricity for essential services and minimizing outages during peak demand caused by cooling needs.
- **Renewable Energy Integration:** Leveraging solar power (e.g., 265 MW rooftop solar, 4,000 MW utility-scale projects) to supplement grid supply and promote off-grid solutions in rural areas.
- **Infrastructure Resilience:** Maintaining and upgrading power infrastructure (transformers, cables, substations) to withstand heat-induced stress.
- **Public Engagement:** Promoting energy conservation and solar adaptation through campaigns and helplines.
- **Coordination:** Collaborating with the Uttar Pradesh State Disaster Management Authority (UPSDMA), Health Department, and Relief Commissioner's Office to support cooling centers and emergency response.

## Pre-Heat Wave Actions:

- **Infrastructure and Grid Readiness:** Inspect and prepare the power grid for high demand during heat waves.
- **Promote Energy Conservation:** Disseminate energy-saving tips, encouraging public cooperation to reduce demand.
- **Emergency Power Planning:** Plan for alternative power sources and prioritize essential facilities, including hospitals, water pumps and cooling centers.

### **During Heat Wave Actions:**

- **Power Supply to Critical Facilities:** Maintain an uninterrupted power supply to hospitals, cooling centers, and water pumping stations.
- **Load Management:** Implement load-shedding or rationing in less critical areas to manage peak loads without compromising essential services.
- **Emergency Repairs and Maintenance:** Deploy teams for quick repair and maintenance to prevent prolonged outages.

### **Post-Heat Wave Actions:**

- **Evaluation of Power Supply Efficiency:** Assess the adequacy of power supply during the heat wave and identify areas requiring improvement.
- **Upgrade Infrastructure:** Invest in energy-efficient systems and increase grid resilience based on performance and lessons learned.

# Environment, Forest and Climate Change Department

## Objective

*Minimize heat impact on wildlife and promotion of green areas through integrated approach in urban settings.*

## Scope

Addresses heat wave impacts specific to Uttar Pradesh's agro-climatic zones (e.g., Bundelkhand, Terai, Eastern UP). Focuses on areas with historically high temperatures and heatwave fatalities (e.g., Allahabad, Banda, Jhansi, Balia, Varanasi). Targets areas where maximum temperatures regularly exceed 45°C during peak summer months (April–June). It outlines a structured approach for creating climate-resilient plans at the grassroots level, focusing on Gram Panchayats and urban areas.

## Key Responsibilities

- **Monitoring and Forecasting:** Coordinate with IMD for real-time temperature and heat wave alerts. Disseminate alerts through district authorities and media.
- **Environmental Protection:** Implement urban greening, increase tree cover, and promote cool roof technologies. Enforce environmental regulations during heat wave periods (e.g., industrial emissions, water usage).
- **Climate Adaptation Measures:** Promote long-term climate-resilient urban planning. Integrate heat wave mitigation into the State Action Plan on Climate Change (SAPCC).
- **Forest and Wildlife Impact Mitigation:** Monitor Forest fire risks during extreme heat. Ensure water availability for wildlife in protected areas.

## Pre-Heat Waves:

- Mobilize community and drive awareness campaigns in villages in the surroundings of forests to prevent and minimize fire incidents.
- Promote and implement different techniques to increase plantation and green coverage in cities in collaboration with ULBs.
- Ensure water availability structures safe and operational in zoos and forest patches/pockets
- Incorporate heat wave risks into State Action Plans on Climate Change (SAPCC).
- Collaborate with the State Disaster Management Authority (SDMA) to integrate environmental concerns into the Heat Action Plan.
- Conduct public awareness campaigns on the environmental impact of heat waves and heat reduction strategies (e.g., afforestation, green buildings, cool roofs).

- Collaborate with IMD and SDMA for early warning dissemination, ensuring ecological sensitivity areas are informed and prepared.

#### **During Heat Waves Actions:**

- Monitor air pollution levels, which can worsen during heat waves, especially in urban and industrial zones.
- Share updates with health and disaster management departments.
- Coordinate with local bodies to keep parks and green zones open as cooling areas for the public.
- Provide environmental expertise to line departments (health, urban, rural development) for mitigation strategies such as promoting natural ventilation or shade structures.
- Disseminate information on the role of trees, green cover, and environmental practices in coping with heat stress through various media.

#### **Post-Heat Waves Actions:**

- Assess ecological damage due to prolonged heat (e.g., vegetation stress, forest fire risks).
- Undertaking reforestation or afforestation drives in affected areas.
- Promote nature-based solutions for long-term resilience (e.g., water harvesting, green corridors).
- Evaluate the effectiveness of current environmental and climate strategies post-heat wave.
- Update SAPCC or district climate plans with lessons learned.
- Align post-heat wave recovery efforts with SDGs, especially SDG 13 (Climate Action) and SDG 15 (Life on Land).
- Promote community-based natural resource management to build resilience.

# Irrigation and Water Resources Department

## Objective

*Protect water reservoirs, ensure an adequate supply of water in canals and Jal Nigam/ Jalkal to meet increased demand during heat waves.*

## Scope

Applicable across all regions of Uttar Pradesh, especially heat wave-prone districts. Addresses water demand for irrigation, cooling shelters, hospitals, and animal care during heat waves. Supports other departments (Urban Development, Rural Development, Animal Husbandry, Health) with water provisioning.

