Heat Wave Action Plan

(2024)

HP State Disaster Management Authority

Disaster Management Cell

Department of Revenue

HP Secretariat, Shimla-2

Content

Chapter-1

1. Introduction

Heat waves is associated with decreases in general population well-being and with increases in mortality and morbidity, especially in vulnerable population groups. Temperature thresholds for health impacts differ according to the region and season. The impact of heat wave has been considerably enough to threaten human health both directly and indirectly. The number of heat extremes has substantially increased across globe in recent decades. It is virtually certain that the length, frequency and intensity of heat waves will increase in the future. This increase will lead to a substantial increase in mortality over the next decades, especially in vulnerable population groups, unless adaptation measures are taken.

The latest World Meteorological Organisation statement on global climate during 2018 indicated that the global temperature continues to increase and 2015, 2016, 2017 and 2018 have been confirmed as the four warmest years on record. The extreme weather and climate condition have continued into 2020.

1.2. Definition:

Heat wave is: Heat wave is a condition of atmospheric temperature that leads to physiological stress, which sometimes can cause deaths as well. The World Meteorological Organization defines a heat wave as five or more consecutive days during which the daily maximum temperature exceeds the average maximum temperature by five degrees Celsius. Different countries define heat wave differently in context of their local conditions. In India, as per IMD classification, heat wave is considered if maximum temperature of a station reaches at least 40°C or more for plains, 37°C or more for coastal stations and at least 30°C or more for hilly regions. Following criteria are used to declare a heat wave:

a. 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

b. Based on Actual Maximum Temperature (for plains only)

a. Heat Wave: When actual maximum temperature ≥ 45°C
b. Severe Heat Wave: When actual maximum temperature ≥47°C

To declare a heat wave, the above criteria should be met at least at two stations in a Meteorological sub-division for at least two consecutive days. A heat wave will be declared on the second day.

The level of heat discomfort is determined by a combination of meteorological (temp, RH, wind, direct sunshine), social/cultural (clothing, occupation, accommodation) and physiological (health, fitness, age, level of acclimatization) factors. There will be no harm to the human body if the environmental temperature remains at 37° C. Whenever the environmental temperature increases above 37° C, the human body starts gaining heat from the atmosphere. If humidity is high, a person can suffer from heat stress disorders even with the temperature at 37°C or 38°C as high humidity does not permit loss of heat from human body through perspiration.

1.2. Purpose and Aim

HPSDMP is the primary agency with responsibility for the hazard of heatwave. The purpose of the Heatwave Management Plan (this plan) is to outline the arrangements for the management of heatwaves in Himachal Pradesh across preparedness, response and recovery. The aim of this plan is to enable Himachal Pradesh to mitigate the effects of, prepare for, respond to, and recover from heatwaves.

1.3. Necessity of Heat Wave Action Plan

There is a need of a coordinated multi-agency approach to the state's management of heatwaves. At present, the problem of heat waves is being managed at an operational level but it needs to be managed at a strategic level. There is the need for clear roles and responsibilities in the management of heat waves, sufficient strategic monitoring, and greater clarity around triggers for activation and sharing of data across multiple systems and mapping or analysis of the extreme heat impacts across the community.

1.4. Objective of Action Plan on Heat wave

I. The Heat Wave Action plan aims to provide a framework for implementation, coordination and evaluation of extreme heat response activities in cities/ towns/Panchayats that reduce the negative impact of extreme heat.

II. The Plan's primary objective is to alert those at risk of heat-related illness in places where extreme heat conditions either exist or are imminent, and to take appropriate precautions.

III. The Plan also calls for preparedness measures to protect livestock/animals as extreme heat causes significant stress to them as well.

IV. The heat wave action plan is intended to mobilize departments and communities against avoidable health problems during spells of very hot weather.

V. The Plan also intends to help early warning agencies as well as the media. Taking all administrative/preventive actions that need to be taken by multiple agencies.

1.5. Goals

Recurring /Regular Activities

I. Developing and Display of colour heat wave alerts and Do's and Don'ts in public domains such as hospital, offices, etc.

II. Multiple medium of communication (preferably in local languages) like TV, Radio and newspaper for awareness.

III. Identify and reduce awareness gap through disseminating of information using pamphlets hoardings, LED display on advertisement boards.

IV. Change in timings of school, college, office, markets, etc.

Short-Term

(I) Installing temporary kiosks for shelter, and distribution of water medicines, etc

(II) Developing mobile application for spreading awareness on heat-related issues and locating shelters, drinking water kiosks, etc.

(III) Issuing advisories for locals and tourists.

(IV) Setting up special cool shelters for "Wage Employment Programmes" such as Mahatma Gandhi National Rural Employment Guarantee Scheme (MNREGA).

(V) Providing shade and drinking water for on-duty traffic personnel & other pedestrians.

Medium Term

(I) LED Display boards installed at District Headquarters displaying the real-time weather data pertaining to Rainfall, Temperature, Humidity and Wind Speed should be incorporated into precautionary measures for Disaster Management.

(II) Involving departments of the Government for collating local coping and adaptation strategies, indigenous technologies such as vernacular building materials, construction of the green building, Energy Conservation Building Code (ECBC)etc. related to heat wave risk mitigation.

(III) New heat wave criteria must be evolved based on gridded data with maximum and minimum temperature, to develop a scientific model to determine all-cause mortality.

(IV) Identify "heat hot-Spots" in State through appropriate tracking and modelling of meteorological data and promote the timely development and implementation of local Heat Wave Action Plan with strategic inter-agency co-ordination, and response which targets the most vulnerable groups.

Long Term

(I) Focused capacity building-Heat wave mitigation management should be added in school curriculum to sensitize school children and local people. Training programmes in local level/ community level for awareness among people.

(II) Integrate climate variability mitigation and adaptation efforts in HAP.

(III) Yearly improvisation of heat wave plan through response and feedback data Collection.

(IV) Operational forecast of maximum temperature over India in short, Medium and extended range timescale is very useful in giving Heat Wave outlook.

(V) Upgradation of forecast system and associated equipment to provide heat wave alerts minimum of 2 to 3 weeks prior to the event.

(VI) Health-harming air pollution apportionment studies, emission inventories, and health impact assessment of ambient and household air pollution through State-wise Clean Air Action Plan and use these findings to inform policies targeted at reducing the main sources of pollution via an inter-ministerial approach.

(VII) Evaluation of cascading effects of heat waves over flood, drought and hydrological models.

(VIII) Involvement of academia along with collaboration and more participation from higher educational institutes may be developed. The centres for excellence and dedicated research centres may have a pivotal role to play.

2. Key Strategies

Severe and extended heat waves can also cause disruption to general, social and economic services. Government agencies will have acritical role to play in preparing and responding to heat waves at the local level, working closely with health and related departments on a long-term strategic plan.

a) Establish early Warning System and Communication System.
b) Developing inter- agency response plan and coordination in field
c) Preparedness at the local level for health eventualities
d) Health care system capacity building
e) Public awareness and community outreach
f) Collaboration with private, non-government and civil society
g) Assessing the impact- feedback for reviewing and updating the plan

Source: NDMA Guidelines for Preparation of Action Plan- Prevention and Management of Heat-Wave-2019

Chapter-2

2.1. Physical Details of HP

The State of Himachal Pradesh has a geographical area of 55,673 sq km, which constitutes 1.69% of the geographical area of the country. The State lies between 30º22'N to 33º12'N latitude and 75º45' E to 79º04' E longitude and is bordered by Jammu & Kashmir in the North, Punjab in the West, Haryana in the South and Uttarakhand in the Southwest. The State has international border with China in the East.

Predominantly a mountainous State in the western Himalayas, the State has three distinct regions viz

1. The Shiwaliks with altitude upto 1,500 m,
2. Middle Himalayan region between 1,500 m to 3,000 m
3. the Great Himalaya/ Himadris higher than 3,000.

About one third of the area in the State is permanently under snow, glaciers and cold desert. The tree growth is minimal in this region due to harsh conditions. The average annual rainfall is about 1,800 mm. The temperature varies from sub-zero to 35°C. The Satluj, Beas, Ravi, Chenab and Yamuna are the important rivers of the State. The State has 12 districts all of which are hill districts. The Districts are further Sub-Divided into 69 Sub-Division. As per the 2011 census, Himachal Pradesh has a population of 6.86 million accounting for 0.57% of India's population. The rural and urban population constitutes 89.97% and 10.03% respectively. The population density of the State is 123 per sq km which is much lower than the national average. The 19th livestock census 2012 has reported a total livestock population of 4.84 million.

