THE TELANGANA STATE
HEATWAVE ACTION PLAN

Government of Telangana
REVENUE
(DISASTER MANAGEMENT) DEPARTMENT

HEATWAVE VULNERABILITY ANALYSIS
Declaring Heatwave, Heatwave Impact, Heatwave Maps, Heatwave Vulnerability and Population

HEATWAVE PREPAREDNESS
Department Level Preparedness, Hospital Preparedness, Early Warning, Prevention and Mitigation, Non-Structural Measures, Structural Measures, Public Awareness and Community Outreach

PLAN IMPLEMENTATION
Pre Heat Season, During Heat Season, Post Heat Season, Checklist for major stakeholders

HEATWAVE REPORTING – DOS AND DON'TS
TELANGANA STATE
Heatwave Action Plan -2020
Revenue (Disaster Management) Department
Government of Telangana
In the last couple of years, National Disaster Management Authority, Government of India and Revenue Department (Disaster Management), Government of Telangana, intensified campaign to reduce fatalities and ill-health due to Heatwaves. In this process, the department and institutions of the State Government, Indian Meteorological Departments, Telangana State Development Planning Society, UNICEF, Civil Society Organisations and hundreds of voluntary organisations and philanthropists partnered with the State to address the health and wellbeing of people, so at to reduce the fatalities arising out of Heatwave.

The summers in Telangana in 2015, 2016 and 2017 have seen unprecedented heat wave across and temperatures recording around 47 degrees centigrade in some locations. According to State records about 108 deaths occurred in 2017, due to heatwave. With the intensive coordinated efforts of the state of Telangana there is a gradual decrease in Heat Related Illnesses.

The extreme weather conditions are attributed to changing weather pattern and it is expected that the impact will be severe due to increase in frequency and intensity of such heatwaves now and in future, if proper preparedness and mitigation measures are not undertaken.

The Revenue (DM) in consultation with National Disaster Management Authority, Indian Meteorological Department, Telangana State Development Planning Society, and UNICEF has revised the ‘Heatwave Action Plan’ of 2019, to enable various departments of the State, Media and Public at large to utilize the plan to reduce fatalities and ill health among people and livestock. The Heatwave Action Plan 2020 can be used to develop heatwave plans at District level and support the local communities during heatwaves.

The Heatwave Action Plan has three parts – 1. Emphasizing on the need for heatwave action plan and 2. The process of implementation and role of various departments in the State and 3. Annexures (formats) The document is based on the experiences of the people and best practices of other states. The document provides the officers with templates, strategies and background information, with an emphasis on identifying and protecting vulnerable population groups.

The Government of Telangana emphasizes that the actions mentioned in the Heatwave Action Plan be implemented and requests all Stakeholders to use the plan document for reference and also seek guidance from various academic and scientific institutions and civil society organisations to ensure there are no fatalities due to Heatwave in the State.

M. Jagadeeshwar IAS
Principal Secretary to Government, Revenue (Disaster Management) Department, Government of Telangana
**ABBREVIATIONS**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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<tr>
<td>AWS</td>
<td>Automated Weather Stations</td>
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<tr>
<td>AICTE</td>
<td>All India Council of Technical Education</td>
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<td>Administrative Training Institute</td>
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<td>HAP</td>
<td>Heatwave Action Plan</td>
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<td>Heat Index</td>
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<td>IDSP</td>
<td>Integrated Disease Surveillance Programme</td>
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<td>IEC</td>
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<td>Indian Institute of Public Health</td>
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<td>IV Fluid</td>
<td>Intravenous Fluid Drip</td>
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<td>MNREGA</td>
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<td>MoAH &amp; Dairy</td>
<td>Ministry of Animal Husbandry and Dairying</td>
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<td>Non-Governmental Organization</td>
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<td>Telangana State Development and Planning Society</td>
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<td>TSRTC</td>
<td>Telangana State Road Transport Corporation</td>
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</table>
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Key Strategies
Committee

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Revenue (Disaster Management) Department
Government of Telangana
INTRODUCTION

Heatwave incidences and impacts are increasing around the globe. In India, heatwave has been a major concern for more than two decades now. Heatwave are projected to increase in number, intensity and duration over most of the land area in the 21st century. In India the impact of increased temperatures is already being observed.

According to the India Meteorological Department (IMD), the 2018 annual mean land Surface air temperature for the country was +0.41°C above the 1981-2010 average, thus making the year 2018 as the sixth warmest year on record since 1901 (Fig. 2). The five warmest years on record in order were: 2016 (+0.72°C), 2009 (+0.56°C), 2017 (+0.55°C), 2010 (+0.54°C), 2015 +0.42°C). It may be mentioned that 11 out of 15 warmest years were during the recent past fifteen years (2004-2018). Past decade (2001-2010/ 2009-2018) was also the warmest decade on record with anomalies of 0.23°C /0.37°C. The annual mean temperature during 1901-2018 showed an increasing trend of 0.6°C/100 years (Fig.2) with significant increasing trend in maximum temperature (1.0°C/100 years).The country averaged season mean temperatures were also above the average during all the four seasons with the winter season (January- February, +0.59°C) being the 5th warmest since 1901 and the pre- monsoon season (March-May, with anomaly +0.55°C above average) being the 7th warmest ever since 1901.

The country averaged mean monthly temperatures were warmer than the normal during all the months of the year (except December) with mean temperatures exceeding the normal by around 1°C during the two months (February (0.93°C) and March (0.96°C). This is directly affecting the communities, undermining their livelihoods through gradual, insidious changes in temperature and rainfall patterns, and resulting in an increased frequency and intensity of hazards such as floods, cyclones, droughts, unseasonal rains and hailstorms, etc., causing extensive damage to crops, fisheries and agro-rural economy.

![Annual mean land surface air temperatures anomalies averaged over India for the period 1901-2018. The anomalies were computed with respect to base period of 1981-2010. The dotted line indicates the linear trend in the time series. The solid blue curve represents the sub-decadal time scale variation smoothed with a binomial filter.](source: IMD, Pune)
BACKGROUND OF THE HEATWAVE ACTION PLAN

Telangana experiences disasters of various scale, its geographic and topographical contexts making the state extremely vulnerable to droughts, floods, hailstorms, fire, lightening and heatwaves and northern districts experience cold waves occasionally. The state is highly vulnerable to Heatwaves, out of 589 Mandalas in the state 582 are vulnerable to heatwave. Telangana State Heat Wave Action Plan was first prepared in 2016 as per High Court orders and the guidelines issued by the National Disaster Management Authority (NDMA), Government of India and the same was submitted to NDMA. Based on regular inputs from NDMA and Scientific Institutions the Heat Wave Action Plan is revised and updated in 2017, 2018 and 2019.

The Heatwave Action Plan includes:

- Identification of heat wave prone locations and Vulnerable populations
- Developing effective strategies
- Roles and responsibilities of stakeholders
- Agency coordination to addresses heat-health risks
- Early warning/heat alerts
- Documentation and reporting

Revenue (DM) Department Govt. of Telangana initiated heatwave preparedness programmes for the year 2020 in association with its line departments in coordination with Telangana State Development Planning Society (TSDPS). It is communicated to District Administrations to conduct orientation and plan for the implementation of the Heatwave Action Plan. It was requested to all departments and District Administrators to submit suggestions for the revision of heatwave action plan for the year 2019. Departments and agencies submitted their suggestions to include in the Heatwave Action plan. Since 2018 it was proposed to send weekly reports on actions taken to mitigate heatwave conditions and also during exigencies. In 2018 and 2019, with support from Telangana State Development Planning Society, Indian Meteorological Department, Dr. MCR HRD Institute and UNICEF conducted workshops/conferences with State and District Officials on extreme weather events. Capacity building and orientation programmes at different levels of administration and community levels will be organized for the current year 2020.

OBJECTIVE OF THE HEATWAVE ACTION PLAN

The Heatwave Action Plan aims to provide a framework for developing plans for the implementation, interagency coordination and impact evaluation of heatwave response activities in all the districts that reduce the negative impact of extreme heat. The 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. The plan also calls for preparedness measure to protect livestock/animals as extreme heat causes significant stress to them as well. The heatwave action plan intends to mobilize departments and communities to help protect communities, neighbours, friend, relatives and themselves against avoidable health problems during spells of very hot weather. The Plan also intends to help early warning agencies as well as the media to be proactive on steps taken to negate heat wave impacts. The administrative/preventive actions that need to be taken by multiple agencies/departments in the state of Telangana. All district/cities/town can learn from their/others’ experiences and develop a plan to deal with heat wave effectively.
KEY STRATEGIES

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

- Establish Early Warning System and communication systems
- Developing inter-agency response plan and coordination in field
- Preparedness at the local level for health eventualities
- Health care system capacity building
- Public awareness and community outreach
- Collaboration with private, non-government and civil society
- Assessing the impact - feedback for reviewing and updating the plan

TELANGANA STATE HEATWAVE ACTION PLAN

After a severe heat wave affected the State of Telangana in May 2015, causing several deaths, Government of Telangana has taken the initiative to develop a comprehensive heat wave Management action plan for extreme heat events.

In Telangana State, the period from April to June is summer months. During this period the temperatures rise considerably, to a point of 47º C in the month of May in Districts - Khammam, Nizamabad, Bhadrachalam, Nalgonda, Karimnagar and Warangal. To protect and prepare people of Telangana from extreme heat events, State Government formed a Committee to prepare a comprehensive Heat Wave Action Plan based on guidelines issued by NDMA and plans prepared by other states such as Gujarat, Odisha, etc., to avoid sunstroke fatalities and illness in the future.

COMMITTEE:

The following are the members of the Committee:

<table>
<thead>
<tr>
<th>No.</th>
<th>Name of the Department/Person</th>
<th>Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The Prl. Secretary, Health, Medical &amp; Family welfare Dept.</td>
<td>Member</td>
</tr>
<tr>
<td>2</td>
<td>The Prl. Secretary, School Education Dept.</td>
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</tr>
<tr>
<td>3</td>
<td>The Prl. Secretary, PR &amp; Rural Development Dept.</td>
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<tr>
<td>4</td>
<td>The Prl. Secretary, Municipal Admin. &amp; Urban Development Dept.</td>
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<tr>
<td>5</td>
<td>The Prl. Secretary, Animal Husbandry &amp; Fisheries Dept.</td>
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</tr>
<tr>
<td>6</td>
<td>The Prl. Secretary, IT, Electronics &amp; Communications Dept.</td>
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<td>The Director, Public Health &amp; Family Welfare Dept.</td>
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<td>8</td>
<td>The Director, Institute of Preventive Medicine Dept.</td>
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</tr>
<tr>
<td>9</td>
<td>The Commissioner, Information &amp; Public Relations Dept.</td>
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<td>10</td>
<td>The Director, Indian Meteorological Dept. (IMD)</td>
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<tr>
<td>11</td>
<td>The Director General of Fire Services Dept.</td>
<td>Member</td>
</tr>
<tr>
<td>12</td>
<td>The Prl. Secretary, Revenue (DM) Department</td>
<td>Member &amp; Convener</td>
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</table>

The Telangana Heat Wave Action Plan (HAP) aims to provide guidelines on the steps to be taken by the state & district administration for minimising the impact of Heat Waves. The Plan’s primary objective is to ensure no fatalities among the population most at-risk during Heat wave and reduce related illness due to the effects of the heatwaves.
HEATWAVE VULNERABILITY ANALYSIS

DEFINITION

Heat wave is a condition of atmospheric temperature that leads to physiological stress, which sometimes may cause death. 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, heat wave conditions are considered if maximum temperature of a station reaches at least 40°C or more for plains, 37°C or more for coastal areas and at least 30°C or more for hilly regions. Following criteria is used to declare heat wave conditions prevailing:

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)
   - Heat Wave: When actual maximum temperature > 45°C
   - Severe Heat Wave: When actual maximum temperature >47°C

DECLARING HEATWAVE FOR TELANGANA STATE DURING 2020

To declare a heat wave, the above criteria should be met for 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.