## Roles and Responsibilities

- **Water Resource Monitoring:**
  - Assessment of reservoir levels, canal water availability, and groundwater recharge status.
  - Identification of critical water-stressed zones using past year's data and vulnerability mapping.
  - Ensure repair and maintenance of canals, tube wells, and pump systems before summer.
  - Regular assessment of water levels in reservoirs, rivers, canals, and groundwater sources to anticipate shortages.
  - Use of meteorological data from the IMD to predict heat wave impacts on water availability.
  - Monitoring evaporation rates, which increase significantly during heat waves, affecting water storage.
- **Water Distribution Management:**
  - Prioritizing water allocation for drinking water and critical irrigation needs, especially in rural areas with high groundwater dependency.
  - Ensuring equitable distribution to prevent conflicts over water resources, particularly in high-risk districts like Bundelkhand, and NCR region.
  - Preparation of a Heat Wave Contingency Water Supply Plan.
- **Water Conservation Measures:**
  - Implementing restrictions on non-essential water use, such as for construction or recreational purposes, to preserve resources.
  - Promoting water-saving irrigation techniques, such as drip irrigation, to reduce wastage. Educating farmers and communities on water conservation practices through awareness campaigns.

- **Emergency Water Supply:**
  - Preparing contingency plans for emergency water distribution, including deploying water tankers to water-scarce areas.
  - Activating alternative water sources, such as deep borewells or inter-basin transfers, during severe shortages.
  - Collaborating with the Jal Nigam, Rural Development and Urban Development Departments to ensure water reaches marginalized populations.
- **Drought Preparedness:**
  - Developing early warning systems for drought-like conditions triggered by prolonged heat waves and low rainfall.
  - Planning for long-term water storage and recharge strategies, such as rainwater harvesting and groundwater replenishment.
  - Supporting farmers with alternative irrigation methods.

#### **Pre-Heat Wave Actions:**

- **Water Resource Assessment:** Evaluate existing water resources, especially in drought-prone, water scars and deep ground water level areas, to prepare for increased demand.
- **Increase Water Storage:** Boost water storage capacity and create emergency backup supplies for areas prone to water scarcity.
- **Public Awareness on Water Conservation:** Promote water conservation measures to the public through workshops, posters, and social media. Propagate best practices, establish demonstration sites for water conservation.

#### **During Heat Wave Actions:**

- **Enhanced Water Distribution:** Increase water supply to high-demand areas, cooling centers, and public spaces.
- **Water Quality Monitoring:** Ensure the quality of water supplies, as increased demand may strain resources and potentially affect water quality.
- Monitor groundwater levels and regulate extraction.

#### **Post-Heat Wave Actions:**

- **Impact Review:** Evaluate water distribution performance and resource management during the heat wave.
- **Infrastructure Improvement:** Identify and address any deficiencies in water supply infrastructure and capacity based on feedback.
- Plan long-term interventions for water conservation (rainwater harvesting).

# Agriculture Department

## Objective

*Reduce the impact of heat waves on crops, livestock, and rural communities dependent on agriculture.*

## Scope

Applicable across all districts of Uttar Pradesh. Focused on vulnerable agro-climatic zones such as Bundelkhand, Eastern UP, and Central UP. Covers activities related to crop management, livestock care, irrigation planning, and farmer support services during heat wave conditions (precisely March to June).

## Roles and Responsibilities

- **Agro-Advisory Planning:** Issue early-season advisories on heat-tolerant crop varieties. Promote staggered sowing and drought-resilient seeds.
- **Farmer Outreach:** Conduct training through KVKs and ATMA on heat stress management. Distribute ISCs, SMS alerts, and audio messages in local languages.
- **Livestock Preparedness:** Coordinate with Animal Husbandry for fodder and shade provision.
- **Infrastructure Readiness:** Ensure availability of diesel pumps, drip/sprinkler kits. Promote mulching, soil moisture conservation, and water harvesting.

The agriculture department's SOP, as part of the Heat Wave Action Plan 2025, is designed to protect crops, ensure water availability, and safeguard farmers and livestock. Based on general heat wave management practices and the multi-departmental strategy outlined in the action plan, the following measures are likely to include:

### Pre-Heat Wave Actions:

- **Farmer Training and Awareness:** Educate farmers on heat-resistant crops, sustainable irrigation techniques, and livestock management during high temperatures.
- **Resource Readiness:** Stock seeds, fertilizers, and other essentials for emergency distribution if needed.

### During Heat Wave Actions:

- **Daily Advisories for Farmers:** Provide farmers with daily heat warnings and tips on managing crops and livestock under stress.
- **Water Management:** Guide farmers on optimal water usage for crops and livestock, encouraging conservation.

- **Livestock Cooling Resources:** Encourage the use of shaded areas and cool-water facilities for animals to prevent heat stress.
- **Field Monitoring:** Collect data on crop wilting, pest/disease outbreaks, and water needs.
- Alert district administration for intervention in high-stress areas.
- **Support Services:** Coordinate with Irrigation Dept. for emergency water releases. Ensure veterinary health check-up camps for livestock in affected blocks.

**Post-Heat Wave Actions:**

- **Impact Evaluation:** Assess heat wave effects on crop yields and livestock health and develop support strategies for affected farmers.
- **Support Planning:** Submit recommendations for government support and resource allocation to mitigate future risks.
- Fast-track claims under PM Fasal Bima Yojana and SDRF relief norms.

# Rural Development & Panchayati Raj Department

## Objective

*Ensure public facilities provide adequate protection from extreme heat for rural communities.*

The Rural Development and Panchayati Raj Department plays a critical frontline role in managing the impact of heat waves in rural areas of Uttar Pradesh, where a large proportion of the population is exposed to extreme heat, often without access to adequate infrastructure or awareness. Their responsibilities span across all three phases pre, during, and post heat wave and focus on preparedness, response coordination, and resilience-building at the village level through Gram Panchayats and rural institutions.