2.2. Temperature

The State shows a significant increasing trend of 0.06°C/year on annual mean maximum temperatures and 0.02°C/year on annual mean temperatures for the 1951–2010 time period. The annual mean minimum temperatures have shown a decreasing (–0.01°C/year) trend over the State for the same time period (Rathore et al. 2013) (Figure 2.1, left). The seasonal mean temperature trends for the 1951–2010 period shows a significant increasing trend for most seasons viz. winters (0.02°C/ year), monsoons (0.03°C/year) and post-monsoon (0.02°C/year) but not significantly increasing for summers (0.01°C/year) (Rathore et al. 2013) (Figure 2.1, right).

A short-term analysis has shown that the rate of increase in maximum temperature is observed to be greater over higher latitudes as compared to lower latitudes, and the rate of warming in north-western Himalayan region have been significantly higher than the global average. The winter air

temperature in the last two decades has also shown a clear increasing trend over the observation stations of Shimla and Solang and over the entire State region as well (Bhutiyani et al. 2007; HP-SAPCC 2012).

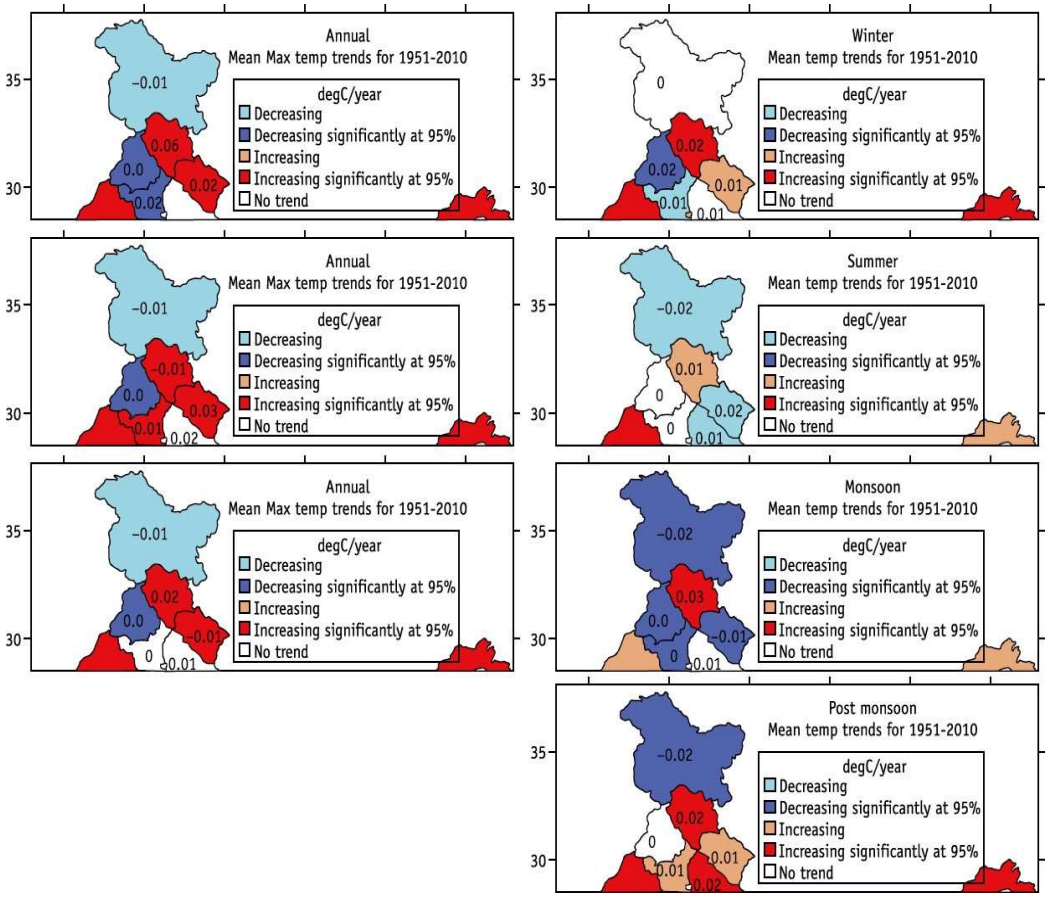


Figure 2.1: Trends in annual maximum, minimum, and mean temperatures (on left) and trends in seasonal mean temperatures (on right) for 1951–2010 period
Source: IMD monograph: ESSO/IMD/EMRC/02/2013

2.3. Temperature extremes as per Climate Modelling

Analyse of future climate over the State using the regional model simulations at 25 km × 25 km resolution are being carried out. The model used in the study is Providing Regional Climates for Impacts Studies (PRECIS) Model.

Mean annual maximum temperature (Tmax) over the State is projected to increase by 1.1–1.9°C (Figure 2.2). The mean annual minimum temperature (Tmin) is also projected to increase over the study domain area in the range 1.5–1.9°C (Figure 2.3). Relatively larger changes projected for minimum temperatures for the future. These findings corroborate with the historical trends over India, which have seen increase in minimum temperature to contribute more

than maximum temperature for the increase in mean temperature over the baseline period (1970–2000) (also see INCCA report, MoEF 2010) Increase in minimum temperature has many impacts not only over plants, crops but over human comfort as well. This also indicates that night time temperatures also will increase in the near future relative to the baseline period.

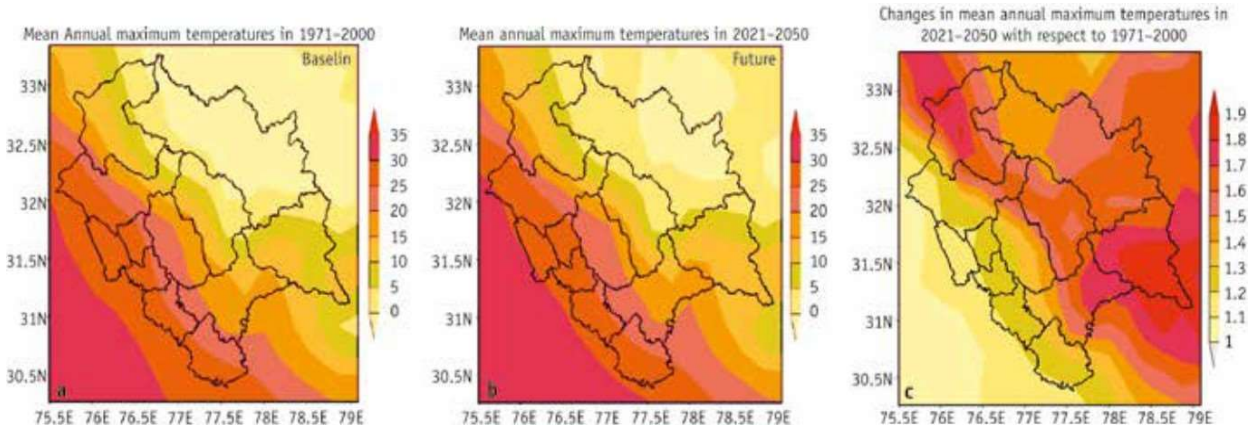


Figure 2.2: Mean annual maximum temperature (Tmax)