TEMPERATURE HUMIDITY INDEX

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. To calculate the effect of humidity, Heat Index Values are used in some countries. The Heat Index is a measure of how hot it really feels when relative humidity is factored in with the actual air temperature. Heat index chart used by the National Weather Service of the USA given below shows that if the air temperature is 34°C and the relative humidity is 75per cent, the heat index how hot it feels - is 49°C. The same effect is reached at just 31°C when the relative humidity is 100per cent.
IMPACT OF HEATWAVE IN INDIA

Extreme positive (warmer) departures from the normal maximum temperature result in heat wave during the summer season. The rising maximum temperature during the pre-monsoon months continues till June, and in some cases till July, when the onset of southwest monsoon occurs over some parts of the country. In recent years, heat wave casualties have increased. Abnormally high temperatures were observed during April-June during 2010 to 2016 across the country.

In India, heat wave caused 24,223 deaths from 1992 to 2015 across various states. Intense and sustained efforts by all stakeholders significance reduction in mortality due to heat wave from 2040 in 2015 to 1111 in 2016. Mortality due to heat wave further reduced to 384 in 2017 and 25 in 2018. Heat wave also caused the death of wildlife, birds, poultry, etc. across the country.

HEATWAVE IMPACT IN TELANGANA

Telangana is highly prone to hot weather conditions and heatwave. Out of 589 Mandals 8 Mandals are in severe, 75 are in critical 163 are in Semi Critical situation as per the vulnerability analysis based on the history of data. Adilabad, Nirmal, Jagtial, Kumrambheem,
Asifabad, Maancheeril, Peddapalli, Karimnagar, Warangal, Mulugu, Khammam, Suryapet, Mahabubabad, Nalgonda districts are highly vulnerable to this hazard. Heatwaves will affect the entire population especially infants, children and aged people. According to the data analysed for 2014 to 2019 all the above districts had experienced 21-40 heatwaves days in a year.

<table>
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<tr>
<th>Year</th>
<th>Deaths</th>
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<tr>
<td>2017</td>
<td>108</td>
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<tr>
<td>2016</td>
<td>324</td>
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<td>2015</td>
<td>541</td>
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<td>2014</td>
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**DISTRICT WISE HEAT WAVE / SEVERE HEAT WAVE DAYS**

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The above table based on 2014-2019 data shows that number of heat wave days are maximum during the years 2015 & 2016 and lowest in the year 2018

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<th>District</th>
<th>Mandal</th>
<th>Date</th>
<th>Max. Temp (°C)</th>
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**MANDAL WISE MAXIMUM TEMPERATURE FROM 2014 TO 2019**
## DISTRICT WISE MAXIMUM TEMPERATURE - 2019

<table>
<thead>
<tr>
<th>Dcode</th>
<th>district</th>
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<th>Date</th>
<th>Max. Temp (°C)</th>
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HEATWAVE VULNERABILITY ANALYSIS

Based on heatwave and severe heatwave conditions over mandals for the last six years observed temperature the hazard vulnerability analysis was carried out. From the analysis, 8 mandals are falling under the category of severe heatwave vulnerable, 75 are critical, 163 are semi critical, 323 are vigilant and 20 are under safe category based on the criteria mentioned below. Over 13.32 million people are in severe, critical and semi critical zones in the state.
HEATWAVE VULNERABILITY AND POPULATION

Government of Telangana
Heatwave Vulnerability Map with Population

<table>
<thead>
<tr>
<th>S.No</th>
<th>Severe Heatwave (No. Years)</th>
<th>Heatwave (No. Years)</th>
<th>Status</th>
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<td>Critical</td>
</tr>
<tr>
<td>3</td>
<td>1 to 2</td>
<td>&gt;=2</td>
<td>Semi Critical</td>
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<td>Vigilant</td>
</tr>
<tr>
<td>5</td>
<td>0</td>
<td>0</td>
<td>Safe</td>
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</table>

Vulnerable mandals (with Population)
- Severe (8) (5.57L)
- Critical (75) (39.02L)
- Semi Critical (163) (68.64L)
- Vigilant (323) (207.36L)
- Safe (20) (9.47L)

Source & Prepared by TSDPF
DEPARTMENT LEVEL PREPAREDNESS MEASURES

DISTRICT COLLECTORS
District Collectors shall hold regular Press conferences on the risks and dangers of heat related illness, activated “cooling centres” at important locations – Religions places, Community and Public buildings, Malls and bus stands. District administrations also shall support NGO’s, Community Groups and Individuals to open “Chalivendrams” at public congregation places for providing drinking water and butter milk during Heat Wave conditions.

TELANGANA STATE DEVELOPMENT SOCIETY (TSDPS) & INDIAN METEOROLOGICAL DEPARTMENT (IMD)
TSDPS and IMD are providing temperature forecasts and communicating district wise max. temperature details on daily basis. Giving Heatwave alerts/warnings promptly through Mobile application, LED Display boards and TSDPS website. TSDPS conducting a periodic workshop for all stake holders in the month of March in association with Revenue (DM) Department IMD, IMS and UNICEF.

I & PR DEPARTMENT
District officers have been instructed to identify high risk areas for giving more attention. I & PR Department prepared and positioned IEC Material for adequate publicity through posters, pamphlets, flexi boards & banners, radio jingles across the State. It also created public awareness on heat-related illnesses, provided preventive tips and on Do’s & Don’ts of Heat wave through electronic and print media.

MEDICAL AND HEALTH DEPARTMENT
Medical and Health Department shall alert public effects of ill-health that will occur during heatwave. The department deployed additional staff to take care of affected persons due to Sunstroke, activated 108 / 104 Emergency services and also kept adequate stocks of medical supplies such as ORS and IV fluids in all hospitals / PHC’s / UHC’s by positioning ORS packets and IV fluids in each district.

LABOUR AND EMPLOYMENT DEPARTMENT
Labour and Employment Department shall activate employers to shift the outdoor workers schedules away from peak afternoon hours (1PM to 4 PM).

PR & RD DEPARTMENT
PR & RD Department shall restrict the working hours from 7 to 11 AM during Heat Wave Conditions for the labours working under Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA).
ANIMAL HUSBANDRY DEPARTMENT
Animal Husbandry Department shall activate field staff to create awareness among the Livestock farmers on the Animal Management during Heat waves and printed posters and exhibited in the public places of the villages. Cattle troughs were also provided with transportation of Drinking water.

TRANSPORT DEPARTMENT AND TSRTC
Transport Department and TSRTC shall establish health teams at major bus stands / terminals and other public places for safe transportation by changing the timings of buses during peak hours (12 to 4 PM).

EDUCATION DEPARTMENT
Education Department shall issue directions to schools to alter school timings to ensure children are not affected. Awareness and capacity development programmes will be conducted for Parents, Teachers, students and Non-teaching staffs. Dos and Don’t will be exhibited at the schools.

IT DEPARTMENT
IT Department built ‘The Telangana State Disaster Management Control Portal’ and upload data such as maximum, minimum and average temperatures, humidity and wind speed recorded by 1044 AWS sensors deployed across the state by TSDSP. ‘The Telangana State Disaster Management Control Portal’ provides functionality of mapping the nearest hospitals, schools and public offices in the identified area to disseminate information.

WOMEN AND CHILD DEVELOPMENT DEPARTMENT
Women, children and infants are most vulnerable to heatwave seasons. WCD has to take essential precautionary measures to ensure that essential nutritional services will not get effected during the time of heatwaves. The department has to ensure staff sensitisation before heat wave season. Capacity building programmes for AWC workers on DOs and DONTs. Ensure the accessibility to services through alternative schemes and service distribution patterns. All AWCs will complete delivery of services by 12.00 noon instead of 4.00 pm every day.

FOREST DEPARTMENT
Identify the spots of fire accidents in the forest using the historical data and ensure prevention of the possible fire related accidents in these spots through creation and maintenance of fire lines, control burning of the forest litter in the fire lines, clearance of dry wastes, awareness to the villagers adjoining the forest etc.
All Field Officers have been directed to divide the Forest areas into grids of 3 x 3 km (2 x 2 km in case of PAs) to assess availability of water source in each grid and to take measures to ensure water supply in grids without water source. 6102 grids have been identified out of which 2763 grids have at least one water source. Steps are on to provide water in another 970 grids which are accessible. With this nearly 76% of the Forest areas will have water sources for Wild animals.

The measures being taken include transportation and supply of water in saucer pits. The Nehru Zoological Park, Hyd. and Kakatiya Zoological Park, Warangal have already made
summer arrangements as is done every year to help Wild animals overcome the severe hot conditions.

The measures include installation of Sprinklers, Foggers, Air Coolers, Shade Nets, Water Pools, Wallow pits etc. in animal enclosures including Bird and Reptile enclosures. Special diet is consisting of fruits and vegetables like water melon, cucumber, tomatoes, tender coconut, sugarcane etc., with plenty of water is made available. The roof of the enclosures is covered with thick layer of grass / gunny bags and is watered frequently to retain moisture and cool down the enclosure. Large numbers of check dams and percolation tanks have been constructed in Forest areas to harvest and impound rain water for benefit of Wild animals. Several of the percolation tanks are now supplied water from solar bore wells in the installed Forest areas.

The solar bore wells and other water storage structures constructed for Wild animals also benefit the inhabitants of human settlements inside the Forests. Rain water harvesting structures are being taken up in Forest areas as a practice for several years in the form of soil and moisture conservation program. Percolation tanks, check dams, peripheral trenches, staggered trenches etc., have been constructed in Forest areas to conserve soil and moisture.

Further, The forest department is ensuring fire prevention & preparedness by taking below steps in this season. Identify the spots of fire accidents in the forest using the historical data and ensure prevention of the possible fire related accidents in these spots through creation and maintenance of fire lines, control burning of the forest litter in the fire lines, clearance of dry wastes, awareness to the villagers adjoining the forest etc.

TELANGANA STATE DEVELOPMENT PLANNING SOCIETY (TSDPS)
Telangana state development planning society has initiated accurate and timely weather forecast and hazard warning to state line departments and public. Weather data is being collected from 1044 Automated Weather Stations (AWS) located across the state on hourly basis. It creates and archives data base of weather information and makes real-time analysis, three-day weather forecaster of Heatwave on real time basis. Society has organized capacity building activities and review of action plan in association with Revenue (DM) department and UNICEF, Hyderabad Field Office. TSDPS has prepared Heatwave Atlas -2019 consisting of analysis of heatwave conditions of the state since last 09 years. TSDPS is developing a mobile App (T-Weather) to know about the village level weather conditions from the nearest AWS for the use of department officials, expert agencies and common public. In addition, the local weather information the App will also give information on top ten hottest locations in the state which will be helpful to the district officials to issue weather bulletins locally to make necessary precautionary measure. For transmission of real-time weather updates and alerts for public and official use, LED display boards were installed in the District Collector Offices and other prominent places in Hyderabad.

UNICEF, HYDERABAD FIELD OFFICE
UNICEF, Hyderabad field office in association with Revenue (DM) Department and Telangana State Development Planning Society (TSDPS) has reviewed the last year heatwave action plan. Revenue Disaster Management Department in association with UNICEF has initiated District Disaster Management Plan (DDMP) for the entire districts in Telangana considering all the hazards and vulnerabilities pertaining to different sectors in each districts of Telangana State. UNICEF, as the part of its Global platform-GRIP (Guidance for Risk Informed Programming) has prepared Child Risk and Impact Analysis (CRIA) considering the major
hazards of the state like Heatwave to identify various risks and impact of natural hazards especially on children and women and various social sectors providing critical services to them. Emphasis has been given to Heatwave hazard and it will help in developing special strategy.