## Scope

Applies to all rural areas across the 75 districts of Uttar Pradesh. Targets Gram Panchayats, Block Development Offices, and Zila Panchayat for implementation. Focuses on heat-prone districts identified by IMD/UPSDMAS and state-level climate risk assessments. Vulnerable groups especially elderly, children, pregnant women, daily-wage labourers, and livestock-dependent families. Rural livelihoods particularly MGNREGA workers and small-scale farmers. Infrastructure and services managed by Panchayati Raj and Rural Development (e.g., community buildings, water bodies, sanitation).

## Roles and Responsibilities

### Specific Roles of the Rural Development Department

The Rural Development department is tasked with sustainable and inclusive growth in rural India, as outlined by the department of Rural Development. In the context of heat wave management, its responsibilities are likely to include:

- **Infrastructure Development:** Ensuring access to shaded areas, cooling centers, and drinking water facilities in rural areas. This may involve leveraging schemes like MGNREGS to create heat-resistant infrastructure.
- **Health Support:** Organizing health checkup camps for rural workers, particularly those engaged in agricultural or construction activities, to mitigate risks of heat stroke and dehydration.
- **Coordination with Other Departments:** Collaborating with Health and Labour departments to provide medical care and protective measures for rural communities.
- **Resource Allocation:** Allocating funds and resources to support heat wave mitigation projects, such as building shelters or improving water supply systems.

## **Specific Roles of the Panchayati Raj Department**

The Panchayati Raj department, responsible for local self-governance in rural Uttar Pradesh, plays a pivotal role in grassroots implementation. Its contributions to the Heat Wave Action Plan are likely to include:

- **Local Coordination:** Working through Gram Panchayats to ensure that heat wave warnings, health advisories, and resources reach every village.
- **Community Engagement:** Organizing public awareness campaigns to educate rural residents about heat-related illnesses and preventive measures, such as staying hydrated and avoiding outdoor work during peak heat hours.
- **Monitoring and Reporting:** Overseeing the implementation of the action plan at the village level and submitting compliance reports to district authorities.
- **Vulnerable Population Support:** Prioritizing low-income households, children, and the elderly in rural areas for health checkups and shelter access.

### **Pre-Heat Wave Actions:**

- Awareness campaigns at Panchayat level (Nukkad Natak, posters).
- Activate Gram Panchayat Disaster Management Committees.
- Issue guidance to district authority to identify vulnerable communities who live in tin sheds or very poor dwelling conditions, nomads families and people (elderly, sick) needing extra care in a coordination manner.

### **During Heat Wave Actions:**

- Ensure water tankers at water-scarce villages.
- Gram Pradhans to report any casualty immediately.
- Activate emergency response teams.
- Direct Gram Panchayats to monitor health issues, especially cases of dehydration and heatstroke, and report to the Block or District Administration.
- Support emergency response teams in accessing affected rural areas quickly.
- Use Gram Pradhans and Village Health Committees to coordinate local relief, cooling arrangements, and communication of heat alerts.

### **Post-Heat Wave**

- Community review meetings on effectiveness of measures taken.
- Plan for better rural resilience in next heat wave season.
- Help collect data on heat-related health impacts, fatalities, and disruptions at the village level.

- Submit reports to SDMA/DDMA to support compensation and resource planning.
- Promote climate-resilient rural infrastructure like cool roofing, tree plantation, and shaded workspaces under schemes like MNREGA and 15th Finance Commission grants.
- Encourage greening of community spaces, ponds, and school premises for better heat absorption and ecosystem benefits.
- Conduct post-event review meetings at Panchayat level to understand gaps and improve future heat action plans.
- Involve local SHGs, youth clubs, and farmer groups in building rural heat resilience through collective planning and response.

# Transport Department

## Objective

*Ensure the safe operation of public and private transport services during heat waves.*

## Scope

The SOP applies to all modes of public and private transportation across Uttar Pradesh, including:

- State-run buses (UPSRTC)
- Private bus operators
- Auto-rickshaws and taxis
- Railway stations and bus terminals
- Highways and major road networks

## Roles and Responsibilities

- Worker Protection: Adjusting work schedules to avoid peak heat, providing hydration stations, and ensuring shaded rest areas.
- Passenger Safety: Equipping transport hubs with cooling facilities and sharing heat safety advisories.
- Vehicle Operations: Maintaining air conditioning systems and monitoring vehicle conditions to prevent heat-related issues.
- Coordination: Collaborating with health and District Disaster Management Authority for emergency responses.

## Pre-Heat Wave Actions:

- Ensure all transport systems have adequate ventilation and that roadside facilities are equipped with cooling and hydration resources.
- Generate awareness among drivers and staff on recognizing heat-related symptoms and handling emergencies.
- Design and construct shaded waiting areas at bus stops, railway stations, and transport hubs.
- Establish hydration stations along major travel routes and public transport locations.
- Develop heat-sensitive transport advisories for public awareness.

**During Heat Wave Actions:**

- Ensure public transport vehicles are ventilated or air-conditioned and provide drinking water on long-distance routes.
- Set up cooling and hydration facilities at bus stops and high-traffic areas.
- Issue advisories recommending reduced travel during peak heat hours.
- Issue real-time travel alerts and advisories on extreme heat conditions.
- Provide emergency medical assistance and hydration facilities at transit points.
- Ensure ventilation and cooling systems are functional in public transport vehicles.

**Post-Heat Wave Actions:**

- Review the effectiveness of transportation operations and plan for infrastructure improvements if required.
- Develop long-term plans to make transport infrastructure more resilient to extreme heat.
- Review and assess transport-related heatwave response effectiveness.
- Implement permanent shaded waiting areas and ensure adequate hydration points across transport networks.