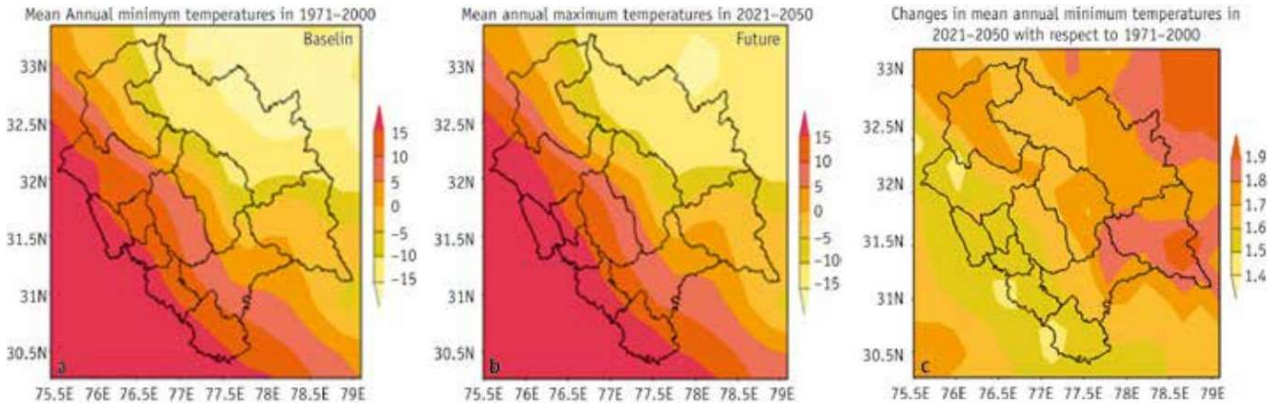
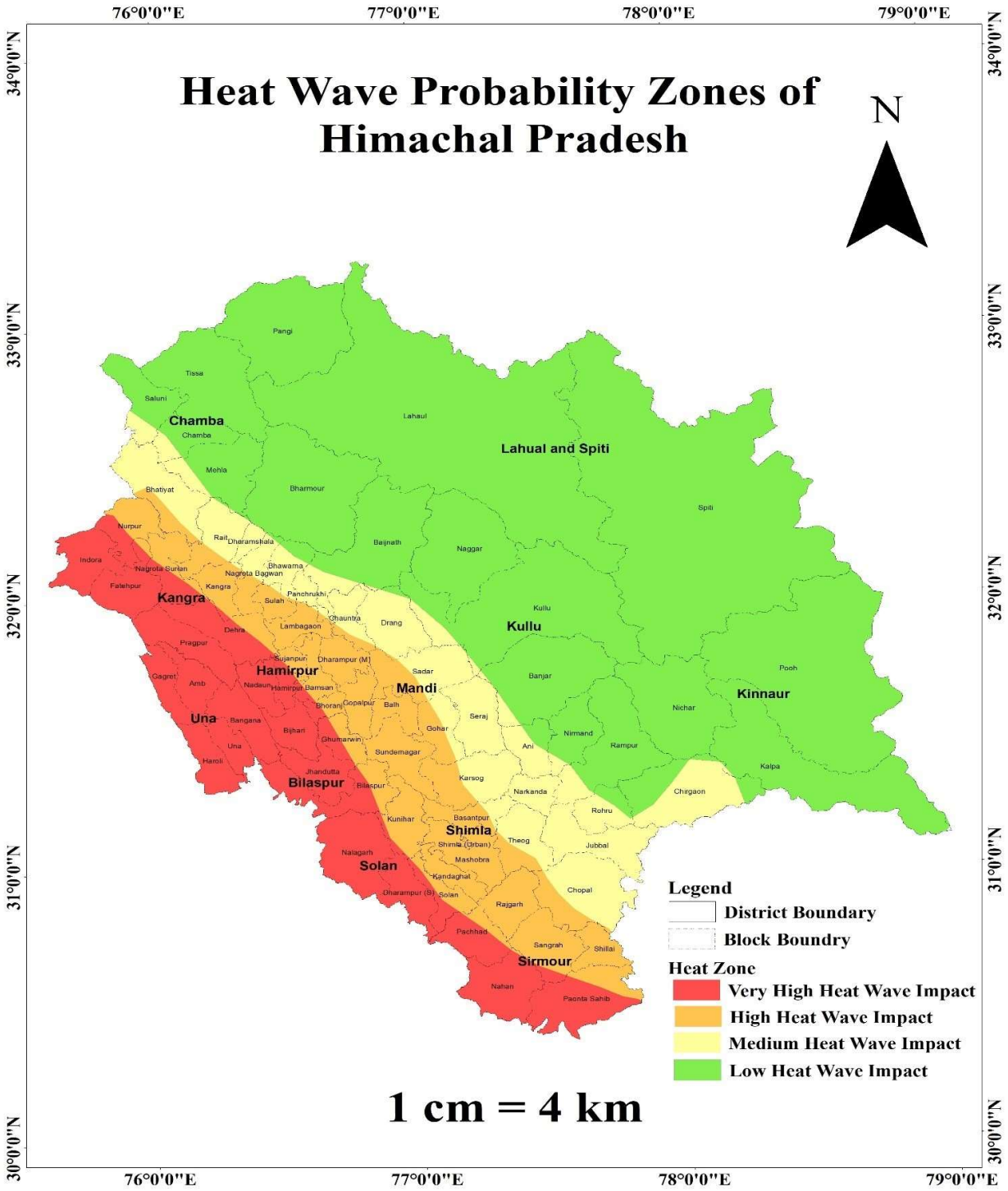


Figure 2.3: Mean Annual Minimum Temperature (Tmin)

2.4. Heat Wave Vulnerability Assessment



2.5. Related Hazards

Extreme heat can help create the conditions for drought and can exacerbate the impacts of drought by putting additional stress on available water supplies. Extreme heat can also lead to increased storm activity, which is linked to both

high wind and flash flood hazards. It can also contribute to the spread of wildfires.

2.6. Vulnerable Groups of Population

Extreme heat does not impact all people equally. Some people are more vulnerable to extreme heat and its impacts than others. It is important to identify the more vulnerable areas and populations of the State in order to establish priorities and minimum thresholds for heat alerts and activities. Incorporating information about vulnerable population groups within the city will help planners create effective, targeted strategies for reaching and protecting these groups. This will make the heat action plan more robust and equitable for all of the State residents. Following may be considered as vulnerable group:

a. Young children
b. Pregnant Women & Nursing mothers
c. Older people mainly above the age of 60
d. Below Poverty Line (BPL) families with no or poor housing conditions
e. Infirm, isolated, and destitute
f. People with pre-existing medical conditions (e.g., cardiovascular and respiratory illness, diabetes), people on certain medications
g. People with limited mobility, impairment of thermoregulatory capacity and reduced ability to perceive changes in temperature
h. People engaged in outdoor occupations (MNREGA)

Once people at risk have been identified special care and interventions need to be implemented through the local health care and social services. It is important that those who are susceptible can be easily identified for outreach services. Possible methods of identification include local community groups and social services and active registration of individuals with a general practitioner or social services.

Chapter-3

Early Warning and Communications

India Meteorological Department (IMD), Ministry of Earth Sciences, is the nodal agency for providing current and forecast weather information, including warnings for all weather-related hazards for optimum operation of weather-sensitive activities. It provides warning against severe weather phenomena like tropical cyclones, squally winds, heavy rainfall/ snow, thunder-squall, hailstorm, dust storms, heat wave, warm night, fog, cold wave, cold night, ground frost, etc. It also provides real time data and weather prediction of maximum temperature, heat wave warning, extreme temperatures, and heat alerts for vulnerable cities/rural areas.

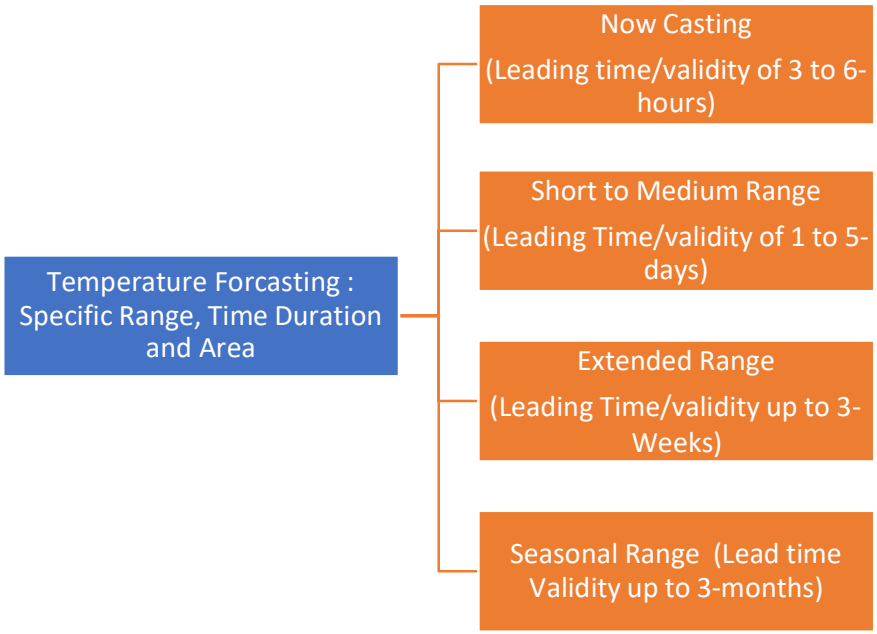
IMD issues forecasts and warnings for all weather-related hazards in short to medium range (valid for the next five days) every day as a part of its multi-hazard early warning system. These warnings, updated four times a day, are available at ***http://www.imd.gov.in/pages/ allindiawxfcbulletin.php.***

A new system of exclusively heat-related warnings has been introduced with effect from 03 April 2017. These warnings, valid for the next 5(five) days, are issued around 1600 hours IST daily and are provided to all concerned authorities (Departments of Health, Disaster Management, Indian Red Cross and Indian Medical Association, NDMA etc.) for taking suitable action at their end. A bulletin in extended range with outlook for the next two weeks (for all hazards including heat wave) is issued every Thursday (available at ***http://www.imd.gov.in/ pages/extended.php***).

In addition to the above, Climate Forecast System based forecasts maps of daily maximum temperatures and their departures from normal for the next 21 days (issued every Thursday) are also available on IMD website ***(http://nwp.imd.gov.in/cfs_all.php?param=tmax*** & (***http://nwp.imd.gov.in/cfs_all.php?param=tmaxa, respectively).***

From 2016, IMD has introduced a system of issuing seasonal temperature outlooks for the next three months. For 2017, the first outlook valid for March to May was issued on 28 February 2017; and the second one valid for April to June was issued on 02 April 2017. These seasonal outlooks are issued in the form of a press release on the IMD website, and through electronic and print media. These are also provided to all concerned Chief Secretaries, Disaster Managers and to the health sector through the India Medical Association (IMA).