**HOSPITAL PREPAREDNESS MEASURES FOR MANAGING HEAT RELATED ILLNESS**

Director/In-charge of Hospitals CHCS and PHCS in all the 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.
- Operational framework - preparing specific health adaptation plan, development of guidelines and response plan for climate sensitive diseases (CSD).
- Need for updating heat health action plan, and issuing advisories for hospital preparedness surveillance and weekly monitoring, including capacity building.
- Promoting strategic media coverage of climate and health linkages at the State level in regional languages to increase support for climate mitigation and adaptation responses.
- Long-term measures such as adopting cool roofs, improving green/forest coverage and analysing health impacts in urban planning.
- Standard Operating procedures to tackle all levels of heat-related illnesses. Capacity building measures for doctors, nurses and others staff should be undertaken.
- Cases with suspected heat stroke should be rapidly assessed using standard Treatment Protocols.
- Identify surge capacities and mark the beds dedicated to treat heat stroke victims and enhance emergency department preparedness to handle more patients.
- Identify RRT (Rapid Response Teams) to respond to any exigency call outside the hospitals.
- Ensure adequate arrangements of Staff, Beds, IV fluids, ORS, essential medicines and equipment to cater to management of volume depletion and electrolyte imbalance.
- May try to establish outreach clinics at various locations easily accessible to the vulnerable population to reduce the number of cases affected. Health Centers must undertake awareness campaigns for neighbourhood communities using different means of information dissemination.
- Primary health centres must refer the patients to the higher facility only after ensuring adequate stabilization and basic definitive care (cooling and hydration).
- Hospitals must ensure proper networking with nearby facilities and medical centres to share the patient load which exceeds their surge capacities.
- All cases of heat-related illnesses (suspected or confirmed) should be reported to IDSP (Integrated Disease Surveillance Programme) unit of the district.
EARLY WARNING AND DISSEMINATION

Presently TSDPS having 1044 Automatic Weather Stations (AWSs) in the state covering at 10x10 km resolution with at least one AWS in each of 589 mandals including 149 at GHMC area at 2x2 km resolution. The AWS provides hourly rainfall (mm), Temperature (0C), Humidity (%), wind direction and speed from all these stations which transmits the data to main server located at TSDPS office, Hyderabad through GSM technology. After quality control the real-time data and products are disseminated to various users.

REAL TIME DATA PRODUCTS IN HEATWAVE MANAGEMENT

- Hourly updating data on TSDPS web page and email, WhatsApp, SMS to state/district officials on Maximum temperature information and 3 days Temperature forecast.
- District specific data on Temperature along with colour code were displayed on TSDPS LED display boards available at district Hqs. and GHMC area and on heat wave precautionary measures required during the heat wave situations.
- Top 10 highest Maximum temperatures recorded locations in state and each district.
- District wise Maximum temperature forecast for next 3 days.
- Location specific hourly real-time data and 3 hourly forecast upto 3 days through TS-Weather App.
- District wise Maximum temperature spatial maps highlighting Maximum Temperature observed mandals for last 5 years.
Based on last 6 years AWS maximum temperature data, climatologically heat prone mandals were prepared as per the IMD norms.

### COLOUR CODE SIGNALS FOR HEAT ALERT AND SUGGESTED ACTIONS

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<tr>
<th>Colour Code</th>
<th>Alert</th>
<th>Warning</th>
<th>Impact</th>
<th>Suggested Actions</th>
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</thead>
<tbody>
<tr>
<td>Green (No Action)</td>
<td>Normal Day</td>
<td>Maximum temperatures are near normal</td>
<td>Comfortable No cautionary action required temperature</td>
<td>Normal Activity</td>
</tr>
</tbody>
</table>
| Yellow Alert (Be updated) | Heat Alert                | Heatwave conditions at isolated pockets persists for 2 days | Moderate temperature. Heat is tolerable for general public but moderate health concern for vulnerable people e.g. infants, elderly, people with chronic diseases | (a) Avoid heat exposure.  
(b) Wear lightweight, light-coloured, loose, cotton clothes.  
(c) Cover your head |
| Orange Alert (Be prepared) | Severe Heat Alert for the day | 1) Severe heat wave condition persists for 2 days  
(ii) Through non severe, but heat wave persists for 4 days or more | High temperature. 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. | (a) Avoid heat exposure- keep cool.  
Avoid dehydration (b) Wear lightweight, light-coloured, loose, cotton clothes  (c) Cover your head  (d) Drink sufficient water- even if not thirsty (e) Use ORS, homemade drinks like lassi, torani (rice water), lemon water, buttermilk, etc. to keep yourself hydrated  (f) Avoid alcohol, tea, coffee and carbonated soft drinks, which dehydrates the body  (g) Take bath in cold water frequently.  
In case of SUNSTROKE Lay the person in a cool place, under a shade. Wipe her/him with a wet cloth/wash the body frequently. Pour normal temperature water on the head. |
The main thing is to bring down the body temperature. Consult a Doctor immediately.

| Red Alert (Take Action) | Extreme Heat Alert for the day | i) Severe heat wave persists for more than 2 days. (ii) Total number of heat/severe heat wave days exceeding 6 days. | Very high likelihood of developing heat illness and heat stroke in all ages | Along with suggested action for orange alert, extreme care needed for vulnerable people. |

**Acclimatization:**

Those who come from a cooler climate to a hotter climate, especially during the heatwave 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 heatwave season.

**Identification of Heat Wave related illnesses and recordings of casualties:**

It is important to undertake an objective identification of heat wave illnesses and systematically record causalities resulting from heat wave. States may form committees at the district level with members not below the rank of Assistant Civil Surgeon, Tahsildar, and Inspector of Police to enquire into the deaths due to heat strokes/heat waves for correct reporting. In order to do so, the following four factors need to be taken into account:

- Recorded maximum temperature during the particular time period and place.
- Recording incidents, panchnama or others witnesses, evidence or verbal-autopsy.
- Post-mortem/medical check-up report with causes.
- Local authority or Local body enquiry/verification report.
- Cases of heat exhaustion and heat stroke should be reported.
### District Wise Heatwave Alert in Telangana

#### Heatwave Alert: 23.05.2019

<table>
<thead>
<tr>
<th>Districts</th>
<th>Recorded Max Temp in last 24hrs °C</th>
<th>Max Temp (°C) for next 3 days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hyderabad</td>
<td>45.6</td>
<td>43</td>
</tr>
<tr>
<td>Warangal</td>
<td>44.5</td>
<td>42</td>
</tr>
<tr>
<td>Karimnagar</td>
<td>43.9</td>
<td>41</td>
</tr>
<tr>
<td>Nalgonda</td>
<td>42.5</td>
<td>41</td>
</tr>
<tr>
<td>Others</td>
<td>41.5</td>
<td>40</td>
</tr>
</tbody>
</table>

Alert Levels:
- **>45°C** (Danger)...
- **40-45°C** (Alert)...
- **35-40°C** (Watch)...
- **<35°C** (No Warning)...

**Note:** The table provides a snapshot of heatwave alerts for various districts across Telangana, highlighting the recorded maximum temperature in the last 24 hours and the forecasted maximum temperature for the next 3 days.
## Heatwave Action Plan - 2020

### Maximum Temperature Forecast for Telangana State (24hrs)

![Heatwave Map](image)

### Major Roles and Responsibilities of Different Stakeholders

<table>
<thead>
<tr>
<th>State Agency</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Understanding Risk</strong></td>
<td></td>
</tr>
<tr>
<td>State Govt./SDMA/DDMA/ULBs/PRIs</td>
<td>Preparation/revision of Heatwave Action Plan based on NDMA revised Guidelines and local experiences.</td>
</tr>
<tr>
<td><strong>Inter-Agency Coordination</strong></td>
<td></td>
</tr>
<tr>
<td>State Govt./SDMA/Dist. Admin./DDMAs</td>
<td>- Real-time monitoring surveillance and evaluation of weather station.</td>
</tr>
<tr>
<td></td>
<td>- To disseminate the information received from IMD to the public at large.</td>
</tr>
<tr>
<td>Role</td>
<td>Actions</td>
</tr>
<tr>
<td>------</td>
<td>---------</td>
</tr>
<tr>
<td>State Govt./SDMA/ Dist. Admin./DDMAs</td>
<td>- Disseminate the heat-health warning, determine the threshold for action and communicate risks.</td>
</tr>
<tr>
<td>SDMA/DDMAs/ULBs/PRIs</td>
<td>- Prepare SoP for heat wave response based on Extended range of forecast and Numerical Weather Prediction.</td>
</tr>
<tr>
<td>SDMA/DDMAs/ULBs/PRIs</td>
<td>- Coordination among all stakeholder with clearly defined roles and responsibilities</td>
</tr>
<tr>
<td></td>
<td>- Flexible timing of market and offices</td>
</tr>
<tr>
<td></td>
<td>- Take necessary measures, wherever applicable</td>
</tr>
<tr>
<td></td>
<td>- Collaboration with non-government and civil Society</td>
</tr>
<tr>
<td></td>
<td>- Provide occupational support and advisories</td>
</tr>
<tr>
<td></td>
<td>- Special care for vulnerable groups children, disabled, women and old aged.</td>
</tr>
<tr>
<td>State Govt./SDMA/ Dist. Admin./DDMAs/Health Department</td>
<td>- Develop monitoring mechanism for implementation of heat action plan</td>
</tr>
<tr>
<td></td>
<td>- Provision of funds for heat action mitigation plans.</td>
</tr>
<tr>
<td></td>
<td>- Deployment of rapid medical response teams</td>
</tr>
</tbody>
</table>

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**Prevention and Mitigation Measures**

**Investing in Disaster Risk Reduction**

**NON-STRUCTURAL MEASURES**

### PREPAREDNESS AND MITIGATION MEASURES

#### PREPAREDNESS MEASURES

<table>
<thead>
<tr>
<th>Role</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>State Govt./SDMA/ Dist. Admin./DDMAs/ULBs/PRIs</td>
<td>- Appointment of Nodal officer at each level (state, districts, tehsil and block, department etc)</td>
</tr>
<tr>
<td></td>
<td>- Implementation of Heat Action Plan</td>
</tr>
<tr>
<td></td>
<td>- Issue necessary directions for preparedness</td>
</tr>
<tr>
<td>State Govt./Dept. of home</td>
<td>- Ensure shade for on duty traffic police, as they are more exposed to heat wave and distribution of Cool jacket for traffic police personnel</td>
</tr>
<tr>
<td>State Govt./SDMA/ Dist. Admin./DDMAs/ULBs/PRIs</td>
<td>- Heat wave should be included in annual disaster event calendar.</td>
</tr>
<tr>
<td></td>
<td>- Interstate collaboration for sharing experiences and data</td>
</tr>
<tr>
<td>SHORT TERM MITIGATION MEASURES</td>
<td></td>
</tr>
<tr>
<td>--------------------------------</td>
<td>---------------------------------------------------</td>
</tr>
</tbody>
</table>
| State Govt./Health Department | - 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. |
| Dept. of forest in coordination with other departments | - Identify heat hot-spots" using framework for tracking and modeling 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 programmes.  
- Ensure shed for resting and drinking water facilities for workers at all work place, |
| State Govt./ Department of Drinking water | - 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 all common place and nearby habitation. |
| State Govt./Education Department | - Rescheduling of school timing and vacation as per heatwave situation. Ensuring cool places for all educational institutions, and availability of water facilities.  
- Ensure that students avoid outdoor physical activities during the summer in schools.  
- Research on heatwave related issues through universities. |
| State Govt./Dept. of Labour/Dept. of Social Welfare | - Implement the direction for heatwave season.  
- Re-scheduling of working hours for employees in different sectors. |
| **State Govt./Dept. of Agriculture/Horticulture and Animal Husbandry** | - Ensure drinking water facilities at work places.  
- Coordinate with Health department and ensure regular health check up of the workers and provide emergency materials to constringtion workers.  
- Follow the advisory on heatwave  
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 animal. |
| **State Government/ District Admin./DDMAs/ULBs/MAUD** | - 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 heatwave season.  
- Promote cool roofs initiative such as paint roof white, create green roofs and walls and plan trees in neighbourhood to keep them cool. |
| **State Government/ Dept. of Transport** | - 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 equipments. |
| **Department of Power** | 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./ Dept. of Science and Technology** | - To develop application/ APP related to awareness generation, quick information sharing on the Heatwave Risk Reduction.  
- R&D activities to promote utilization of S&T in the field of Heatwave risk reduction  
- Promote research on heatwave related issues. |