# Information and Public Relations Department

## Objective

*Ensure consistent, accurate communication with the public regarding heat wave risks and safety measures.*

## Scope

These SOPs apply to all communication activities related to heat wave preparedness, response, and recovery, in alignment with the Uttar Pradesh Heat Wave Action Plan. This SOP outlines the role of the Information and Public Relations (I&PR) Department in:

- Planning, implementing, and monitoring public awareness campaigns.
- Disseminating early warnings and advisories related to heat waves.
- Supporting communication for inter-agency coordination.
- Ensuring accurate and timely information reaches the public, especially vulnerable populations.

## Roles and Responsibilities

- **Issuing Advisories:**
  - Release heat wave warnings based on India Meteorological Department (IMD) forecasts.
  - Share safety tips, such as staying hydrated, avoiding direct sunlight, and recognizing heat stroke symptoms.
  - Use multiple channels: print media, radio, television, social media, and SMS alerts.
- **Public Awareness Campaigns:**
  - Develop educational materials (posters, videos, infographics) on heat wave prevention.
  - Target vulnerable groups, including outdoor workers, elderly, and children.
  - Collaborate with local governments for community-level outreach.
- **Media Coordination:**
  - Provide regular press releases to update media on heat wave conditions and government actions.
  - Address misinformation promptly to maintain public trust.
  - Organize press conferences with health and disaster management officials as needed.
- **Public Engagement:**
  - Set up helplines or social media channels to answer public queries.
  - Collect feedback to improve communication strategies.

- Promote government relief measures, such as cooling centers or medical aid.

▪ **Inter-Departmental Collaboration:**

- Work with the Health Department to share medical advice.
- Coordinate with Urban Development for infrastructure updates.
- Support the UPSDMA in disseminating the Heat Wave Action Plan.

**Pre-Heat Wave Actions:**

- Develop pamphlets, infographics, social media posts, and media briefs about heat wave safety and distribute widely.
- Set up communication with media outlets for prompt dissemination of warnings and advisories.
- Develop and run public awareness campaigns on heatwave prevention and safety.
- Use radio, TV, newspapers, social media, and SMS alerts to inform people about heat risks.
- Ensure all heatwave alerts from the Indian Meteorological Department (IMD) are quickly shared with the public.
- Create educational videos and infographics on how to stay safe during extreme heat.
- Coordinate with schools, temple, mosques, and community centers to spread awareness.

**During Heat Wave Actions:**

- **Release Daily Updates:** Issue daily updates on heat wave conditions, preventive measures, and public resource locations.
- **Clear Public Messaging:** Use social media, local radio, and TV channels to reach diverse populations with consistent safety information.
- **Counter Misinformation:** Actively monitor for and address misinformation that may spread during the heat wave.
- Issue emergency heatwave warnings across all media channels.
- Broadcast safety guidelines like drinking water, avoiding direct sun exposure, and recognizing heatstroke symptoms in local languages.
- Collaborate with SDMA, Health, Education, Traffic police, Jal Nigam/Jalkal Board, Municipal and other line departments to have updates on emergency response services.
- Monitor and counteract misinformation about heat waves or health risks.

**Post-Heat Wave Actions:**

- Assess the reach and clarity of public messaging and collect feedback.
- Make adjustments to communication plans based on performance and suggestions received.
- Work with I/NGOs and UN partners to promote long-term climate adaptation messages.
- Continue public awareness campaigns on planting trees, heat-resistant construction, and proper home ventilation.

# Social Welfare Department

## Objective

*Protect vulnerable populations including the elderly, people with disabilities, and marginalized groups from heat-related risks by ensuring targeted support, shelter, and health services. It should also facilitate inclusive access to relief measures and awareness campaigns at the community level.*

## Scope

This SOP applies to all heat wave-related activities managed by the Social Welfare Department, including preparedness, response, and recovery, with a focus on vulnerable groups and social welfare institutions. This SOP outlines the role of the Social Welfare Department in:

- Identifying and supporting vulnerable populations during heat waves.
- Implementing protective measures in welfare institutions.
- Coordinating with other departments for effective heat wave management.

## Pre-Heat Wave Actions:

- Integrate heatwave preparedness into social protection programs, prioritizing vulnerable groups.
- Develop targeted awareness campaigns for women, elderly, and PWDs on heatwave risks and prevention measures.
- Establish coordination mechanisms with humanitarian agencies for rapid assistance during extreme heat events.
- Identify high-risk populations and develop a response plan for their evacuation and protection.
- Review and assess the condition of shelter homes, orphanages, and rehabilitation centers in the view of heat waves.
- Ensure functionalities of equipment installed at the centers such as water coolers, fans, air conditioners, air coolers, sheds, etc. Also, assess the crowd/number of people who live in the area/room to avoid suffocation during heat.
- Disseminate heat safety guidelines through community centers, welfare hostels, and social institutions, using simple, local language and inclusive formats (audio/visual for PWDs).
- Ensure that old age homes, hostels for SC/ST students, and shelters have functioning fans, cool drinking water, shaded areas, and medical kits.
- Advocate for the installation of cool roofs, green shade, or reflective paint in welfare housing.
- Collaborate with the Health, Rural Development, and Urban Development Departments to prepare joint action plans in vulnerable settlements and colonies.

**During Heat Wave Actions:**

- Provide financial aid and immediate relief to affected low-income families.
- Ensure inclusion of marginalized groups in emergency shelters and relief distribution efforts.
- Operate helplines for heatwave-related support, including emergency response coordination.
- Facilitate linkages with existing cash assistance programs to support vulnerable groups in coping with economic impacts.
- Activate local support mechanisms to check on the health and well-being of elderly, PwDs, and others living in welfare institutions.
- Ensure timely access to cooling centers and hydration points, especially in urban slums and remote areas.
- Distribute ORS packets, tarpaulins, umbrellas, and caps to economically disadvantaged groups.
- Facilitate temporary shelters or shaded community spaces for homeless or exposed populations.
- Maintain normal functioning of shelter homes and care homes with adjusted schedules to avoid heat exposure (e.g., early classes, indoor activities).
- Mobilize youth and SHG volunteers to check on vulnerable individuals and provide first-aid or assistance during emergencies.