The operational system of weather forecasts and warnings is summarized in the chart below:



3.1. Heat-Related Threshold

IMD gives a Heat Wave forecast particularly during the months from March to mid-June. The cut off temperatures for Heat Wave Forecast are:

- 40°C or more for plains,
- at least 30°C or more for hilly regions.

The IMD also provides warnings based on heat index (based on temperature and humidity). The reliability of these forecasts is up to a level of 85%. It disseminates information directly to Relief Commissioner (RC) and Himachal Pradesh State Disaster Management Authority (HPSDMA) all DDMAs along with various state agencies, Doordarshan, All India Radio (AIR) and other media houses by mails. In case of an expected Heat Wave, mails are also sent to all the district collectors for alertness and preparedness for action.

3.2. Identification of Colour Signals for Heat Alert

IMD currently follows a single system of issuing warnings for the entire country through a colour code system as given below (Figure-4). This system advises on the severity of an expected heat hazard. However, threshold assessments carried out in different parts of the country tells us that there are different cut-off points that determine the warning signals appropriate for a specific state/region. The States should, therefore, carry out their respective threshold assessments for mortality and provide the information to IMD so that it can provide specific warning alerts to those States.

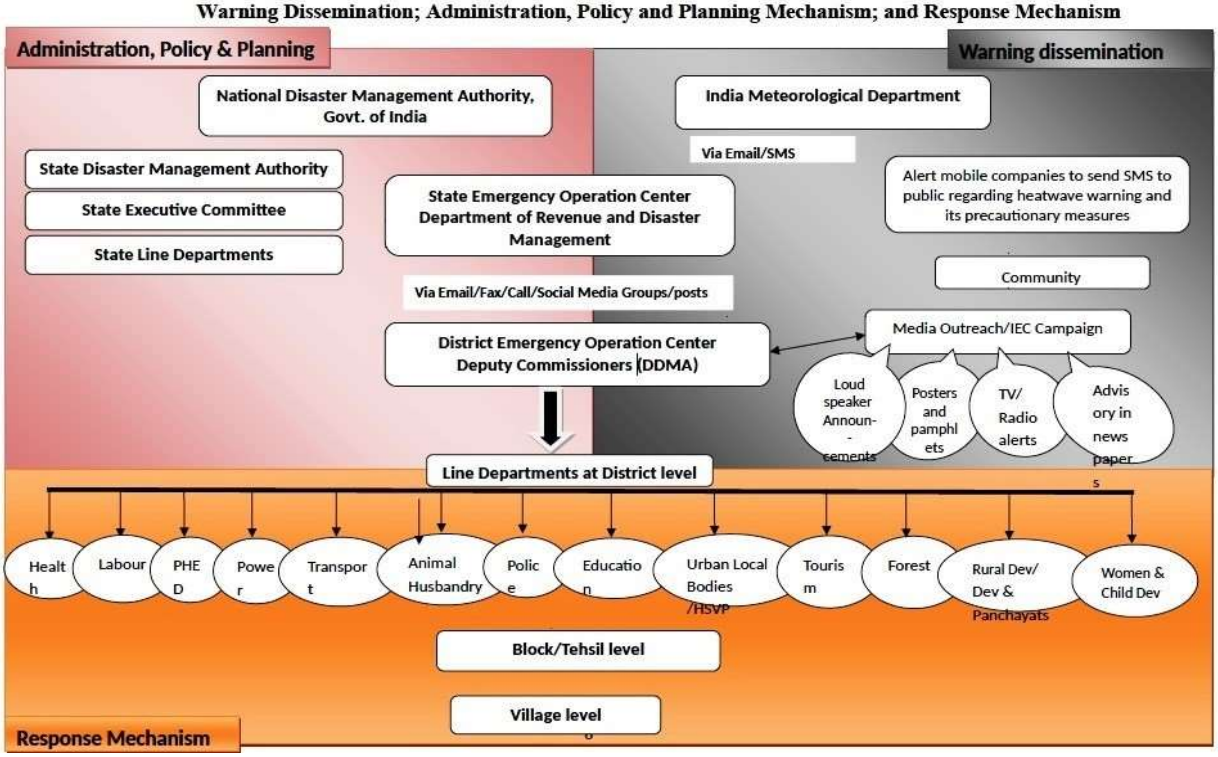
Colour Code	Alert	Warning	Impact	Suggested Actions
Green (No action)	Normal Day	**Nil**	Comfortable temperatures	No cautionary
Yellow Alert (Be updated)	Heat Alert	Heat wave conditions at district level, likely to persist for 2 days	Heat is tolerable for general public but moderate health concern for vulnerable people e.g. infants, elderly, people with chronic diseases.	Avoid heat exposure
Orange Alert (Be prepared)	Severe Heat Alert for the day	i. Severe heat wave conditions likely to persist for 2 days. ii. ith varied severity, heat wave is likely to persist for 4 days or more.	Increased likelihood of heat illness symptoms in people who are either exposed to sun for a prolonged period or doing heavy work. High health concern for vulnerable people e.g. infants, elderly, people with chronic diseases.	Avoid heat exposure– keep cool. Avoid dehydration
Red Alert (Take Action)	Extreme Heat Alert for the day	I.Severe heat wave likely to persist for more than 2 days. I.Total number of heat/ severe heat wave days likely to exceed 6 days.	Very high likelihood of developing heat illness and heat stroke in all ages.	Extreme care needed for vulnerable people.

Impact & action suggested by NDMA Guideline on heat wave-2019

3.3. Heat Alert Warning System

Early warning systems can enhance the preparedness of decision-makers and their readiness to harness favourable weather conditions. Early warning systems for natural hazards is based both on sound scientific and technical knowledge. Accurate and timely alert systems are essential. Collaboration with India Meteorological Department (IMD) is needed to develop heat warning systems (HWS), trigger a warning, determine the threshold for action and communicate the risks. It also provides real-time data and weather prediction of maximum temperature. The IMD issues a weekly bulletin with the Current Temperature Status and Warning for next five days. The Himachal Pradesh State Disaster Management Authority and State Emergency Operation Centre instantly share this info to the District Disaster Management Authority and District Emergency Operation Centre. The District Administration communicates this in multiple channels to the public.

Warning Dissemination; Administration, Policy and Planning Mechanism; and Response Mechanism



- Heat wave forecast is transmitted to all other concerned authorities through email by Himachal Pradesh State Emergency Operation Centre (HPSEOC). The warning is sent to District Emergency Operation Centre which is further transmitted to DC, SP, ADC/ADM, ASP, SDMs and Tehsildars and all the heads of line departments through mass text and image message in the WhatsApp group to all.
- Issue of heat alert when extreme heat events are forecast by IMD to all key Departments / Agencies through SEOC.
- Department of Public and Relation Dissemination of heat alerts/advisories, Do's and Dont's in various district level as well local Hindi/ English Daily newspapers and other electronic social media.
- Dissemination through Doordarshan (DD) and All India Radio (AIR)
- Activation of the DEOCs with inter-departmental personnel with vide publicity of Toll-Free No: 1077.

Chapter-4
Dealing with Heat Related Illness, Mitigation and Preparedness

Heat illness results when the body is out of heat balance. Heat balance means that the heat the body produces equals the heat it loses. When the body is out of heat balance, it produces and retains more heat than it loses causing heat illness. Heat illnesses range from heat rash and heat cramps to heat exhaustion and heat stroke. Heat stroke can result in death and requires immediate medical attention. Heat building-up inside the body from moving muscles during physical work activities is the major source of heat build- up in the body. The more strenuous the physical activity, the more internal heat the body produces. Performing physical work activities when risk factors for heat illness are present increases the internal heat the body produces.

Added to this internal heat is the external heat load on the body which comes from working where environmental risk factors (e.g., hot air, direct sunlight or lack of effective shading) are present. A major danger from warm and hot weather, high relative humidity and lack of air movement is that these factors greatly slow the body's natural processes of releasing heat to the surrounding environment. All of these and other risk factors can increase the risk of heat illness.