**STRUCTURAL MEASURES**

**LONG TERM MITIGATION MEASURES**

<table>
<thead>
<tr>
<th><strong>State Govt./ SDMA/ Concerned line Departments</strong></th>
<th>- Long term planning for heat resilience infrastructure</th>
</tr>
</thead>
</table>
| State Govt./Relief Commissioner/SDMA/Dept. of Forest / Dept. of R&B | - Ensure construction of green building. Energy conservation building code (ECBC) related to heatwave risk mitigation.  
- Increase forest coverage and green area.  
- Afforestation and mass plantation  
- Coordination with Transport Department and Roads and Bridges for plantation of trees at road side, barren land and other areas.  
Prevention of forest fire and control measures. |
| State Govt./Dept. of Agriculture | Promote short duration and heat resisting crops. |

**CAPACITY DEVELOPMENT**

| State Govt./ SDMA/State ATI with Department of Health and Education | - Develop training module and conduct proper training programme for different stakeholders.  
- Heatwave management should be added in school curriculum to sensitize school children and local people.  
- Conduct capacity building and training programme as per domain and expertise of department. |
|---------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| State Govt./PWD, MAUD | - 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 heatwave risk mitigation. |
## PUBLIC AWARENESS AND COMMUNITY OUTREACH

### MEDIA CAMPAIGN AND IEC ACTIVITY

| SDMA/ District Admin./ DDMA/Information and Public relations Dept. and other concerned department | - IEC campaign to create awareness through print media, electronic media, social media etc.  
- Display board with colour coding for heatwave alert.  
- Display DO's and DON’ts in the Public areas, Hospitals, Parks etc.  
- Develop of mobile application for faster spread of heat related issue, alertness, space for shelters and drinking water. |

### DATA COLLECTION AND DOCUMENTATION

| SDMA/DDMA/Health Department though 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 causalities/ deaths due to heatwave based on the post mortem report, death count, type of disease, time and duration. |

**Cool Roofs to Provide Affordable Thermal Comfort:** Urban residents living in slums have fewer options available to adapt to rising temperatures. This increases their vulnerability to heat and results in greater adverse impacts of extreme heat on these communities. In their issue brief “Rising Temperatures, Deadly Threat”, the NRDC and IIPH Gandhinagar identified several specific factors that increase the vulnerability of slum residents to extreme heat:

**Higher Exposure to Extreme Heat:** Slum residents are more likely to be exposed to heat since they work primarily outside or in unventilated conditions, they live in homes constructed of heat-trapping materials with tin or tarpaulin roofs, and their communities lack trees and shade

**Greater Susceptibility to Health Effects of Extreme Heat:** Lack of access to clean water, poor sanitation, over-crowding, malnutrition, and a high prevalence of undiagnosed/untreated chronic medical conditions due to poor access to healthcare heighten slum community members’ susceptibility to extreme heat’s effects on health.

**Adaptation Options Available:** Slum residents lack control over their home and work environments, with limited access to (and inability to afford) reliable electricity and cooling methods like fans, air coolers and air conditioning, insufficient access to cooling spaces, and a dearth of health information on which to act. All these factors reduce slum residents opportunities to adapt to increasing temperatures.

An affordable solution is cool roofs. A cool roof is a white reflective roof that stays cool in the sun by minimizing heat absorption and reflecting thermal radiation to help dissipate the solar heat gain. Studies have shown that cool roofs can be up to 30°C cooler than conventional roofs, and can bring the indoor temperatures down by 3-5° C. When implemented on a large
scale, cool roofs can reduce the urban heat island effect in a city. Cool roofs include coatings and treatments such as lime-based whitewash, white tarp, white china mosaic tiles and acrylic resin coating, and provide an affordable solution for providing thermal comfort.

**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.
Principal Secretary Revenue (DM) Department as Nodal Officer to head the Heat Wave Action Plan at State Level, District Collector is the Nodal Officer at District Level and Commissioner Greater Hyderabad Municipal Corporation (GHMC) is the Nodal Officer for GHMC area Municipal Corporation and Commissioner, Municipal Corporations/Municipalities in their respective Municipalities.

The Nodal Officer is responsible for coordinating and communicating ahead of, and during, extreme heat events. The Nodal Officer should adopt the steps given in three Phases.

As per plan and directions, training programmes were conducted with officials from Medical and Public Health, Community Health Staff, Health Care Professionals, Administrators, and also VROs, VRAs, paramedical & field staff and link workers (ASHAs, ANMs etc.) for effective implementation of “Heat Wave Action Plan”.

The State Government constituted a ‘Three-member Committee’ at Mandal level with Tahsildar, Sub Inspector of Police and Assistant Civil Surgeon to enquire into and certify the deaths due to Sun strokes / Heat Waves, in order to ensure the deceased families, receive the relief at the earliest under “Apathbandhu Scheme” amounting to 50,000/

**THE PLAN IS TO BE IMPLEMENTED IN THREE PHASES:**

**Phase - I**
Pre-Heat Season
Jan-Mar

**Phase - II**
During-Heat Season
Mar-July

**Phase - III**
Post-Heat Season
July-Sep
PHASE 1: PRE-HEAT SEASON
JANUARY TO MARCH

Prl. CDM & E.O. Prl. Secretary to Govt - Nodal Officer for State
District Collector - Nodal Officer for District
Commissioner, GHMC - Nodal Officer for GHMC
Commissioner - Nodal Officers for Municipal

* Convene Meeting with Departments/Organisations/ NGOs involved in rehab /Agencies to review mechanism to respond to extreme heat events.
* Interact regularly with concerned Departments for review and feedback.
* Identify high-risk areas of the State/District vulnerable to heat waves and focus on such areas and initiate focused activities on prevention of heat related illness.
* Organize training for health workers, link workers, teachers, school children, and the local community with the Health Department in preventive measures and treatment protocol.
* Distribute pamphlets and posters in local language with tips to prevent heat stress to hospitals, schools, and professional associations.
* Display the information provided by TSDSP/IMD in the web portal and for displaying the same in display boards across the City and District HQs.
* Request all telecom service providers to send Heat wave messages to subscribers at no cost.

Weather information LED Display boards installed across the city and District Headquarters, Managed by TSPDS

ROLES AND RESPONSIBILITIES OF THE DEPARTMENTS/ AGENCIES

REVENUE (DM) DEPT

1. Promote research on heat related management and mitigation practices in collaboration with knowledge partners in the state.
2. Conduct periodic coordination meetings with all relevant departments towards implementation of the heat wave action plan.
3. Coordinate heat wave awareness campaigns, Dos and Don'ts and capacity building activities in the state

**INDIA METEOROLOGICAL DEPARTMENT (IMD)**
1. Issue Prior Warnings with details of temperature and districts.
2. Conduct awareness workshops for media and Departments.

**INFORMATION & PUBLIC RELATIONS (I & PR) DEPARTMENT**
1. Identifying high-risk areas through survey by Dist. Officers of I & PR Dept as to be made focus of attention
2. Developing and designing information materials in local languages on heat stress prevention and tips for health protection during extreme heat events:
   - Posters/hoardings
   - Pamphlets
   - Booklets
   - CM Open letters to the public to be read in the Gram Sabhas
3. Developing cinema slides to be shown in cinema theaters, besides TV scrolls and Radio Jingles.
4. Developing themes for widespread communications through social and print media. Use of folk artists to spread message in rural and tribal artists.

**MEDICAL & HEALTH DEPARTMENT AND MEDICAL PROFESSIONALS**
1. Initiate targeted training programs, capacity building efforts and communication on heat illness for medical staff at local PHCs/hospitals and Urban Health Centres (UHCs), nursing staff and also VROs, VRAs, paramedics, field staff and link workers, (ASHA Workers ANMS etc.). Identify the susceptibility of particular wards for special attention.
2. Ensure hospitals update their admissions and emergency case records to track heat-related cases. Train hospitals to improve expedience of recording the cause of death certificates. The training could also include recording Information Education & Communication (IEC) efforts.
3. Adopt heat-focused examination procedures at local hospitals and urban health centers.
4. Promote use of reusable soft plastic ice packs for the state wide UHCs, 108 emergency centres, ambulances and hospitals.
5. Explore creation of ice pack dispensaries to increase access to vulnerable communities.
6. One day workshops in 18 hospitals with the medical students may be organized before commencement of summer – Director Medical Education (DME).
7. Separate beds for the Sunstroke victims may be provided – Director Medical Education (DME) and Telangana State Vaidya Vidhana Parishad(TSVVP).
8. Help desk with Toll free 104 may be established for further information on Heatwave – S.O-104.
9. Ensure the availability of separate room for Heat Stroke patients in hospitals in a well ventilated and cool space.
10. In PHCs and CHCs, wherever AC and Coolers are available, to be utilized in the heat stroke room.
11. Provision of power backup, ambulances & other PHC vehicles should be kept ready
12. Proper sensitization of health workers and medical staff is to be done in all categories such as preparedness measures, awareness on dangers of heatwave etc.

108/104 EMERGENCY SERVICE:
1. Create displays on ambulances during local events to build public awareness
2. Identify at-risk areas of vulnerable populations, in part by utilizing the list of high-risk areas.

LABOUR & EMPLOYMENT DEPARTMENT
1. Organize awareness camps for employers, factory manager's outdoor labourers and workers regarding health impacts of extreme heat and recommendations to protect themselves during high temperatures.
2. Utilize maps of construction sites and outdoor work spots to identify more high-risk outdoor workers. Potentially overlay with irradiation map from IMD or heat island map. Conduct publicity campaigns during high-risk days to these specific areas.
3. To regulate construction/work site contactors to provide drinking water, ORS and shelter to worker's labourers.
4. To Instruct Factory Management to provide cool drinking water, ORS and shelter to worker's labourers.

ANIMAL HUSBANDRY DEPARTMENT
1. Review and discuss implementation of Heatwave Action Plan for safeguarding cattle and poultry district heads and also Farmers Training Centres.
2. Prepare material like Posters & pamphlets separately for tips to take care of cattle and poultry during heatwaves
3. Review availability of necessary medicines for treatment of cattle / poultry affected by heatwave
4. Prepare plan for drinking water for cattle with RWS Dept.

TRANSPORT DEPARTMENT
1. Review plan with cab operator / auto / transport associations and also Highway patrol.
2. Explain importance of proper shade, availability of drinking water and other facilities for transport office visitors and applicants.
3. Discuss and involve cab operator / auto / transport associations.
4. Distribute pamphlets / posters on heat related illness prevention; Do's and don'ts for display & further distribution to passengers at Bus stations, bus shelters, cab and auto stands etc
5. Plan and Ensure availability of proper shade, drinking water and Butter Milk for applicants and visitors.
6. Ensure availability with of ORS, Ice pack, and Cool drinking water.

TELANGANA STATE ROAD TRANSPORT CORPORATION
1. Review plan with Depot Managers/ Zonal Managers
2. To create awareness among the Staff and Passengers through gate meetings, Pamphlets, Posters and Banners on the ill effects of Heat Wave and Sunstroke during summer.
3. Organize heat wave risk awareness programmes for Bus crew, staff at bus stands
4. Explain importance of proper shade, availability of drinking water and other facilities for passengers in bus stations
5. Distribute pamphlets/posters on heat related illness prevention; Do’s and Don’ts for display & further distribution to passengers at Bus Stations, Bus Shelters.
6. Ensure supply of safe drinking water to its Staff and Passengers in the depots and bus stations through RO plants, Municipal Water Supply, through chalivendram organized by social organizations during summer season.
7. Procure Hot whether equipment such as Earthen pots, Ranjans., Water glasses etc at all work places like offices, workshops, Depots, bus stations for the use of employees and passengers.
8. Contact District Medical Administration to procure ORS and sodium lactate packets which have to be supplied to the passengers who are found with symptoms of Sunstroke.
9. Ensure availability of proper shade, drinking water for passengers at bus stands.
10. Ensure availability of ORS, Ice pack, and Cool drinking water, in long distance buses.