**Post-Heat Wave Actions:**

- Assess the socio-economic impact of the heatwave on vulnerable communities.
- Enhance social safety net programs to provide sustained assistance during future heatwaves.
- Coordinate with the District Administration to assess losses or heat-related deaths among beneficiaries and support compensation or welfare schemes.
- Provide psychosocial support and counseling for the elderly or families that lost members due to heat stroke.
- Facilitate access to livelihood restoration or rehabilitation schemes for those affected.
- Use field data to advise the government on heat-inclusive social protection policies and recommend improvements in social housing and pension schemes for climate resilience.

# Department of Women and Child Development

## Objective

*To protect women, children, and pregnant/lactating mothers by ensuring access to cool shelters, hydration, nutrition, and heat-related health awareness through Anganwadi and outreach services.*

## Scope

This SOP applies to all heat wave-related activities managed by the Women and Child Development Department, including preparedness, response, and recovery, with a focus on vulnerable populations and social welfare institutions/Nutrition and Early Childhood Development Center like 'anganwadis'.

## Pre-Heat Wave Actions:

- Identify high-risk households with pregnant women, lactating mothers, malnourished children, and elderly women in collaboration with DDMA and health departments.
- Organize IEC (Information, Education, and Communication) campaigns in Anganwadi centers, schools, and women SHGs on heat wave risks and safety practices (hydration, shade, clothing).
- Focus on educating mothers and caregivers about heat-related illnesses in children and infants.
- Train Anganwadi Workers (AWWs) and ASHA workers on identifying symptoms of heat stress and emergency response.
- Equip them with first-level response skills to handle cases during heat emergencies.
- Ensure that Take-Home Ration (THR) and mid-day meals are not interrupted and are adjusted for summer conditions (e.g., light, high-water-content meals).

## During Heat Wave Actions:

- Ensure Anganwadi Centers (AWCs) operate with safe timings (e.g., early morning hours) and are equipped with cooling provisions (fans, drinking water, shaded areas).
- Support referral of severe cases of heat exhaustion or heat stroke, especially children and women, to the nearest health facilities.
- Distribute ORS, water, and electrolyte solutions through Anganwadi centers in highly affected areas.
- Encourage the use of locally available cooling foods and natural remedies.
- Monitor the health of pregnant women more closely, as they are highly vulnerable during heat waves.
- Coordinate with the Health and Family Welfare Department for mobile health check-ups if needed.

**Post-Heat Wave Actions:**

- Track post-heat wave health outcomes in children and women, e.g., dehydration, malnutrition, or related conditions and provide support accordingly.
- Collect community-level feedback from SHGs, Anganwadi staff, and mothers to assess effectiveness of heat response measures.
- Contribute inputs to SDMA for updating the Heat Action Plan (HAP).
- Empower Self-Help Groups (SHGs) to take up localized heat resilience projects (e.g., community shade shelters, water conservation, awareness drives).
- Identify cases of stress or trauma in women and children due to heat-related deaths or emergencies and connect them with counseling services if required.

# Labour Department

## Objective

*To safeguard workers, especially daily wage and outdoor laborers, by enforcing heat safety guidelines, adjusting work hours, and ensuring access to water, shade, and medical support at workplaces.*

## Scope

This SOP outlines the measures to be implemented by the Labour Department of Uttar Pradesh to protect workers, particularly those in outdoor and high-risk sectors such as construction, agriculture, and manufacturing, from the adverse effects of heat waves. It aims to ensure compliance with occupational safety standards, reduce heat-related illnesses, and promote worker welfare during extreme heat events. This involves coordination with employers, workers' unions, contractors, and other stakeholders to implement effective heat mitigation strategies.

## Roles and Responsibilities

The Labour Department, in coordination with other state agencies, employers, and stakeholders, is responsible for the following:

- **Awareness and Training**
  - Conduct awareness campaigns for employers and workers on heat wave risks, symptoms of heat-related illnesses (e.g., heat exhaustion, heatstroke), and preventive measures.
  - Distribute educational materials in Hindi and local dialects, using print, electronic, and social media.
  - Organize training sessions for supervisors to recognize heat stress symptoms and implement safety protocols.
  
- **Workplace Safety Measures**
  - Enforce compliance with the Factories Act, 1948, and the Minimum Wages Act, 1948, to ensure safe working conditions during heat waves.
  - Mandate employers to provide: Access to Drinking Water: Clean and potable water stations at all workplaces, especially outdoor sites.
  - Rest Breaks: Scheduled breaks in shaded or cooled areas during peak heat hours (11 AM–4 PM).
  - Shelters: Heat-proof shelters or shaded areas for rest at construction sites and

outdoor workplaces.

- Personal Protective Equipment (PPE): Lightweight, breathable clothing and cooling gear where applicable.
- Recommend rescheduling heavy manual labor to cooler parts of the day (e.g., early morning or late afternoon).

▪ **Monitoring and Enforcement**

- Deploy Labour Department inspectors to monitor compliance at high-risk workplaces (e.g., construction sites, brick kilns, factories).
- Issue advisories to employers to adhere to heat wave safety protocols, with penalties for non-compliance under relevant labour laws.
- Coordinate with the Health Department to ensure availability of Oral Rehydration Salts (ORS) and first-aid kits at workplaces.