A graphic table below show the temperature and humidity Index followed by NOAA, USA for assessing the level of Heat wave is as under:

Relative Humidity	**Temperature 0 C**																
	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43
40	27	28	29	30	31	32	34	35	37	39	41	43	46	48	51	54	57
45	27	28	29	30	32	33	35	37	39	41	43	46	49	51	54	57	
50	27	28	30	31	33	35	36	38	41	43	46	49	52	54	58		
55	28	29	30	32	34	36	38	40	43	46	48	52	54	58			
60	28	29	31	33	35	37	40	42	45	48	51	55	59				
65	28	30	32	35	36	39	41	44	48	51	54	59					
70	29	31	33	35	38	40	43	47	50	54	58						
75	29	31	34	36	39	42	46	49	53	58							
80	30	32	35	38	41	44	48	52	57								
85	30	33	36	39	43	47	51	55									
90	31	34	37	41	45	49	54										
95	31	35	38	42	47	51	57										
100	32	36	40	44	49	56											
		Caution				Extreme Caution					Danger				Extreme Danger		

4.2. Prevention of Heat Related Illness

Heat waves characterized by long duration and high intensity have the highest impact on morbidity and mortality. The impact of extreme summer heat on human health may be exacerbated by an increase in humidity. There is growing evidence that the effect of heat wave on mortality is greater on days with high levels of ozone and fine particulate matter. Global climate change is projected to further increase the frequency, intensity and duration of heat waves and attributable death (WHO).

Heat related illness is avoidable. It can be best prevented if the vulnerable populations/communities are made aware of prevention tips, basic Do's and Don'ts through effective use of various media. Knowledge of effective prevention and first-aid treatment, besides an awareness of potential side-effects of prescription drugs during hot weather, is crucial for physicians and pharmacists to best mitigate the effects of heat illnesses.

Symptom and First Aid for Various Heat Disorders

Heat Disorder	Symptoms	First Aid
Heat rash	Skin redness and pain, possible swelling, blisters, fever, headaches.	Take a shower using soap to remove oils that may block pores preventing the body from cooling naturally. If blisters occur, apply dry, sterile dressings and seek medical attention.
Heat Cramps	Painful spasms usually in leg and abdominal muscles or extremities. Heavy sweating.	Move to cool or shaded place. Apply firm pressure on cramping muscles or gently massage to relieve spasm. Give sips of water. If nausea occurs, discontinue
Heat Exhaustion	Heavy sweating, weakness, Skin cold, pale, headache and clammy extremities. Weak pulse. Normal temperature possible. Fainting, vomiting.	Get victim to lie down in a cool place. Loosen clothing. Apply cool, wet cloth. Fan or move victim to air-conditioned place. Give sips of water slowly and if nausea occurs, discontinue. If vomiting occurs, seek immediate medical attention; call 108 and 102 for ambulance.
Heat Stroke (Sun Stroke)	High body temperature. Hot, dry skin. Rapid, strong pulse. Possible unconsciousness or altered mental status. Victim will likely not sweat	Heat stroke is a severe medical emergency. Call 108 and 102 for ambulance for emergency medical services or take the victim to a hospital immediately. Delay can be fatal. Move victim to a cooler environment. Try a cool bath or sponging to reduce body temperature. Use extreme caution. Remove clothing. Use fans and/or air conditioners. DO NOT GIVE FLUIDS ORALLY if the person is not conscious

4.3. Hospital Preparedness Measures for Managing Heat related Illness

Director/In-charge of Hospitals in State/Districts should ensure that the following measures are in place:

a) detailed action plan to tackle heat-related illnesses well in advance of hotter months.
b) Standard Operating Procedures to tackle all levels of heat-related illnesses. Capacity building measures for doctors, nurses and others staff should be undertaken.
c) Cases with suspected heat stroke should be rapidly assessed using standard Treatment Protocols.
d) Identify surge capacities and mark the beds dedicated to treat heat stroke victims and enhance emergency department preparedness to handle more patients.
e) RRT (Rapid Response Teams) to respond to any exigency call outside the hospitals.
f) Ensure adequate arrangements of Staff, Beds, IV fluids, ORS, essential medicines and equipment to cater to management of volume depletion and electrolyte imbalance.
g) May try to establish outreach clinics at various locations easily accessible to the vulnerable population to reduce the number of cases affected. Health Centres must undertake awareness campaigns for neighbourhood communities using different means of information dissemination.
h) Primary centres must refer the patients to the higher facility only after ensuring adequate stabilization and basic definitive care.
i) Hospitals must ensure proper networking with nearby facilities and medical centres to share the patient load which exceeds their surge capacities.
j) All cases of heat-related illnesses should be reported to IDSP (Integrated Disease Surveillance Programme) unit of the district.

4.4. Acclimatization

Those who come from a cooler climate to a hotter climate, especially during the heat wave season, are at risk. They should be advised not to move out in open for a period of one week. This helps the body get acclimatized to heat. They should also be advised to drink plenty of water. Acclimatization is achieved by gradual exposure to the hot environment during a heat wave.

4.5. Heat Illness Treatment Protocol

Recognizing that treatment protocols may vary slightly according to the setting (EMS, health centre, clinic, hospital emergency department, etc.), the following should apply generally to any setting and to all patients with heat related illnesses:

1. Initial patient assessment primary survey (airway, breathing, circulation, disability, exposure), vital signs including temperature
2. Consider heat illness in differential diagnosis if:
    a) Presented with suggestive symptoms and signs
    b) Patient has one or more of the following risk factors:
        - Extremes of age (infants, elderly)39
        - Debilitation/physical deconditioning, overweight or obese
    c) Lack of acclimatization to environmental heat (recent arrival, early in summer season)
    d) Any significant underlying chronic disease, including psychiatric, cardiovascular, neurologic, hematologic, obesity, pulmonary, renal, and respiratory disease
    e) Taking one or more of the following:
        - Sympathomimetic drugs
        - Anticholinergic drugs
        - Barbiturates
        - Diuretics
        - Alcohol
        - Beta blockers
3. Remove from environmental heat exposure and stop physical activity
4. Initiate passive cooling procedures
    a) Cool wet towels or ice packs to axillae, groin, and around neck; if patient is stable, may take a cool shower, but evaluate risk of such activity against gain and availability of other cooling measures
    b) Spray cool water or blot cool water onto the skin
    c) Use fan to blow cool air onto moist skin
5. If temperature lower than 40°C, repeat assessment every 5 minutes; if improving, attempt to orally hydrate (clear liquids, ORS can be used but not necessary; cool liquids better than cold). If temperature is 40°C or above, initiate IV rehydration and immediately transport to emergency department for stabilization.

Livestock Preparedness During Hot Weather

Extreme heat causes significant stress to livestock. There is a need to plan well for reducing the impacts of high temperatures on livestock. Keeping an eye on the weather forecasts, and developing a mitigation plan for high to extreme temperature can be effective in ensuring that the livestock has sufficient shade and water on hot days.

Chapter-5
Role and Responsibilities and Implementation Plan

Role of State Government:

Himachal Pradesh have notified Himachal Pradesh State Disaster Management Authority (HPSDMA) & State Executive Committee (SEC) at State & DDMAs at all Districts under DM Act.2005 to take effective steps for disaster management. These authorities are in charge of the relief and rehabilitation measures to look into the said activities Department of Revenue has establish Disaster Management Cell (DMC) to assist SDMA & DDMAs linkages with the various development and regulatory departments concerned with prevention, mitigation and preparedness. DMC also focuses on capacity building, participation and empowerment of these stakeholders in Heatwave management.

Role of District Administration:

The DDMAs have the responsibility for overall management of disasters in the district. The Chairman cum District Magistrate has the authority to mobilise the response machinery and has been given financial powers to draw money under the provisions of the General Financial Rules/ Treasury Codes. All departments of the State Government, including the police, fire services, public works, irrigation etc., in accordance with NDMA Guidelines on Heatwave-2019 work in a coordinated manner under the leadership of the Deputy Commissioner during a disaster, except in Municipal Corporations/Council areas where the municipal body plays a major role. DDMAs/District administration should also focus on capacity building, participation and empowerment of these stakeholders in disaster management at local level.

Role of Local Self-Governments:

Local self-governments, both rural and urban, have emerged as important tiers of governance, after the 73rd and 74th Amendments to the Constitution. These units can play an important role in Heatwave management under the overall leadership of the District Administration.

Role of Public/NGO/Civil Society/Media:

The local community is both victim and usually the first responder in case of a disaster. Local community also carries traditional knowledge and relevant counter measures regarding disaster management. So the role of local community must be utilised with the help of NGOs and media. Mobilisation of community action supported by local NGOs, along with government machinery is a must for quick, efficient and effective response. For this, healthy coordination must exist between local administration and local community/NGOs. Local NGOs and civil

society must work on developing a deep culture of safety and prevention in society.

NGOs, civil society and media also play an active role as pressure groups in a democracy so that any laxity on part of the government can be traced and fixed. So, the public and the NGOs should keep a close vigil over the functioning of the government regarding disaster management and render their services as a watchdog.

The IAG network created at State & District level should be utilised. The services of trained volunteers should also be utilised for the management of heat wave in the State.

Departmental Responsibilities and Implementation Plan for Heat wave management.