**EDUCATION DEPARTMENT**
1. Review plan with Education Department officials (School/Colleges, etc) organise awareness camps classes on heat wave related illness/sunstrokes for teachers and also students
2. Explain importance of proper shade, availability of drinking water and other facilities for Students
3. Distribute pamphlets/posters on heat related illness prevention; Do’s and Don’ts for display & further distribution to students in Schools & Colleges.
4. Ensure availability of ceiling fans in class room’s proper shade, drinking water for students.
5. Ensure availability with of ORS, Ice pack, and Cool drinking water.

**INFORMATION TECHNOLOGY (IT) DEPARTMENT**
1. Arrange with Planning Department to collect real time information through sensors in Automatic Weather Stations (AWS) for monitoring the temperatures and also for disseminating the same.
2. Prepare Dash board with a login to monitor heat wave scenario and its impact constantly.
3. Prepare map on web interface with colour coding system

**DEPARTMENT OF FOREST AND ENVIRONMENT**
1. All Field Officers should be directed to divide the Forest areas into grids of 3 x 3 km (2 x 2 km in case of PAs) to assess availability of water source in each grid and to take measures to ensure water supply in grids without water source. 6102 grids have been identified out of which 2763 grids have at least one water source. Steps are on to provide water in another 970 grids which are accessible. With this nearly 76% of the Forest areas will have water sources for Wild animals. The measures being taken include transportation and supply of water in saucer pits.
2. The Nehru Zoological Park, Hyd. and Kakatiya Zoological Park, Warangal have already made summer arrangements as is done every year to help Wild animals overcome the severe hot conditions. The measures include installation of Sprinklers, Foggers, Air Coolers, Shade Nets, Water Pools, Wallow pits etc. in animal enclosures including Bird and Reptile enclosures.
3. Special diet is consisting of fruits and vegetables like water melon, cucumber, tomatoes, tender coconut, sugarcane etc., with plenty of water is made available. The roof of the enclosures is covered with thick layer of grass / gunny bags and is watered frequently to retain moisture and cool down the enclosure.

4. Large numbers of check dams and percolation tanks have been constructed in Forest areas to harvest and impound rain water for benefit of Wild animals. Several of the percolation tanks are now supplied water from solar bore wells in the installed Forest areas.

5. The solar bore wells and other water storage structures constructed for Wild animals also benefit the inhabitants of human settlements inside the Forests.

6. Rain water harvesting structures are being taken up in Forest areas as a practice for several years in the form of soil and moisture conservation program. Percolation tanks, check dams, peripheral trenches, staggered trenches etc., have been constructed in Forest areas to conserve soil and moisture.

7. Directive for making water available for animals in reserved/ protected forests and make necessary provisions, where necessary.

8. Issue directives to the Zoo Authorities for special arrangements for the animals in zoo to protect them from the effect of Heat Wave.

9. Provision of drinking water like ponds/water bodies for wild life

10. Directive for provision of water to human habitations facing water scarcity inside reserved forests

11. Promote rain water harvesting


13. Identify spots for possible fire accidents in the forest and ensure to defuse any possible fire related accidents. Clearance of dry wastes to be priority.

WOMEN DEVELOPMENT AND CHILD WELFARE DEPARTMENT

1. Setting up of nutritional resource centers at anganwadi centers to supplement nutritional deficiency in children.

2. Pre heatwave necessary precautionary methods such as provision of proper stock of ORS, buttermilk and other rehydration methods may be arranged well in advance as the heatwave extends for about 17-45 days in Telangana.

3. To create a surveillance mechanism on tracking children, lactating mothers and women through ICDS and Anganwadi centers in the state.

4. Capacity building of Anganwadi sevikas, Asha workers, ANM nurses and ICDS workers to identify symptoms in women and children and to report it when necessary.

5. To identify the districts or villages where high child mortality rates are present to take necessary precautionary methods.

FIRE DEPARTMENT

1. To check the readiness of vehicles and firefighting equipment to face any emergency situations.
POLICE DEPARTMENT

1. Conduct of joint capacity building and awareness building activities to the police staff posted in vulnerable mandals on topics such as importance of periodic hydration, working in shade and effects of pollution combined with heatwave.
2. Suggest on shifting the work hours of Traffic personnel in the early morning and late evening along with convenient shifts throughout the day with enough rest.
3. Addressing the thick material of police uniforms that trap heat addition to the body heat.
4. Updating the guidelines for police personnel on duty and creating awareness at all levels.

NGOs, COMMUNITY GROUPS AND INDIVIDUALS

1. Initiate educational preventative trainings aimed at children and distribute heat protection materials at local schools. A workshop could be organised for teachers to equip them with knowledge of heat protection tips and materials that they can teach in classrooms. Students can be assigned activities and projects on health dangers of extreme heat.
2. Conduct Training workshops and outreach sessions with community groups and mobilizers such as ASHA workers, Anganwadies, Self Help Groups and municipal councils to help inform and also actively involve vulnerable communities. Other sectors such as higher education, NGOs and community leaders may also be involved to increase reach to communities.
3. Encourage individuals’ discussion of the early signs of heat exhaustion with their local doctor or Urban Health Centre.
4. Inform fellow community members about measures and tips to keep cool and protect oneself from heat.
5. Distribute pamphlets & paste, posters in vulnerable areas.
PHASE 2: DURING THE HEAT SEASON
APRIL TO JUNE

Prl. CDM & E.O. Prl. Secretary to Govt - Nodal Officer for State
District Collector - Nodal Officer for District
Commissioner, GHMC - Nodal Officer for GHMC
Commissioner - Nodal Officers for Municipal

* Issue a State and District wide **heat alert** when extreme heat events are forecast. The key agency leaders, IMD, SDMA in accordance with the Communication Plan above may be notified.

* When necessary, monitor and increase the heat alert level to match the severity of the forecast and threshold established. Special meetings with key agency leaders may be convened.

* Activate “cooling centers,” such as temples, public buildings, malls, during a heat alert and/or State Government - run temporary night shelters for those without access to water and/or electricity.

* Provide access to shaded areas for outdoor workers, slum communities, and other vulnerable populations on a large scale. For example, confirm that night shelters stay open all day for migratory populations during a heat alert.

* Hold regular (daily, if necessary) conference to discuss reports and fresh breaking developments during a heat alert and ensure that communication channels are functional and operating.

* Monitor temperature data and forecasts.

* All non-essential uses of water (other than drinking, keeping cool) may be suspended.

* Increase efforts to distribute fresh drinking water to the public by opening ‘Chalivendrams’ at people congregation points. For example, expand potable water access during a heat alert at religious spaces including temples and mosques, Bus stations, pouch handouts to the poor and high-risk areas (identified by the mapping of high-risk areas).

* Inform power supply Companies to prioritize maintaining power to critical facilities (such as hospitals and UHCs).

* Notify when the heat alert is over.

**ROLES AND RESPONSIBILITIES OF THE DEPARTMENTS/ AGENCIES**

**INDIAN METEOROLOGICAL DEPARTMENT (IMD) and TELANGANA STATE DEVELOPMENT SOCIETY (TSDPS)**

1. Provide weekly forecasts
2. Communicate Heatwave alerts/warnings promptly.
3. Communicate Max temperatures district-wise periodically.
4. Update heatwave details regularly.
INFORMATION & PUBLIC RELATIONS (I & PR) DEPARTMENT
1. Creating awareness among public through advertisements in regional languages
2. Displaying hoardings at important places
3. Creating awareness through TV and Radio spots and jingles
4. Conducting regular press conferences at the State level and District level through concerned Ministers, Secretaries and Collectors on the risks and dangers of heat related illness.
5. Circulating heat wave warnings i.e. text alerts or WhatsApp messages in collaboration with private sector telecom companies in addition to traditional media.
6. Sending warnings in bulk to the public via centralized email databases during heat waves.
7. Developing SMS alert system from time to time on treatment systems to send messages to private doctors and medical professionals at Government hospitals including PHCs and UHCs.
8. Utilizing local radio FM broadcast through special programmes and during popular programmes to alert the public.
10. Collect all news items/reports on Heatwaves daily and report to Government. Conducting regular press conferences at the state level and District level on the risks and dangers of heat related illness.
11. Circulating heat wave warnings i.e. text alerts or WhatsApp messages in collaboration with private sector telecom companies in addition to traditional media.
12. Sending warnings in bulk to the field level government missionaries including Doctors and medical professionals at Government hospitals at PHCs and UHCs via centralized email databases during heat waves.
13. Utilizing local radio FM broadcast through special programmes and during popular programmes to alert the public. Exploring other means of communication like Facebook, Twitter and WhatsApp for wide publicity.

MEDICAL & HEALTH DEPARTMENT AND MEDICAL PROFESSIONALS:
1. Display heat-related illness prevention tips and how to stay cool around hospitals PHCs and UHCs
2. Keep adequate stocks and Ensure availability of medical supplies like ORS in all hospitals/PHCs/UHCs, hospitals.
3. Generate reports of the public health impact for Nodal Officer, every week/month during a heat alert
4. Deploy additional staff at hospitals and PHCs/UHCs to attend to the influx of patients during a heat alert, if feasible
5. Increase link worker and community health worker outreach in at-risk neighbourhoods during a heat alert, if feasible
6. Have Regional Health Officers visit UHCs to confirm proper preparation has been made for heat related illness case audits during heat season may be conducted
7. Update heatwave related illness information to Revenue (Disaster Management) Department to monitor the impact of heat wave.

108/104 EMERGENCY SERVICE:
1. Ensure adequate supply of ice packs and IV fluids
2. Disseminate SMS text messages to warn local residents during a heat alert
3. Ensure ambulance vehicles are available for emergency purposes.

LABOUR & EMPLOYMENT DEPARTMENT
1. Encourage employers to shift outdoor workers’ schedules away from peak afternoon hours (1pm – 5pm) during a heat alert
2. Provide emergency ice packs and heat-illness prevention materials to construction workers as pilot project.

ANIMAL HUSBANDRY DEPARTMENT
1. Conduct training for Dept., field workers as well as for cattle and poultry farmers on heat wave management plan in Animal Husbandry sector, can use giant coolers in Cattle sheds and poultry farms
2. Display posters / distribute pamphlets in villages, and important government offices
3. Ensure availability of adequate field staff during heat wave and ensure that they visit villages for follow up action.

TRANSPORT DEPARTMENT /METRO RAIL/TRAIN
1. Display posters & distribute pamphlets on prevention of heat related illness
2. Ensure availability of shade, drinking water, ORS etc
3. Permit use of school premises as shelter during day time
4. Establish Health teams at major bus stands / Terminals and other public places.
5. Involve Auto/Transport associations wherever possible in distribution of drinking water and Butter milk at all RTA offices and CPs.