▪ **Coordination with Other Departments**

- Collaborate with the Uttar Pradesh State Disaster Management Authority (UPSDMA) to integrate labour-specific measures into the state's Heat Wave Action Plan.
- Work with the Department of Housing and Urban Planning to promote cool roof applications and passive cooling designs in workplaces.
- Liaise with the Health Department to reserve hospital beds and ensure medical support for heat wave-affected workers.

▪ **Data Collection and Reporting**

- Maintain records of heat-related illnesses and fatalities among workers, ensuring uniform registration of cases.
- Investigate reported heat wave-related incidents in workplaces and submit findings to the respective DDMA and UPSDMA.

▪ **Support for Vulnerable Workers**

- Prioritize protection for unorganized sector workers, migrant labourers, and those in low-wage jobs who are most vulnerable to heat stress.
- Facilitate access to social welfare schemes, such as health insurance and compensation, for workers affected by heat-related illnesses.

**Pre-Heat Wave Actions:**

- Develop and enforce regulations ensuring heat safety measures for outdoor workers.
- Conduct mass awareness campaigns targeting construction workers and other outdoor laborers.
- Coordinate with employers to establish shaded rest areas, hydration stations, and regulated work hours.
- Ensure provision of cooling vests, hydration packs, and first aid supplies at work sites.

**During Heat Wave Actions:**

- Conduct workplace inspections to verify compliance with heat safety regulations.
- Ensure business owners and employers implement emergency protocols, such as heat breaks and shaded rest areas.
- Distribute oral rehydration salts (ORS) and first aid kits to outdoor workers.
- Provide emergency medical support and rapid response teams for heat-related illnesses.

**Post-Heat Wave Actions:**

- Evaluate the effectiveness of heatwave safety measures in workplaces and recommend improvements.
- Revise labour laws to include mandatory employer-provided heat protection measures.
- Integrate heatwave safety training into workforce development programs.

# Uttar Pradesh Fire Services

## Objective

*To remain on high alert for fire outbreaks, especially in urban, rural, forest, and industrial areas, and ensure rapid response and fire prevention measures during extreme heat conditions.*

The Uttar Pradesh Fire Services has an important supporting and preventive role in managing the risks associated with heat waves, especially considering the increased risk of fire incidents, forest fires, and industrial hazards during extreme heat. Their role spans across pre, during-, and post heat wave phases, in coordination with the State Disaster Management Authority (SDMA) and other departments.

## Scope

This SOP outlines the role and responsibilities of the Uttar Pradesh Fire Services (UPFS) in mitigating the impact of heat waves across Uttar Pradesh, focusing on preparedness, response, and coordination with other agencies. It applies to all fire stations, personnel, and operations within the 75 districts of Uttar Pradesh, as mandated by the Uttar Pradesh Fire Services Act of 1944 and its amendments. The SOP aligns with the Uttar Pradesh Heat Wave Action Plan 2025 and the broader framework of the National Disaster Management Authority (NDMA) for disaster risk reduction

## Roles and Responsibilities

Under the Heat Wave Action Plan, the UPFS is entrusted with the following responsibilities:

- **Fire Risk Assessment and Mitigation:** Conducting assessments to identify fire-prone areas, especially during peak summer months, and implementing measures to reduce fire hazards.
- **Emergency Response Preparedness:** Ensuring that fire stations are adequately staffed and equipped to respond promptly to fire incidents exacerbated by heat wave conditions.
- **Public Awareness Campaigns:** Collaborating with local authorities to educate the public on fire safety measures during heat waves, including safe use of electrical appliances and proper storage of flammable materials.
- **Coordination with Other Departments:** Working in coordination with health services, municipal bodies, and disaster management authorities to provide a unified response to heat-related emergencies.

## Pre-Heat Wave Actions:

- Identify fire-prone areas especially in urban slums, industrial zones, markets, forests, and storage areas of flammable materials.
- Map vulnerable public buildings and issue advisory guidelines for fire safety during heat conditions.
- Conduct fire safety inspections in schools, hospitals, industries, and public institutions to ensure preparedness for heat-induced fire hazards.
- Promote installation and maintenance of fire extinguishers, water tanks, and alarms in high-risk zones.
- Carry out fire safety awareness campaigns in coordination with local bodies, RWAs, and educational institutions.
- Conduct mock fire drills in vulnerable areas to build public response capacity.
- Prepare joint strategies to tackle forest and grassland fires, which increase during dry, hot weather.
- Coordinate with Urban Local Bodies to identify water sources to fetch water during emergencies.

**During Heat Wave Actions:**

- Be on high alert for increased incidents of fire, especially in open areas, electrical installations, factories, and crowded urban settlements.
- Deploy quick-response teams and ensure hydrant and water availability is functional in all major locations.
- Assist in evacuation and rescue operations where heat-triggered fires or incidents pose threats to life.
- Provide logistical support to ambulance and medical services in congested areas affected by heat and fire.
- Maintain standby fire tenders in places like markets, religious gatherings, and large public events during extreme heat conditions.

**Post-Heat Wave Actions:**

- Conduct post-incident analysis of any fire outbreaks during the heat wave to determine causes and improve future preparedness.
- Review the performance of fire services during the heat wave and identify needs for equipment upgrades, training, or new fire stations in uncovered areas.
- Share detailed reports with SDMA on fire-related incidents, response times, and challenges faced during the heat wave period.
- Contribute to urban heat and fire risk mitigation plans, recommending better urban design, green buffers, and fire-resistant infrastructure.