Heat wave mitigation measure involve a multi-sectoral and multi-dimensional administrative approach involving activities such as provision for drinking water, temporary shelter, rescheduling the working hours, providing better emergency medical services/ public health and so on. This Action plan provides a framework for implementation, coordination and evaluation of activities undertaken by Departments/Authorities in their respective area to reduce the negative impact of extreme heatwave. in view of above, some of the departments have been identified and their responsibilities are fixed for the proper management of Heat wave in the State:

Sr. No	Task/Activities	State Agencies & their Responsibilities	
		State	Responsibility
Understanding Risk			
1.	Preparation of Heat Action Plan in coordination with all stakeholders	State Govt./Dept. of DM/COR/SDMAs/DDMAs ULBs/PRIs	• Preparation/revision of Heat Action Plan based on NDMA REVISED Guidelines and local experiences
Interagency Coordination			
2.	**Establish Early Warning System**	State Government/ District Admin./DDMAs State Government/ CORs/District Admin./DDMAs	• Real-time surveillance and evaluation of weather station. • To disseminate the information received from IMD to the public at large • Disseminate the heat-health waning, determine the threshold for action and communicate the risks • Prepare SoP for heat wave response based on Extended range of forecast and Numerical Weather Prediction

		CORs/SDMAs DDMAs/ULBs/ PRIs	• Coordination among all stakeholder with clearly defined roles and responsibilities. • Flexible timing of market and offices. • Take necessary measures, wherever applicable. • Collaboration with non-government and civil society. • Provide occupational support and advisories. • Special care for vulnerable groups- children, disabled, women and old aged.
	Monitoring of medical preparedness	State government CORs/SDMAs/ DDMAs/Health Dept.	• Develop monitoring mechanism for implementation of heat action plan. • Provision of funds for heat action mitigation plans. • Deployment of rapid medical response teams.
Investing in DRR-Non-structural measures			
3.	**Preparedness Measure**	State Government/CO Rs/District Admin./DDMAs /ULBs/PRIs	• Appointment of Nodal officer at each level (state, districts, tehsil and block, department etc) • Implementation of Heat Action Plan. • Issue necessary direction for preparedness.
		State Government/De pt. of Home	• Ensure shade for on duty traffic police, as they are more exposed to heat wave and distribution of Cool jacket for traffic police personnel.
		CORs/SDMAs/ DDMAs District Admin./ULBs/P RIs	• Heat wave should be included in annual disaster event/calendar. • Interstate collaboration for sharing experiences and data. • Reviewing preparedness & mitigation measures.
	Short- and Medium-term mitigation measures	State govt./Dept. of Health	• Prepare hospital preparedness plans. • Preparedness of the heat health and social care system. • Ensuring 24X7 heat health facilities with adequate provision of basic medicine like ORS, Glucose etc. • Dissemination of heat health plan by organizing awareness campaigns.

	Short- and Medium-term mitigation measures	Dept. of Forest in coordination with another department	• Identify "heat hot-sports" using framework for tracking and modelling based on IMD data. • Maintain water bodies in the forest area for wild animals & birds. • Afforestation and plantation. • Prevention of forest fire.
		State Govt./Dep. Of Rural development and Panchayati Raj	• Implementation of instruction for mainstreaming heat health precautionary measures, including re-scheduling of working hours and reduce piece rate, in all schemes and programmers. • Ensure shed for resting and drinking water facilities for workers at all work place,
		Irrigation & Public Health	• Ensure drinking water facilities. • Identify vulnerable place and ensure drinking water facilities. • Repair/maintenance of mechanical/electrical fault of tube wells, ponds, jorhat, at priority basis to ensure water storage. • Suitable arrangement for drinking water supply and promptly respond to water scarcity. • Ensure drinking water facilities at all common place and nearby habitation.
		Education Higher/ Elementary	• Rescheduling of school timing and vacation as per heat wave situation. • Ensuring cool places for all educational institutions, and availability of water facilities. • Ensure that student avoid outdoor physical activities during the summer in schools. • Research on heat wave related issue through universities.
		Dept. of Labour/Dept of Social Welfare	• Implement the direction for heat wave season. • Re-scheduling of working hours for employees in different sectors. • Ensure drinking water facilities at work places. • Coordinate with Health department and ensure regular health check-up of the workers and provide emergency ice packs and heat

			illness prevention materials to construction workers.
		State Govt/Dept. of Ag. & AH	• Follow the advisory on heat wave • Shelter for livestock and animal husbandry should be maintained. • Pre-positioning of adequate veterinary medicines and supplies. • Update contingency plan regarding provision of drinking water for animals.
		State Governments/District Admin./DDMAs, UDD/ULBs	• Open parks/open areas during daytime for providing spaces with shade • Sprinkling of water on roads • Construct shelters, sheds at public place, provide access to public parks during heat wave season. • Promote cool roofs initiative such as paint roof white, create green roofs and walls, and plan trees in neighborhood to keep them cool.
		State Government/Dept. of Transport/HRTC	• To ensure 1) Shelter/Sheds at bus stops, 2) frequency of transportation, 3) drinking water facilities at bus stop. • Enable better emergency transport system for affected people to health care facilities with adequate equipment's
		Department of Power/DISCOM	• Ensure repair & maintenance work for uninterrupted power supply before and during the summer. • Re-scheduling load shedding.
		All General Manager of Zone and Divisional Railways Manager/Metro Rail Corporations in states	• Repair/maintenance of mechanical/electrical system on priority basis including fan and cooling system. • Ensure drinking water facilities in trains and railway stations.
		State Govt./CORs/Dept. of Sc. & Technology	• To develop application/App related to awareness generation, quick information sharing on the Heat Wave Risk Reduction. • R&D activities to promote utilization of S&T in the field of Heat wave risk reduction.

			• Promote research on heat wave related issues
Investing in DRR-Structural measures			
4.	**Long term mitigation measures**	State Govt./CORs and concerned department	• Long term planning for heat resilience infrastructure, • Promote cool roofs technology and user other similar heat reducing technology • Ensure implementation of mixed-use planning adopted in heat wave affected cities • Heat appropriate planning of new buildings (consideration e.g. in architecture, width/height ratio, street development, orientation and site) in urban and rural areas. • Ensure capacity building of structural engineers, civil engineers and architects for construction of green building, maintenance and fire safety of the structures. • Ensure to construction of green building, environment and building code related to heat wave risk mitigation.
		State Govt./UDD/ULBs/PRIs	• Ensure implementations of latest National Building Code of India 2016 Part-IV "Fire & Life Safety" in their building bye-laws
		State govt/ Dept. of Forest	• Ensure contraction of green building, Energy Conservation Building Code (ECBC) related to heat wave risk mitigation • Increase forest coverage and green area • Afforestration and mass plantation • Coordinate with Transport Department and Road Construction Department for plantation of trees at roadside, barren land and other areas. • Presentation of forest fire and control measures.
		Dept of Agriculture/ Horticulture	• Promote short duration and heat resisting crops.

Capacity Development			
5.	**Capacity Building**	State Govt./CORs/ SDMAs /SIDMs State ATIs with Dept. of Health and Education	• Develop training module and conduct proper training program for different stakeholders • Heat wave management should be added in school curriculum to sensitize school children and local people • Conduct capacity building and training program as per domain and expertise of department.
		State Govt./CORs/ PWD, Municipal corporation, Urban local bodies	• Capacity building of structural engineers, civil engineers and architects for construction of green building, maintenance and fire safety of the structures • Long term mitigation measures construction of green building, environment, and building code related to heat wave risk mitigation.
Awareness			
6.	**Media campaign and IEC activity**	CORs/ SDMAs District Admin/ DDMAs/ Information and public relations Dept. and other concerned departments	• IEC Campaign to create awareness through print media, electronic media, social media etc. • Display board with colour coding for heat wave alert. • Display Do's and Don'ts in the public areas, Hospitals, Parks, etc. • Develop of mobile application for faster spread of heat related issues, alertness, space for shelters and drinking water.
Data Collection			
7.	**Data collection and Documentation**	CORs/SDMAs/ DDMAs/Health Dept. through Nodal Officer	• Establish a Data monitoring cell and collect data from district and maintain state level data base. • A standardized collection of granular data • Standard protocol for death investigation. • Adopt uniform process for registration of casualties/deaths due to heat wave based on the post mortem report, death count, type of disease, time and duration.

Annexure-I

Heat Wave DO's and DON'Ts

DO's

Must for All

- Listen to Radio; watch TV; read Newspaper and other sources for local weather news/heat advisories.
- Drink sufficient water - even if not thirsty.
- Use ORS (Oral Rehydration Solution), homemade drinks like lassi, torani (rice water), lemon water, buttermilk, etc. to keep yourself hydrated.
- Wear lightweight, light-coloured, loose, cotton clothes.
- Cover your head: Use a cloth, hat or umbrella and uses protective goggles.
- Avoid caffeine, alcohol or sugared soda because they kind make fluid leave your body.