TELANGANA STRATE ROAD TRANSPORT CORPORATION
1. Display posters & distribute pamphlets on prevention of heat related illness
2. Ensure availability of shade, drinking water, ORS for passengers & crew at Bus stands, Depots
3. Establish Health stations at major bus stands / Terminals and other public places
4. Ensure that buses do not run during peak hours (12-4 pm) when Heatwave is declared.
5. Provide emergency ice packs and heat-illness prevention materials to TSRTC staff (Drivers, Conductors) etc
6. Operate more AC buses during peak hours (12 noon -4.00 p.m.) when Heat wave is declared. Keep the AC buses in operational conditions.
7. Contact District Medical Administration to procure ORS and sodium lactate packets which have to be supplied to the passengers who are found with symptoms of Sunstroke.
8. Provide immediate Medical Aid to be given to the staff & passengers who are found to be affected by Sunstroke and to be shifted to nearest Hospital for further treatment.
9. Play the CD made on the ill effects of HEAT WAVE and the precautions to be taken during the summer season in all the buses and bus stations where the TVs are functioning.
10. Utilize public addressing system in all bus stations for announcing ill effects of HEAT WAVE.
11. Provide Buttermilk at places like Adilabad, Nizamabad, Kothagudem and Badrachalam etc., where the temperatures often go very high, through sponsors.
12. Display the list of steps to be taken for prevention of sun stroke as prepared by Tarnaka hospital Authorities at all conspicuous places in the Depots/garages/bus stations and other premises through pamphlets/ flexi banners etc. to educate the staff and passengers
EDUCATION DEPARTMENTS
1. Display posters & distribute pamphlets on prevention of heat related illness in Schools and Colleges
2. Identify shelter space, of shade, drinking water, ORS facilities with signs
3. Ensure that Schools do not function during peak hours (12-4 pm) when Heat wave is declared
4. No open-air classes to be conducted
5. Ensure school buses are parked in sheds, sprinkle water on the roof of the buses, before commuting.
6. Distribute heat protection materials at local schools and orient school teachers to equip them with knowledge of heat protection tips and activities which they can disseminate in classrooms.
7. Scheduling of examinations before starting of Heat period normally.
8. Hostels operated by Social Welfare, Minority, and by Private Institutions to ensure proper measures are adopted to provide sufficient water and arrangements to keep the environment in the hostels cool. Ensure sufficient power supply is available, health facility is available, fans/cooler’s installed.

INFORMATION TECHNOLOGY (IT) DEPARTMENT
1. Prepare Dynamic Heat wave Plan with links of Departments for real-time / implementation.
2. Send real time information to all Departments through Dash board/ interface.
3. Activities to be displayed on Dash board/ Interface/Online Monitoring Tool
4. Activate Heat Wave management APP

MA & UD DEPARTMENT / CORPORATIONS / MUNICIPALITIES
1. Display temperature data in the electronic display boards in its jurisdiction (Junctions and public places)
2. Parks to be open for rest – no charges to collect. Keep open the parks for a longer duration during evenings.
3. Malls/shops to keep cold water at their locations
4. Department of Water Supply to provide drinking water to “Chalivendrams”
5. Activate “cooling centers,” such as public buildings, malls, temples, schools and State Government or Local body, run temporary night shelters for those without house or access to water and/or electricity at home.
6. Expand access to shaded areas for outdoor workers, slum communities, and other vulnerable sections of population.
7. All non-essential uses of water (other than drinking, keeping cool) may be suspended, if necessary.
8. Distribution of fresh drinking water to the public by opening water centres (Chalivendrams) at people congregation points like market places, construction and infrastructure work locations, Bus stations etc.
9. Water may be distributed through pouches to the poor in the identified high-risk areas.
10. Actively involve NGOs, Lions Club, Rotary Club and Corporate houses in providing shelter and drinking water facilities in places like public buildings, malls, temples, schools and State Government or Local body, run temporary night shelters for those without house or access to water and/or electricity at home.
11. Expand access to shaded areas for outdoor workers, slum communities, and other vulnerable sections of population.
**WOMEN DEVELOPMENT AND CHILD WELFARE DEPARTMENT**

1. Use opportunities, such as nutrition day, SHG meetings for creating awareness and educate young girls and mothers regarding the dangers of Heat Waves, its related health impacts and the precautionary measures to be taken.

2. Display IEC materials at Anganwadis and encourage integrated child development scheme (ICDS) workers to disseminate Heat Wave related information with special focus on infants, children below five years, pregnant and lactating mothers, and geriatric population to protect them from dehydration.

3. Provision of drinking water and first aid at all the Anganwadi Centers, old age homes, orphanages.

4. Ensure that visits to homes by AWWs are done early mornings, so as not to be exposed to high temperatures.


6. ORS, buttermilk and other dehydration methods should be provided to all the school going children under anganwadi centres and mid day meal scheme

7. Monitoring and evaluation of heatwave impacted infants, women and lactating mothers during the heatwave period.

8. Child and Women specific Hot Line numbers should be active 24/7

9. The government’s nutritional Aarogya lakshmi programme for spot feeding should be provided at home instead of making the women travel to centers.

**FIRE DEPARTMENT**

1. Obtain feedback on Fire calls, plan, and measures taken.

**POLICE DEPARTMENT**

1. Provision of drinking water, preferably in earthen pots to keep the police personnel hydrated.

2. Proper usage of caps and sun glasses for traffic police in prolonged shifts from morning to afternoon.

3. Management of traffic through traffic lights instead of police personnel standing out in the sun.

4. Ensure the usage of covered police vehicles (4 wheelers) for personnel travel and resting.

**NGOs, COMMUNITY GROUPS AND INDIVIDUAL**

1. Keep cool and hydrated during the heat season by drinking water, staying out of the sun, and wearing light clothing

2. Office and field visit timings to be re-worked

3. Check on vulnerable neighbours, particularly during a heat alert

4. Limit heavy work in direct sun or indoors if poorly ventilated, especially during a heat alert.
PHASE 3: POST-HEAT SEASON
JULY TO SEPTEMBER

Prl. CDM & E.O. Prl. Secretary to Govt - Nodal Officer for State
District Collector - Nodal Officer for District
Commissioner, GHMC - Nodal Officer for GHMC
Commissioner - Nodal Officers for Municipal

* Organize an annual meeting with key agency leaders and relevant stakeholders to review Heat Wave Action Plan.
* Evaluate the reach and impact of the Plan and update/revise it based on review and evaluation.
* Evaluate the Plan process based on performance and revise accordingly.
* Evaluate the reach and impact of the Plan and revise accordingly.
* Display the revised Plan in the Disaster Management/District website ahead of the next heat season for stakeholders.
* Discuss establishing cooling center facilities in high-risk areas around city.
* Make important recommendations arising out of review and evaluation to Government.

ROLES AND RESPONSIBILITIES OF THE DEPARTMENTS/ AGENCIES

INDIA METEOROLOGICAL DEPARTMENT (IMD)
1. Provide season report containing duration of Heatwave, maximum temperatures location-wise.
2. Obtain feedback on cases, plan, and measures taken
3. Revise plan accordingly
4. Report to Government

INFORMATION & PUBLIC RELATIONS (I & PR) DEPARTMENT
1. Collect feedback on publicity, reach and implementation of plan from media and other sources.
2. Collect all news items/reports on Heatwave plan published/telecast.
3. Collect all new items/reports on Heatwaves.

MEDICAL & HEALTH DEPARTMENT AND MEDICAL PROFESSIONALS
1. Perform an epidemiological case review of heat-related mortalities during the summer.
2. Conduct and gather epidemiological outcomes from the data on heat risk factors, illness and death, based on average daily temperatures.
4. Measure mortality and morbidity rates based on data before and after the Plan’s interventions.

108/104 EMERGENCY SERVICE
2. Obtain feedback on cases, plan, and measures taken.
3. Revise plan accordingly.

**LABOUR & EMPLOYMENT DEPARTMENT**
2. Obtain feedback on cases, plan, and measures taken.
3. Revise plan accordingly.

**TRANSPORT DEPARTMENT**
1. Review implementation and effectiveness of Plan.
2. Obtain and give feedback for further improvement of Plan.

**TSRTC**
1. Review implementation and effectiveness of Plan.
2. Obtain and give feedback for further improvement of Plan.

**EDUCATION DEPARTMENTS**
1. Review implementation and effectiveness of Plan.
2. Obtain and give feedback for further improvement of Plan.

**ANIMAL HUSBANDRY DEPARTMENT**
2. Obtain feedback on cases, plan, and measures taken.
3. Revise plan accordingly.

**FIRE DEPARTMENT**
1. Collect Fire call data and find reasons and plan for future.

**INFORMATION TECHNOLOGY (IT) DEPARTMENT**
1. Collect data of temperatures mandal wise.
2. Collect data on number of downloads of APP & map accordingly.

**WOMEN DEVELOPMENT AND CHILD WELFARE DEPARTMENT**
1. Evaluate the reach of Asha workers and ICDS programme in reducing the child mortality in all heatwave affected districts.
2. Revision of Heat wave Action Plan

**POLICE DEPARTMENT**
1. Evaluation of the past heat wave season and issues faced by the police staff.
2. Compilation of works done, milestones achieved and lives saved. New learnings by the department shall also be compiled and shared among the departments.
3. Acknowledgment and token of appreciation in monetary forms may be granted for the service of the police personnel.

**NGOs, COMMUNITY GROUPS/SHGs/ WARD LEVEL COMMITTEES / INDIVIDUALS**
1. Reach the unreached and educate the community on a continuous basis.
2. Conduct training programmes, workshops and outreach sessions with community / Self-help groups and mobilizers such as DWACRA groups, Mahila Arogya Samiti, ASHA workers, Anganwadis, and Ward Committees in Municipalities to help inform and get vulnerable communities more actively involved

3. Identification of NGOs, Voluntary Organizations in reaching out to the Public, especially vulnerable groups

4. Encourage discussions for finding early signs of heat exhaustion with local doctor or Health Centre

5. Inform fellow community members about how to keep cool and protect oneself from heat

**All Departments are requested to (create awareness) circulate this plan to their District/Division/ Mandals /Village offices for the benefit of field staff.**

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**CHECKLIST FOR MAJOR STAKEHOLDERS & LINE DEPARTMENTS**

### DISTRICT MAGISTRATE / DISTRICT REVENUE OFFICERS

**Pre-heat season**
- Organize district level line department review and planning meeting
- Prioritise updation and review of department SOPs
- Designate point of contact for each department in heatwave management
- Organize monthly review of activities and situation analysis
- Establish heat illness and mortality tracking system and update datasets
- Give priorities to departments dealing with vulnerable populations
- Ensure proper impact mitigation strategies at Education and WCD for uninterrupted education and critical health and nutrition services to women, children and infants.
- Create list of high-risk areas of city heat-wise

**During Heat Event**
- Ensure updates and communication from each line department nodal officers.
- Announcement of heat wave warning at least 48 hrs in advance.
- Maintain contact with department points of contact for updates on conditions
- Ensure staff presence and availability of supplies with each department – including distributing fresh drinking water
- Communicate locations of emergency facilities and cooling shelters/shaded areas, chalivendrams with each department
- Monitor heat alert and increase level when severe forecast

**Post-heat season**
- Review quantitative and qualitative data for process evaluation and improvements
- Organize annual evaluation of heat plan with key line departments, civil organization and agencies.
- Review and revise heatwave action plan

### WOMEN DEVELOPMENT AND CHILD WELFARE DEPARTMENT

**Pre-heat season**
- Ensure capacity building programmes to parents, teaching and non-teaching staffs at AWCs under ICDS, staffs at nutrition centres.
- Prepare alternative plans for ensuring uninterrupted nutrition services during heat season especially for pregnant women and infants.
- Ensure availability of IEC materials and headlines prevention materials at centres.
- Staff capacity building on DO’s and DON’Ts

**During Heat Event**
- Proper monitoring with the support of factories and boilers department, department of labour, different civil engineer’s consortium etc. to ensure no child labour and abuse.
- Ensure working hours changes and AWS working hours accruing to the situation.
- Monitoring of shelter, cooling and heat illness management facilities at AWCs and nutrition centres.
- Depute officer at state and district level for monitoring and evaluation of the strategies and situations