# Uttar Pradesh Traffic Police

## Objective

*To ensure smooth traffic flow, assist commuters during heat emergencies, and coordinate provision of water and shade at major intersections and traffic congestion points.*

## Scope

This SOP outlines the measures and responsibilities of the Uttar Pradesh Traffic Police to ensure the safety and well-being of traffic police personnel and the public during heat wave conditions in Uttar Pradesh. The SOP is applicable to all traffic police personnel across Uttar Pradesh, particularly those stationed in high-temperature zones such as Lucknow, Kanpur, Jhansi, and Prayagraj. It outlines protocols for preparedness, response, and coordination during heatwave conditions. The SOP aims to mitigate heat-related illnesses, maintain effective traffic management, and ensure public safety under extreme weather conditions.

## Roles and Responsibilities

- **Traffic Police Headquarters**
  - Policy Formulation: Develop and update guidelines for heat wave management, incorporating inputs from health and disaster management authorities.
  - Resource Allocation: Procure and distribute heat-mitigation equipment such as AC helmets, cooling jackets, portable fans, umbrellas, and hydration supplies (water, glucose, ORS, buttermilk).
  - Training: Conduct pre-summer training sessions for personnel on heat stress prevention, symptom recognition, and first aid for heat-related illnesses.
  - Monitoring: Coordinate with the Uttar Pradesh State Disaster Management Authority (UPSDMA) to monitor heat wave forecasts and issue advisories.
  
- **District Traffic Police Units**
  - Implementation: Ensure adherence to the SOP at all traffic posts and intersections.
  - Equipment Distribution: Provide personnel with necessary protective gear and hydration supplies, as seen in Kanpur's trial of Aironic Air Conditioned Safety Helmet.
  - Scheduling: Adjust duty rosters to minimize exposure during peak heat hours (2 p.m. to 5 p.m.), allowing personnel to take breaks in shaded areas or traffic kiosks.
  - Health Monitoring: Assign medical officers to conduct regular health check-ups for personnel, focusing on symptoms of heat exhaustion and heatstroke.

- **Traffic Police Personnel**

- Compliance: Use provided protective equipment (e.g., Aironic Air-Conditioned Safety Helmet, sunglasses, caps) and follow hydration protocols (carry water, consume glucose/ORS).
- Vigilance: Report heat-related symptoms immediately and seek shade during low-traffic periods, as practiced in Hyderabad where personnel use traffic umbrellas.
- Public Assistance: Educate motorists and pedestrians about heat wave safety, such as carrying water and avoiding midday travel.

- **Collaboration with External Agencies**

- Health Department: Coordinate for emergency medical support and heatstroke treatment facilities at nearby hospitals.
- NGOs and Local Bodies: Partner for additional resources, such as water campers or cooling stations, as done in Jaipur.
- Meteorological Department: Use heat wave alerts to plan operations and personnel deployment.
- Emergency Response: Coordinate with emergency services to manage heat-induced incidents, such as road accidents due to heat-induced fatigue.

- **Public Awareness:**

- Information Dissemination: Use public address systems and signage to inform commuters about heatwave precautions and available assistance.
- Assistance Booths: Set up help desks at busy intersections to provide water and first aid to commuters in distress.

**Pre-Heat Wave Actions:**

- Identify and mark high-risk areas like long, unshaded roads where people may suffer from heat exposure.
- Coordinate with local governments to ensure the construction of shaded waiting areas at bus stops.
- Educate drivers, bikers, and pedestrians on staying hydrated and recognizing heat exhaustion.
- Ensure that public transport is available early in the morning and late in the evening to reduce travel in peak hours.

**During Heat Wave Actions:**

- Manage traffic congestion during extreme heat to prevent roadblocks and accidents in major cities and nearby hospitals and Schools.
- Ensure priority clearance for ambulances and emergency vehicles during heat-related medical emergencies.
- Assist in setting up water distribution points at major intersections.
- Issue traffic advisories and travel restrictions during peak heat hours.
- Coordinate with ULBs to install temporary sheds at the crowded crossing to get relief from direct sunlight during peak hours.

**Post-Heat Wave Actions:**

- Review heatwave-related traffic incidents and emergencies to improve future preparedness.
- Enforce long-term regulations on heavy traffic movement during extreme heat conditions.

# Civil Society Organisations (CSOs)/ Non-Governmental Organisations (NGOs)/ Agencies

## Objective

*To support awareness, community outreach, and last-mile delivery of relief services to vulnerable populations in coordination with government efforts.*

## Scope

The SOP applies to all CSOs and NGOs operating in Uttar Pradesh engaged in disaster risk reduction, public health, humanitarian aid, community development, or climate resilience activities. It covers:

- **Prevention and Preparedness:** Actions to reduce heat wave risks before the onset of extreme heat.
- **Response:** Immediate measures during a heat wave to protect lives and livelihoods.
- **Recovery:** Post-heat wave activities to restore community well-being and build resilience.
- **Advocacy and Awareness:** Educating communities and influencing policy for sustainable heat wave management.
- **Geographic Focus:** Urban and rural areas of UP, with emphasis on heat-prone districts.

## Roles and Responsibilities

CSOs and NGOs are responsible for:

- Mobilizing local communities to adopt heat wave preparedness and response measures.
- Collaborating with state and district authorities, including the Uttar Pradesh State Disaster Management Authority (UPSDMA), health departments, and local panchayats.
- Providing essential services such as hydration points, cooling shelters, and medical support during heat waves.
- Capacity building training community volunteers and local leaders on heat wave management
- Documenting heat wave impacts and sharing data with relevant authorities to improve response strategies.
- Promoting policies and practices for climate-resilient infrastructure and equitable resource distribution.

**Pre-Heat Wave Actions:**

- Establish strong coordination mechanisms with SDMA and DDMA at district and state levels to ensure preparedness.
- Conduct heatwave risk assessments and identify high-risk communities.
- Develop contingency plans and pre-position ORS (Oral Rehydration Salts), cold water, and essential medical supplies.
- Train healthcare workers, volunteers, and community responders on first aid, heat stress symptoms, and emergency response protocols.
- Launch awareness campaigns in local languages educate communities about heatwave risks and safety measures.
- Promote sustainable solutions such as tree plantation drives, urban greening projects, and heat-resistant infrastructure improvements.