Employers and Workers

- Provide cool drinking water near work place.
- Caution workers to avoid direct sunlight.
- Schedule strenuous jobs to cooler times of the day.
- Increasing the frequency and length of rest breaks for outdoor activities.
- Pregnant workers and workers with a medical condition should be given additional attention.

Other Precautions

- Stay indoors as much as possible.
- Keep your home cool, use curtains, shutters or sunshade and open windows at night.
- Try to remain on lower floors.
- Use fans, damp clothing and take bath in cold water frequently.
- If you feel faint or ill, see a doctor immediately.
- Keep animals in shade and give them plenty of water to drink.
- Carry water with you.

DONT's

- Avoid going out in the sun, especially between 11.00 noon and 3.00 p.m.
- Avoid strenuous activities when outside in the afternoon.
- Do not go out barefoot.
- Avoid cooking during peak hours. Open doors and windows to ventilate cooking area adequately.
- Avoid alcohol, tea, coffee and carbonated soft drinks, which dehydrates the body.
- Avoid high-protein food and do not eat stale food.
- Do not leave children, pets or anybody in parked vehicles - as they may get affected by Heat.
- Don't drink ice-cold drinks as they can cause stomach cramping.

HEAT WAVE : Protect yourself with simple precautions

Heat stroke can be dangerous. To minimize its effects, take the following safety measures to prevent serious ailments and exhaustion:

Safety Tips:

- As far as possible, avoid going out in the hot sun, especially during peak hours.
- Drink sufficient water at frequent intervals, even if not thirsty. Always carry drinking water while travelling.
- While going out in sun, wear light colored and loose clothes; use protective goggles; cover your head with a cap or towel and always wear shoes or chappals.
- Avoid strenuous activities in scorching sun, when the outside temperature is high.
- If you have to work outside, use damp cloth or an umbrella to cover your head.
- Eat light meals and fruits rich in water content like melons, cucumber and citrus fruits. Avoid foods that are high in protein, such as meat and nuts, which increase metabolic heat.
- Use home-made beverages like lemon water, butter milk and juices, etc.
- Never leave children and pets alone in parked vehicles.
- Keep animals in shade and give them sufficient water to drink.
- Keep your home cool, use curtains, shutters or sunshade etc. Open windows at night to maintain adequate ventilation.
- Listen to local weather forecasts and be aware of impending temperature changes.
- In case of illness and fainting, consult a doctor/seek immediate medical help.

What to do in Heat Stroke:

- Get the person indoors or into a cool/shady area, make him/her lie down with feet slightly elevated.
- Wipe the body with a wet cloth or spray cold water to the skin.
- Give the person ORS/lemon water/salt-sugar solution or juice to re-hydrate the body.
- Do not give anything to eat or drink to a person until he/she is fully conscious.
- Take the person to the nearest health centre if symptoms do not improve in one hour.

Himachal Pradesh State Disaster Management Authority
Telephone No. 0177-2629688, 2629439 2629939 2628940
website: www.hpsdma.nic.in

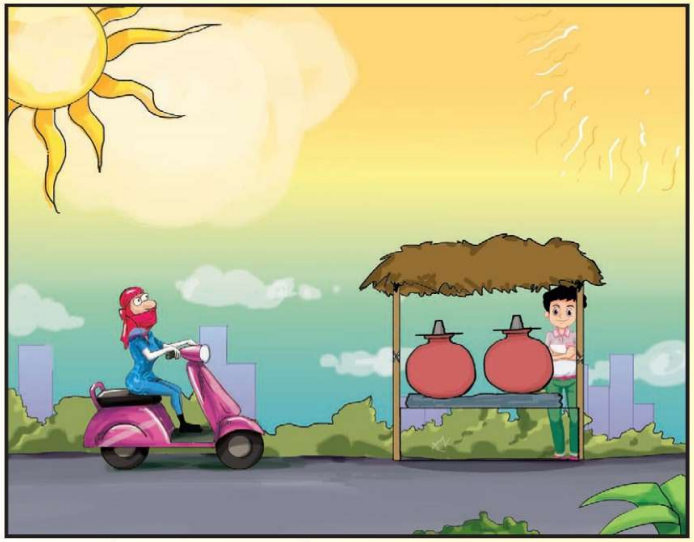
Helpline No. 1070

गर्म हवाएं/लूः साधारण सावधानियों से अपने आपको सुरक्षित रखें

लू खतरनाक साबित हो सकती हैं। इसके प्रभाव को कम करने तथा रोकथाम के लिए निम्नलिखित सावधानियां बरतें:

सुरक्षा के उपायः

- जहाँ तक संभव हो कड़ी धूप में बाहर न निकलें।
- जितनी बार हो सके पानी पीयें, प्यास न भी लगे तो भी पानी पीयें। सफर में अपने साथ पीने का पानी हमेशा रखें।
- जब भी बाहर धूप में जायें हल्के रंग के और ढीले–ढाले सूती कपड़े पहनें; धूप के चश्मे का इस्तेमाल करें; गमछे या टोपी से अपने सिर को ढकें और हमेशा जूते या चप्पल पहनें।
- अधिक तापमान में कठिन काम ना करें। जहाँ तक संभव हो कड़ी धूप में बाहर के काम से बचें।
- अगर आपका काम बाहर का है तो टोपी, गमछा या छाते का इस्तेमाल जरुर करें और गीले कपड़े को अपने चेहरे, सिर व गर्दन पर रखें।
- हल्का भोजन करें, अधिक पानी की मात्रा वाले फल जैसे तरबूज, खीरा, नींबू, संतरा आदि का सेवन करें तथा ज्यादा प्रोटीन वाले भोजन का सेवन ना करें, जैसे – मांस व मेवे, जो शारीरिक ताप को बढ़ाते हैं।
- घर में बना पेय जल जैसे कि लस्सी, नमक चीनी का घोल, छाछ, नींबू–पानी, आम का पन्ना इत्यादि का नियमित सेवन करें।
- बच्चों और पालतू जानवरों को पार्क किए हुए वाहनों में अकेला ना छोडें।
- जानवरों को छांव में रखें और उन्हें खूब पानी पीने को दें।
- अपने घर को ठंडा रखें; पर्दे, शटर आदि का इस्तेमाल करें। रात में खिड़कियां खुली रखें।
- स्थानीय मौसम के पूर्वानुमान और आगामी तापमान में परिवर्तन के बारे में सतर्क रहें।
- अगर आपकी तबीयत ठीक ना लगे या चक्कर आए तो तुरन्त डाक्टर से सम्पर्क करें।



लू लगने पर क्या करें:

- लू लगे व्यक्ति को छांव में लिटा दें। अगर तंग कपड़े हों तो उन्हें ढीला कर दें अथवा हटा दें।
- ठंडे गीले कपड़े से शरीर पोछें या ठंडे पानी से नहलायें।
- व्यक्ति को ओ॰ आर॰एस॰/नींबू पानी/नमक–चीनी का घोल पीने को दें, जो कि शरीर में जल की मात्रा को बढा सके।
- यदि व्यक्ति पानी की उल्टियाँ करे या बेहोश हो, तो उसे कुछ भी खाने व पीने को न दें।
- लू लगे व्यक्ति की हालत में एक घंटे तक सुधार ना हो तो उसे तुरन्त नजदीकी स्वास्थ्य केन्द्र में ले जाएं।

हिमाचल प्रदेश राज्य आपदा प्रबंधन प्राधिकरण,
0177-2629688, 2629439, 2629939, 2628940.
वेबसाइट-www.hpsdma.nic.in

हेल्पलाइन नंबर

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Annexure-II

Format-A Death Reported due to Heat Wave (District report to SDMA)

Name of the District: **Year:** **Reporting Period:** **Date of Report:**

Sub-division		Location						Occupation					Economic		
		Urban		Rural		Total		Famers	Labours	Hawkers	Other	Total	BPL	APL	Total
Sub-division-1	Age Group	M	F	M	F	M	F								
	0-6 year														
	7-18														
	19-35 Years														
	36-60														
	61>above														
	Sub Total														
Sub-division-2	0-6 year														
	7-18														
	19-35 Years														
	36-60														
	61>above														
	Sub Total														
Grand Total of the District															

Name and Designation of the Reporting Officer: Signature with Date

Format B: Details of the death reported due to Heat-wave (Record kept with State/District)

Sr. No	Name and Address	Sex (M/F) & Age	Occupation	Place of Death	Max Temp recorded (rectal & Oral)	Deaths reported during heat period or not	List of chronic disease present (ask the family member)	Date & Time of autopsy (If Conducted)	Date & Time of Joint enquiry conducted with a revenue authority	Cause of death	Remarks	
											Related to Autopsy	Related to joint enquiry
	1	2	3	4	5	6	7	8	9	10	11	12
1												
2.												
3.												
4												
5												
6												

Name and Designation of the Reporting Officer: Signature with Date:

Annexure-III

Format A

Daily Report of Heat Stoke Cases and Deaths (District Report to State)

S. No	Village	PHC	Block/Town /City	Name & Son/D/Wife of	Urban-U Rural-R	BPL Y/N	Age/Sex	Date of Attack of Heat Stroke	Any Antecedent Illness	Cause of death	Death confirmed by MO & MROs
	1	2	3	4	5	6	7	8	9	10	11
1.											
2.											
3.											
4.											
5.											