**Post heat season**
- Participate in annual evaluation of heat action plan
- Review revised heat action plan

### CHECKLIST FOR MEDICAL COLLEGES AND HOSPITALS

<table>
<thead>
<tr>
<th>Pre-heat season</th>
<th>During Heat Event</th>
<th>Post-heat season</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ensure ORS and first aid kits available</td>
<td>Adopt heat-related treatment and prevention protocols</td>
<td>Participate in annual evaluation of heat action plan</td>
</tr>
<tr>
<td>Special capacity building programme for the staffs at causalities.</td>
<td>Equip hospitals with additional materials</td>
<td>Review revised heat action plan</td>
</tr>
<tr>
<td>Adopt heat-focused examination materials</td>
<td>Deploy all medical staff to be on duty</td>
<td></td>
</tr>
<tr>
<td>Get additional hospitals and ambulances ready</td>
<td>Keep emergency ward ready</td>
<td></td>
</tr>
<tr>
<td>Update surveillance protocols and programs, including to track daily heat-related data</td>
<td>Monitor water borne diseases, malaria and dengue</td>
<td></td>
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<tr>
<td></td>
<td>Keep stock of small reusable ice packs to apply to PULSE areas</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Report heat stroke’s patients to District/ DRO on daily basis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Expedite recording of cause of death certificates</td>
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</tbody>
</table>

### CHECKLIST FOR HEALTH DEPARTMENT

<table>
<thead>
<tr>
<th>Pre-heat season</th>
<th>During Heat Event</th>
<th>Post-heat season</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify areas that are vulnerable</td>
<td>Prepare rapid response team</td>
<td>Participate in annual evaluation of heat action plan</td>
</tr>
<tr>
<td>Check inventories of medical supplies in health centers</td>
<td>Distribute Do’s and Don’ts to community</td>
<td>Review revised heat action plan</td>
</tr>
<tr>
<td>Identify cooling centers and barriers to access cooling centers</td>
<td>Effectively send a “Don’t Panic!” message to community</td>
<td></td>
</tr>
<tr>
<td>Community involvement in mitigation and preparedness measures</td>
<td>Ensure access to Medical Mobile Van in the Red Zone</td>
<td></td>
</tr>
</tbody>
</table>
- Ensure additional medical vans available

**Post-heat season**
- Participate in annual evaluation of heat action plan
- Review and revise heatwave action plan

### CHECKLIST FOR CHCs/PHCs

<table>
<thead>
<tr>
<th><strong>Pre-heat season</strong></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>* Distribute pamphlet and other materials to community</td>
<td></td>
</tr>
<tr>
<td>* Sensitize health workers and community leaders</td>
<td></td>
</tr>
<tr>
<td>* Develop and execute school health program</td>
<td></td>
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<tr>
<td>* Dissemination of materials in slum communities</td>
<td></td>
</tr>
<tr>
<td>* Coordinate outreach efforts with other community groups, non-profits, and higher education</td>
<td></td>
</tr>
<tr>
<td>* Training to AWC workers, ASHAs and other community health workers.</td>
<td></td>
</tr>
<tr>
<td><strong>During Heat Event</strong></td>
<td></td>
</tr>
<tr>
<td>* Modify working hours to avoid impact of heat hours</td>
<td></td>
</tr>
<tr>
<td>* Recheck medical stock</td>
<td></td>
</tr>
<tr>
<td>* Visit at-risk populations for monitoring and prevention</td>
<td></td>
</tr>
<tr>
<td>* Communicate information on tertiary care and emergency services and DDMA</td>
<td></td>
</tr>
<tr>
<td><strong>Post-heat season</strong></td>
<td></td>
</tr>
<tr>
<td>* Participate in annual evaluation of heat action plan</td>
<td></td>
</tr>
<tr>
<td>* Review and revise heatwave action plan</td>
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</tbody>
</table>

### CHECKLIST FOR DISTRICT INFORMATION & PUBLIC RELATION DEPARTMENT

<table>
<thead>
<tr>
<th><strong>Pre-heat season</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>* Secure commercial airtime slots for public service announcements</td>
<td></td>
</tr>
<tr>
<td>* Identify areas to post warnings and information during heat season</td>
<td></td>
</tr>
<tr>
<td>* Organize training for health workers and medical Professionals</td>
<td></td>
</tr>
<tr>
<td>* Activate telephone hotline</td>
<td></td>
</tr>
<tr>
<td>* Begin placing temperature forecasts in newspapers</td>
<td></td>
</tr>
<tr>
<td>* Increase installed LED screens with scrolling temperature data</td>
<td></td>
</tr>
<tr>
<td><strong>During Heat Event</strong></td>
<td></td>
</tr>
<tr>
<td>* Issue heat warnings in heat and electronic media</td>
<td></td>
</tr>
<tr>
<td>* Ensure proper communication with TSDPS/IMD for getting warnings and alerts.</td>
<td></td>
</tr>
<tr>
<td>* Contact local FM radio and TV stations for announcements</td>
<td></td>
</tr>
<tr>
<td>* Use SMS, text and WhatsApp mobile messaging and centralized mobile databases to send warnings</td>
<td></td>
</tr>
<tr>
<td>* Contact transport department to place warnings on buses</td>
<td></td>
</tr>
<tr>
<td><strong>Post-heat season</strong></td>
<td></td>
</tr>
<tr>
<td>* Evaluate reach of advertising to target groups and other means of communication such as social media</td>
<td></td>
</tr>
<tr>
<td>* Participate in annual evaluation of heat action plan</td>
<td></td>
</tr>
<tr>
<td>* Revise heat action plan as per the changes required</td>
<td></td>
</tr>
</tbody>
</table>

### CHECKLIST FOR LABOUR/ INDUSTRIAL SAFETY & HEALTH DEPARTMENT

<table>
<thead>
<tr>
<th><strong>Pre-heat season</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>* Communicate directly about heat season with non-factory workers</td>
<td></td>
</tr>
</tbody>
</table>
- Capacity building programmes
- Ensure change in working hours according to the situation
- Heat illness orientation for factory medical officers and general practitioners
- Generate list of factory medical officers and contractors to include in heat action communications from Nodal Officer
- Utilize maps of construction sites to identify more high-risk outdoor workers.
- Conduct publicity campaigns during high-risk days in identified high-risk areas

**During the Heat Season**
- Provide water and heat resistant measures at work sites
- Ensure proper cooling facilities where ever required
- Extended hours at Occupational Health Centres
- Consider extended afternoon break or alternate working hours for workers

**Post-heat season**
- Participate in annual evaluation of heat action plan
- Review and revise heatwave action plan

**CHECKLIST FOR EMERGENCY MEDICAL SERVICE (HEALTH DEPARTMENT)**

**Pre-heat season**
- Identify most vulnerable locations based on the warnings provided in IMD and TSDPS websites and LED displays.
- Prepare handouts for paramedics about heat illness
- Create displays on ambulances to build public awareness during major Spring events
- Identify media point of contact
- Establish Dynamic Strategic Deployment Plan for ambulances
- Ensure adequate supply of IV fluids
- Prepare SMS/other mode of communication messages to disseminate during emergencies

**During the Heat Season**
- Send messages to all employees alerting them of heat action plan
- Activate Dynamic Strategic Deployment Plan
- Ready medicine stocks
- Keep accurate records of pre-hospital care

**Post-heat season**
- Provide data to DDMA/Revenue (DM)Department
- Participate in annual evaluation of heatwave action plan
- Review and revise heatwave action plan

**CHECKLIST FOR ANIMAL HUSBANDRY**

**Pre-heat season**
- Ensure additional mobile hospital ready at vulnerable villages
- Update surveillance programme and protocol including track daily heat is related to livestock
- Update facilities according to the data available from TSDPS Website.
- Establish more clinical education to villagers who have animals
- Continue to train medical and paramedical staff in this period
- Identify the areas that are vulnerable for animals
- Check inventory of medicine supply in animal health centres
- Prepare handouts for animal paramedical to heat illness
Establish dynamic strategic development plan for mobile ambulance for animals
Ensure medical supply of medicines & fluids
Capacity building programmes at veterinary hospitals/centres especially for farmers

**During the Heat Season**
- Prepare Do’s and Don’ts and distribute to community
- Adopt heat related illness and prevention protocol
- Equip mobile van with additional materials
- Deploy all animal husbandry staff on duty during heat wave
- Monitor water borne diseases
- Prepare quick reaction team
- Ensure additional annual husbandry van available
- Ready medicine stocks

**Post-heat season**
- Provide data to key agency leaders
- Participate in annual evaluation of heat action plan
- Review and revise heatwave action plan

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**CHECKLIST FOR MUNICIPAL CORPORATION**

**Pre-heat season**
- Arrangements for drinking water specially “Challivendram” at all strategic and vulnerable points
- Capacity building programmes to disaster management units under GHMC.
- Display heat alerts and precautionary measures at strategy points
- Arrangement for shelters and sheds in open and consisted places
- Instruction to open parks/zoos during peak hours
- Arrangements for water supply to slums
- Fire advisory to be given to fire departments
- Water conservation for fire tankers

**During the Heat Season**
- Distribute Do’s and Don’ts to community
- Develop control room with sufficient staff
- Arrangement for emergency water supply
- Maintain contact with Hospital Water Supply department, PWD, HUDA
- Ensure staff presence
- Monitor heat alerts and increase level for severe forecast
- Prepare quick reaction team
- Ensure GHMC control room in emergency communication loop.

**Post-heat season**
- Participate in annual evaluation of heat action plan
- Review and revise heatwave action plan
ANNEXURES

Annexure -1 - CASE DEFINITIONS
Annexure -2 - HEAT ILLNESS TREATMENT PROTOCOL
Annexure -3 - FORMAT FOR DEATH REPORTED DUE TO HEATWAVE
(State report to NDMA)
Annexure -4 - Format for DETAILS OF THE DEATH REPORTED DUE TO HEATWAVE
(Record kept with state Government)
Annexure -5 - DAILY REPORT OF THE HEAT STROKE CASE AND DEATHS
(District report to state Government)
Annexure -6 - DEATHS DUE TO HEAT RELATED ILLNESS
(To be cumulated at the State Level and sent to Central Government)
Annexure -7 - SYMPTOMS AND FIRST AID FOR VARIOUS HEAT DISORDERS
Annexure -8 - Dos and Don’t s
Annexure -9 - IEC Materials
## Annexure -1

### CASE DEFINITIONS

**Range of Heat Illness – Typical Presentations – Symptoms, Sign and Prognosis**

<table>
<thead>
<tr>
<th>Clinical Entity</th>
<th>Age Range</th>
<th>Setting</th>
<th>Carinal Symptoms</th>
<th>Cardinal/Important Signs</th>
<th>Pertinent Negative findings</th>
<th>Prognosis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Heat rash/prickly heat/Miliaria</strong></td>
<td>All, but frequently children</td>
<td>Hot environment; +/- insulating clothing or swaddling (wrap in tight cloths)</td>
<td>Itchy rash with small red bumps at pores in the skin. Seen in setting of heat exposure; bumps can sometimes be filled with clear or white fluid</td>
<td>Diffused red colour skin or vesicular rash, itching of the skin without visible eruption</td>
<td>Not focally distributed like a contact dermatitis</td>
<td>Full recovery with elimination of exposure and supportive care</td>
</tr>
<tr>
<td><strong>Heat Cramps</strong></td>
<td>All</td>
<td>Hot environment typically with exertion, +/- insulating clothing</td>
<td>Painful spasms of large and frequently used muscle groups</td>
<td>Uncomfortable appearance, may have difficulty fully extending affected limbs/joints</td>
<td>No contaminated wounds/tetanus exposure; no seizure activity</td>
<td>Full recovery with elimination of exposure and supportive care</td>
</tr>
<tr>
<td><strong>Heat exhaustion</strong></td>
<td>All</td>
<td>Hot environment; +/- exertion; +/- insulating clothing or swaddling (wrap in tight cloths)</td>
<td>Feeling overheated, light headedness, exhausted and weak, unsteady, feeling of vomiting, sweaty and thirsty, inability to continue activities.</td>
<td>Sweaty/diaphoretic; flushed akin; hot skin; normal core temperature; +/- dazed, +/- generalized weakness, slight disorientation</td>
<td>No coincidental signs and symptoms of infection; no focal weakness; no difficulty in swallowing food or speech; no overdose history</td>
<td>Full recovery with elimination of exposure and supportive care; progression to heat syncope/stroke if continues exposure</td>
</tr>
<tr>
<td><strong>Heat syncope</strong></td>
<td>Typically adults</td>
<td>Hot environment; +/- exertion; +/- insulating clothing</td>
<td>Feeling hot and weak; light headedness followed by a brief loss of</td>
<td>Brief generalized loss of consciousnes in hot setting short period of</td>
<td>No serious activity, no loss of bowel or bladder continence, no focal</td>
<td>Full recovery with elimination of exposure and</td>
</tr>
<tr>
<td>Heat stroke</td>
<td>All</td>
<td>Hot environment; +/- exertion; +/- insulating clothing or swaddling (wrap in a tight cloths)</td>
<td>Severe overheating; profound weakness; disorientation, not fully alert, convulsion, or other alerted mental status</td>
<td>Flushed, dry skin (not always), core temp $&gt;40^\circ$C or $104^\circ$F; altered mental status with disorientation, incoherent behaviour, coma, convulsion, tachycardia; +/- hypotension</td>
<td>No coincidentia l signs and symptoms of infection; no focal weakness; no difficulties in swallowing food or speech, no overdose history.</td>
<td>25-50% mortality even with aggressive care; significant morbidity even if survives.</td>
</tr>
</tbody>
</table>
Annexure -2