**During Heat Wave Actions:**

- Mobilize emergency response teams to provide immediate relief in affected areas.
- Set up heatwave relief camps equipped with cold water stations, shaded rest areas, and first aid services.
- Distribute ORS, cooling packs, and necessary medications, prioritizing vulnerable groups such as the elderly, PWDs, children, and pregnant & lactating women.
- Work closely with health authorities and district authorities to support heat stabilization centers for critical patients.
- Strengthening public communication and awareness efforts to reinforce life-saving heatwave safety measures.

**Post Heat Wave Actions:**

- Assess the impact of the heatwave and document lessons learned for future preparedness.
- Rehabilitate affected communities by supporting livelihood recovery and sustainable initiatives.
- Enhance climate adaptation strategies by advocating for long-term policy changes, urban tree cover expansion, and infrastructure resilience programs.
- Provide technical and financial support for community-led heat mitigation solutions, such as green rooftops and reflective housing materials.
- Provide feedback to SDMA and DDMA during coordination and learning sharing meetings.

## District wise Heat threshold for Uttar Pradesh

SL NO	District	Heat Threshold		
		Yellow Alert	Orange Alert	Red Alert
1	AGRA	40.54	43.08	45.26
2	ALIGARH	40.03	42.55	44.78
3	AMBEDKAR NAGAR	39.67	42.20	44.36
4	AMETHI	39.87	42.43	44.55
5	AMROHA	39.33	42.00	44.33
6	AURAIYA	40.44	43.01	45.11
7	AYODHYA	39.67	42.20	44.36
8	AZAMGARH	39.98	42.58	44.71
9	BAGHPAT	39.61	42.01	44.43
10	BAHRAICH	38.81	41.26	43.44
11	BALLIA	39.18	41.62	43.83
12	BALRAMPUR	38.45	40.72	42.94
13	BANDA	40.58	43.30	45.31
14	BARABANKI	39.68	42.24	44.38
15	BAREILLY	39.34	42.00	44.25
16	BASTI	39.27	41.73	43.93
17	BHADOHI	40.28	42.98	45.02
18	BUNOR	36.47	39.08	41.48
19	BUDAUN	39.92	42.52	44.72
20	BULANDSHAHR	39.74	42.29	44.63
21	CHANDAULI	39.52	42.26	44.38
22	CHITRAKOOT	39.86	42.64	44.66
23	DEORIA	39.08	41.50	43.67
24	ETAH	40.22	42.80	44.93
25	ETAWAH	40.50	43.05	45.15
26	FARRUKHABAD	40.01	42.59	44.75
27	FATEHPUR	40.37	43.03	45.10
28	FIROZABAD	40.50	43.05	45.15
29	GAUTAM BUDH NAGAR	39.96	42.40	44.69
30	GAZIPUR	39.71	42.31	44.48
31	GHAZIABAD	39.55	42.11	44.48
32	GONDA	39.36	41.82	43.94
33	GORAKHPUR	39.38	41.85	44.08
34	HAMIRPUR	40.51	43.21	45.27
35	HAPUR	39.33	42.00	44.33
36	HARDOI	39.73	42.35	44.49
37	HATHRAS	40.30	42.87	45.05
38	JALAUN	40.55	43.23	45.34
39	JAUNPUR	39.98	42.58	44.71
40	JHANSI	40.40	43.05	45.14
41	KANNAUJ	40.10	42.63	44.74
42	KANPUR NAGAR	40.51	43.21	45.27
43	KANPUR DEHAT	40.26	42.86	44.96
44	KASGANJ	39.65	42.29	44.50
45	KAUSHAMBI	40.52	43.23	45.24
46	LAKHIMPUR KHERI	39.30	41.87	44.11
47	KUSHINAGAR	38.75	41.08	43.30
48	LALITPUR	39.07	41.66	43.80
49	LUCKNOW	39.94	42.55	44.65
50	MAHARAJGANJ	38.49	40.84	43.05
51	MAHOPA	40.48	43.21	45.30
52	MAINPURI	40.26	42.80	44.92
3	MATHURA	40.40	42.95	45.12
54	MAU	39.39	41.89	44.14
55	MEERUT	39.33	42.00	44.33
56	MIRZAPUR	39.88	42.65	44.69
57	MORADABAD	39.02	41.69	43.97
58	MUZAFFAR NAGAR	38.47	41.19	43.65
59	PILIBHIT	38.82	41.50	43.91
60	PRATAPGARH	40.14	42.77	44.88
61	PRAYAGRAJ	40.53	43.15	45.21
62	RAIBEARELI	40.24	42.88	45.02
63	RAMPUR	39.34	42.00	44.25
64	SAHARANPUR	38.19	41.01	43.65
65	SAMBHAL	39.59	42.21	44.41
66	SANT KABIR NAGAR	38.94	41.30	43.51
67	SHAHJAHANPUR	39.50	42.05	44.30
68	SHAMLI	39.16	41.81	44.29
69	SHRAWASTI	39.05	41.39	43.49
70	SIDDHARTH NAGAR	37.83	40.05	42.25
71	SITAPUR	39.51	42.08	44.26
72	SONBHADRA	39.02	41.80	43.95
73	SULTANPUR	39.87	42.43	44.55
74	UNNAO	40.12	42.73	44.82
75	VARANASI	40.12	42.72	44.83



# UTTAR PRADESH STATE DISASTER MANAGEMENT AUTHORITY

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