Format B

(To be Cumulative at the State Level and Sent to Centre Government)

S. No	Name of the District	New Cases admitted due to Heat Related Illness since the last reporting period	Cumulative no of cases admitted due to heat related Illness since 1st April ……	Deaths reported due to heat related Illness since the last reporting period	Cumulative no of deaths due to heat related Illness since 1st April ……	Remarks (if any shortage of ORS/IV fluid/ Treatment facilities, etc.)
	1	2	3	4	5	6
1.						
2.						
3.						
4.						
5.						
6.						

Contact Details of Nodal officers in Himachal Pradesh
(Updated by SEOC as on Dated. 12.02.2024)

Sr. No	Name of Department	Name of Nodal Officer	Designation	Contact. No.	Email Id
1.	Town & Country Planning	Mr. Karam Chand Nanta	State Town Planner	0177-2621450/2624762 98166-00890	tcpdatabank@gmail.com
2.	Ayurveda	Dr. Prabhakar Mishra	Dy. Director	0177-2622262 70184-10133	ayur-hp@nic.in
3.	Department of Environment& Science & Technology	Dr. Suresh Attri	C.S.O	0177-2656559(O) 0177-2659609(Fax) 70187-01240(M)	sattri-env- hp@nic.in dbt-hp@nic.in
4.	HP State Pollution Control	Sh. Praveen Sharma	Scientific Officer	0177-2673766 70181-94369 94181-70428	pcbssoho@gmail.com
5.	HIMCOSTE	Dr. S.S. Randhawa	Principal Scientific Officer	0177-2622490/2814923 (M) 94183-82126	ssrandhawa15@gm ail.com
6.	PWD Nigam Bihar	Sh. Ajay Kapoor	S.C. Works	0177-2625821(O) 94180-58404 (M)	hp-shi6@nic.in pwd-hp@nic.in (ENC)
7.	Planning	Dr.Sursh Surya	Dy. Director	0177-2621698 (O) 2880882 98166-66239	ppo- planning@nic.in
8.	Economics & Statistics	Sh. Chander Mohan	Dy. Director	0177-2626205/2626206 94180-88136	chanderm21@gmail.com ecostat-hp@nic.in
9.	Directorate of Prosecution	Sh. Mahinder Singh	Assistant Distt. Attorney.	0177-2623871 (O) 0177-2626882 94181-45164 (M)	prosecution-hp@nic.in
10.	Additional Directorate of Police, HP Shimla	Yet not Nominated			
11.	Department of Panchayati Raj	Sh. Kewal Sharma	Additional . Director	0177-2623805 (O) 2629106 (Fax) 94186-26511 (M)	directorprhp@gmail.com
12.	Tanda Medical College	Dr. Mohan Singh	Medical Superintendent	01892-287187(O) 98161-02712	medical.supdt.tanda@gmail.com
13.	Tourism and Civil Aviation	Sh. Surjeet Kumar	Publicity Officer	0177-2625924 94181-05752	tourismmin-hp@nic.in
14.	State local Audit	Sh. Ravinder Singh	Deputy Director	0177-2620046 82193-24342	deputydirectorlad@gmail.com
15.	HRTC	Sh. Pankaj Singhal	GM	0177-2811130/2802326 94180-00460	dmtrahrtc@gmail.com
16	Civil Defense and Home Guards	Sh. Arvind Kumar Prashar	Senior Staff Officer	0177-2811453 2751728(O) 94185-21856	hgshimla@gmail.com
17.	Central Water Commission	Sh. Piyush Ranjan	Director	0177-2624224 /2624036. 70420-83260	dirmashimla-cwc@nic.in
18.	Directorate of Transport, Shimla	Sh. .S.D Negi	Additional Commissioner Transport	0177-2811335 78072-72358 0177-2808961	jtcome-tpt-hp@nic.in
19.	Department of Tribal Development	Sh. Prem Raj Sharma	Supritendent	0177-2621997(O) 94184-93580	ctd-hp@nic.in
20.	Electrical Inspectorate	Sh. Chottu Ram	Assistant Electrical Inspector	0177-2621020 0177-2628090 94186-86279	ceihp@rediffmail.com
21	GAD	Praveen Kumar Taak	Joint Secretary	0177-2622686 94184-61907	adsecy-gad- hp@gov.in

22.	Forest	Sh. Anil Sharma	CCF	0177-2625036 0177-2623155 94180-77275	cfbil-hp@nic.in hpforestmanagment@gmail.com ccfpfc@gmail.com
23.	Defense Geo-informatics Research Establishment, Chandigarh	Shri P. K Satyavali	Director	0172-2699804-06 2699970(Fax) 2699801	directore.dgre@gov.in
24.	IIT Roorkee	Prof. Sumit Singh	Head Eng. Department	01332-286616 01332-285401 01332-285534	head@dm,iitr.ac.in
25.	Fisheries	DR. Som Naath	Assistant Director Fisheries	01978-223212 01978-224068 88944-24933	fisheries_hp@nic.com
26.	Higher Education	Sh. Sanjeev Sood	Additional Director	0177-2658202/207/307 70187-19557	dhe-sml-hp@gov.in
27.	HIPA	Sh. Prashant Sarkaik	Additional Director	0177-2734666 Mob. 98055-97569	hipa-hp@nic.in
28.	IPH Department	Sh. Vishal Jaswal	Engg.	0177-2832991 (O) 0177-2830241 (O) 98164-28999 (M)	hpirrg@gmail.com
29.	Finance Department-Treasuries, Accounts & Lotteries.	Sh. Rakesh Kumar	Deputy Director	0177-2621820 94181-89791	ddhqtre-hp@nic.in
30.	Directorate of Medical Education & Research ,HP, Shimla	Vacant		01772624895	
31.	Directorate of Youth Services & Sports	Vacant	Sports officer (Head Quarter)	0177-2622032	deputydirectoryss@gmail.com
32	HP Vidhan Sabha	Sh. G.L. Sharma	Dy. Secretary (Estt)	0177-2656424 0177-2804238 94180-30154	gl.sharma522@gov.in visabha-hp@nic.in
33	Directorate of Urban Development	Sh. Raj Kumar Sharma	Xen	0177-2626518 94180-32802	ud-hp@nic.in
34.	Backward Classes Commission	Sh. Dhayan Singh	Supdt. Gr.II	0177-2620302 94592-79508	hpscbc777@gmail.com
35.	Horticulture (P&P)	Sh. Hem Chand sharma	Joint Director	0177-2841120-2842390 94595-24250	horticul- hp@nic.in
36.	Sanik Welfare Deptt.	Sh. Sanjay Kumar	O.S.D	01972-221854 94182-50811	dir-swo- hp@nic.in
37.	Local Audit Department	Sh. Ravinder Kawar	Dy. Director	0177-2620881 94181-36636	jtdirectorlad@gmail.com
38.	Directorate of Agriculture	Sh Jeet Singh Thakur	Joint Director of Agriculture -1	0177-2830620 0177-2831263 94180-95146	krishibhawan- hp@gov.in
39.	Directorate of Animal Husbandry	Dr. Sunil Chauhan	Dy. Director	0177-2830089 / 2830168 94594-50190	dir-ah-hp@nic.in
40	IMD Shimla	Dr. Sandeep Sharma	Scientist CA	0177-2624976 94183-04412	metcentresml@gmail.com sandeepsharma.imd@gmail.com

41.	Health and Family Welfare	Dr. D.D. Sharma	Joint Director	0177-2621424 94180-86286	dirhealthdhs@gmail.com
42	HPSEBL	Sh. Rakesh Sharma	Chief Engg. MM	0177-2809402 2813563 73800-60519	cemm.hpsebl@gmail.com
43	Pollution Control Board	Vacant		0177-2673046	
44	Food & Civil Supply	Vacant		0177-2623749	
45.	Communication BSNL	Sh. Chander Mohan	DGM	94180-76200	dgm.mob.shm@gmail.com
	AIRTEL	Sh. GurmilSingh	TSP	97605-03999	Gumil2.singh@airtel.com
	Vodaphone	Sh.Daman deep Singh 2. Jasdeep Singh	TSP	9888018567	damanddeep.singh@vodaphone.idea.in jasdeepsingh3@vodaphone.in
	RJIL	Sh. Amit Bhardwaj	TSP	98166-00195	Amit1.bhardwaj@ril.com
	TTSL (Tata)	Smt. Rana Meeru	TSP	92185-09601	meeru.rana@tatatel.co.in