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:
      i. Extremes of age (infants, elderly)
      ii. Debilitation physical deconditioning. Overweight or obese
      iii. Lack of acclimatization to environmental heat (recent arrival, early in summer season)
      iv. Any significant underlying chronic disease including psychiatric cardiovascular, neurologic, hematologic, obesity, pulmonary, renal, and respiratory disease
      v. Taking one or more of the following:
         1. Sympathomimetic drugs
         2. Anticholinergic drugs
         3. Barbiturates
         4. Diuretics
         5. Alcohol
         6. 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.
### Annexure – 3

**Format – A DEATHS REPORTED DUE TO HEATWAVE**

(To be sent by Rev. (DM) Dept. in Secretariat to NDMA)

Name of the state:                                                         Year:                           Reporting Period: Date of Reporting:

<table>
<thead>
<tr>
<th>District</th>
<th>Location</th>
<th>Occupation</th>
<th>Economic</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Urban</td>
<td>Rural</td>
<td>Total</td>
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<tr>
<td>Age Group</td>
<td>M</td>
<td>F</td>
<td>M</td>
</tr>
<tr>
<td>District-1</td>
<td>0-6 years</td>
<td>19-35 Years</td>
<td>36-60 Years</td>
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<tr>
<td></td>
<td>7-18 Years</td>
<td></td>
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</tr>
<tr>
<td>District-2</td>
<td>0-6 years</td>
<td>19-35 Years</td>
<td>36-60 Years</td>
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<tr>
<td></td>
<td>7-18 Years</td>
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<tr>
<td>Total State</td>
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</tbody>
</table>

* If any other information related to heatwave, please enclose a separate page

Name and designation of the reporting officer:                                    Signature with Date:
Annexure – 4

Format B – **MONTHLY DETAILS OF THE DEATHS REPORTED DUE TO HEATWAVE**
(To be sent by District Collectrate (D-Section) to Rev. (DM-1) Dept.)

Name of the District: ............................................

<table>
<thead>
<tr>
<th>S.No</th>
<th>Name and Address</th>
<th>Age</th>
<th>Sex (M/F)</th>
<th>Occupation</th>
<th>Place of death</th>
<th>Date and time of death</th>
<th>Max. Temp. recorded (Rectal and Oral)</th>
<th>Deaths reported during heatwave period or Not</th>
<th>List of chronic diseases present (Ask the family members)</th>
<th>Date and time of post mortem (If conducted)</th>
<th>Date and time of joint enquiry conducted with a revenue authority</th>
<th>Cause of death</th>
<th>Remarks</th>
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</table>

Name and Designation of the Reporting officer: ........................................ Signature with Date: ........................................
Annexure – 5

Format A - DAILY REPORT OF THE HEAT STROKE CASE AND DEATHS
(To be sent by District Collectrate (D-Section) to Rev. (DM-1) Dept.)

Name of the District: ………………………………..

<table>
<thead>
<tr>
<th>S. No</th>
<th>Village</th>
<th>PHC</th>
<th>Block/City</th>
<th>Name &amp; Son/ Daughter/Wife of</th>
<th>Occupation</th>
<th>Urban</th>
<th>Rural</th>
<th>BPL</th>
<th>Y/N</th>
<th>Date of attack of Heat Stroke</th>
<th>Any Antecedent illness</th>
<th>Cause of death</th>
<th>Death confirmed by MOs and MROs</th>
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</table>

Name and Designation of the Reporting officer:  

Signature with Date:
## Annexure - 6

**Format B - DEATHS DUE TO HEAT RELATED ILLNESS**

(To be cumulated at the State Level and sent to Central Government)

State ...........................................  Date: ...........................................

<table>
<thead>
<tr>
<th>S.No:</th>
<th>Name of the District (Name of all Districts)</th>
<th>New cases admitted due to Heat Related Illness since the last reporting period</th>
<th>Cumulative no. of cases admitted due to Heat Related Illness since 1st April .................</th>
<th>Deaths reported due to Heat Related Illness since last reporting period</th>
<th>Cumulative no. of deaths due to Heat Related Illness since 1st April .................</th>
<th>Remarks (If any shortage of ORS/IV fluids/ Treatment facilities etc.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

**Total**
### SYMPTOMS AND FIRST AID FOR VARIOUS HEAT DISORDERS

<table>
<thead>
<tr>
<th>Heat Disorder</th>
<th>Symptoms</th>
<th>First Aid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sunburn</td>
<td>Skin redness and pain, possible swelling, blisters, fever, headaches.</td>
<td>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 get medical attention.</td>
</tr>
<tr>
<td>Heat Cramps</td>
<td>Painful spasms usually in leg and abdominal muscles or extremities. Heavy sweating.</td>
<td>Move to cool or shaded place. Apply firm pressure on cramping muscles or gentle massage to relieve spasm. Give sips of water. If nausea occurs, discontinue.</td>
</tr>
<tr>
<td>Heat Exhaustion</td>
<td>Heavy sweating, weakness skin cold, pale, headache and clammy. Weak pulse. Normal temperature possible. Fainting, vomiting.</td>
<td>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. Or call 108 and 102 for Ambulance</td>
</tr>
<tr>
<td>Heat Stroke (Sun Stroke)</td>
<td>High body temperature (106°F). Hot, dry skin. Rapid, strong pulse. Possible unconsciousness. Victim will likely not sweat</td>
<td>Heat stroke is a severe medical emergence. 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. <strong>DO NOT GIVE FLUIDS.</strong></td>
</tr>
</tbody>
</table>
Annexure – 8
Dos and Don’ts

**Dos (Do’s)**
- Wash hands often.
- Wash your hands thoroughly with soap.
- Drink plenty of water.
- Avoid outdoor activities during peak heat hours.
- Use air conditioning if available.
- Wear lightweight, loose-fitting clothing.
- Use fans and air coolers.
- Avoid strenuous physical activity.
- Reduce exposure to direct sunlight.
- Use shade or umbrellas.

**Don’ts (Don’ts)**
- Do not expose yourself to the sun.
- Do not drink alcohol or coffee.
- Do not take hot baths.
- Do not overexert yourself physically.
- Do not use hot water for washing.
- Do not use electric appliances that generate heat.
- Do not drink cold water immediately.
- Do not use air conditioners if not necessary.
- Do not drink cold beverages.
- Do not use任何形式的遮阳伞.
**DO's**

- Try to stay in cold places
- Use umbrella during hot days
- Wear thin, loose cotton garments, preferably of white colour
- Wear a hat of cotton or a turban
- Avoid outdoor physical activity from 12-3 P.M. If unavoidable, attend to only light physical activity under the hot sun
- Take ample water along with salted butter milk or glucose water
- Take measures to reduce the room temperature like watering, using window shades, fanning, and cross ventilation
- Shift the person with heat stroke symptoms to cool dwelling
- The person suffering with heat stroke should have minimum clothing
- The person suffering with heat stroke has to be sponged with cold water, indirect application of ice-packs
- The person suffering with heat stroke should be kept in between ice-blocks
- If the person affected with heat stroke is not showing any improvement, he should be shifted to a hospital immediately preferably with cooling facility

**Don'ts**

- Expose to direct sunlight or hot breeze
- Move under hot sun without umbrella
- Use of black and synthetic, thick clothes during summer season
- Move under the hot sun without a hat or turban.
- Attend to strenuous physical activity under the hot sun
- Allow direct hot air into the living room
- Delay in shifting the person suffering with heat stroke to a cool place
- The person suffering with heat stroke to have thick clothing
- The person suffering with heat stroke to be sponged with hot water and to be exposed to hot air.
Heatwave Action Plan - 2020

**DOs**

- **TRY TO STAY IN COLD PLACES**
- **USE UMBRELLA DURING HOT DAYS**
- **WEAR DRY, LOOSE CLOTH GARMENTS, PREFERABLY OF WHITE COLOUR**
- **WEAR A HAT OF COTTON OR A TURBAN**
- **TAKE ADEQUATE WATER ALONG WITH SALTED BUTTER MILK OR GLUCOSE WATER**
- **TAKE MEASURES TO REDUCE THE ROOM TEMPERATURE LIKE WATERING, USING WINDOW SHADES, FANING, AND CROSS VENTILATION**
- **SHIFT THE PERSON WITH HEAT STROKE SYMPTOMS TO COOL DWELLING**
- **THE PERSON SUFFERING WITH HEAT STROKE SHOULD HAVE MINIMUM CLOTHING**
- **THE PERSON SUFFERING WITH HEAT STROKE HAS TO BE SPONGED WITH COLD WATER, INDIRECT APPLICATION OF ICE-PACKS**
- **THE PERSON SUFFERING WITH HEAT STROKE SHOULD BE KEPT IN BETWEEN ICE-BLOCKS**
- **EXPOSE TO DIRECT SUNLIGHT OR HOT BREZE**
- **MOVE UNDER THE HOT SUN WITHOUT AN UMBRELLA**
- **USE OF BLACK AND SYNTHETIC, THICK CLOTHES DURING SUMMER**
- **MOVE UNDER THE HOT SUN WITHOUT A HAT OR TURBAN**
- **ATTEND TO STRENQUOUS PHYSICAL ACTIVITY UNDER THE HOT SUN**
- **ALLOW DIRECT HOT AIR INTO THE LIVING ROOM**

**DON'Ts**

- **The person affected with heat stroke is not showing any improvement, we should be shifted to a hospital immediately preferably with cooling facility**
- **The person suffering with heat stroke to have thick clothing**
- **The person suffering with heat stroke to be exposed to hot air**
- **Delay in shifting the person suffering with heat stroke to a cool place**
IEC MATERIALS

Maximum Temperature:

- Red: >45°C Warning
- Orange: 41-45°C Alert
- Yellow: 35-40°C Watch
- Green: <35°C No Warning

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Heatwave Action Plan
- 2020

Annexure - 9
ప్రపంచానికి విశ్వాసం పైగా లేని రకాల కులాల ప్రపంచ మీది మాత్రమే వివిధ ప్రభావాలు ఉంటాయి. ఈ ప్రకారం, నేడు ప్రపంచంలోని వివిధ రకాల కులాలు ఉంటాయి. ఇవి మనుషుల జీవితాన్ని ఎంచుకునే రకాలు ఉంటాయి. ఈ ప్రపంచంలో మనుషులు కులాల సంప్రదాయాలతో సంపాదిస్తారు. ఈ ప్రపంచంలో మనుషులు కులాల సంప్రదాయాలతో సంపాదిస్తారు. ఈ ప్రపంచంలో మనుషులు కులాల సంప్రదాయాలు నిర్మించారు.