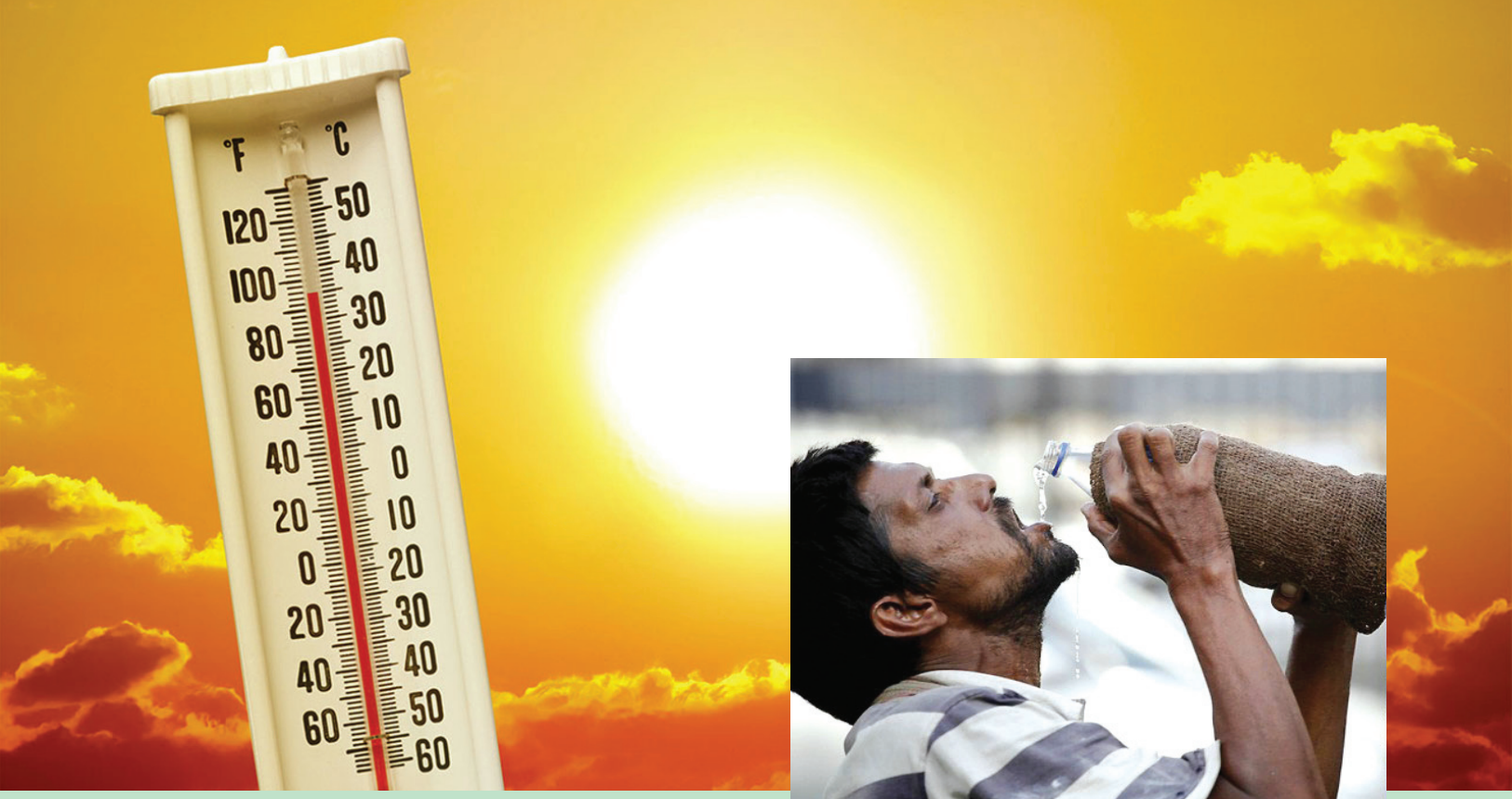


HEAT ACTION PLAN 2022 for Odisha

OSDMA

Prepared by
Odisha State Disaster Management Authority (OSDMA)

Heat Action Plan for Odisha, 2022
Published in April, 2022

Documentation & Designed :

Odisha State Disaster Management Authority (OSDMA), Odisha
Tel: 0674-2395398/2395531, E-mail: osdma@osdma.org

HEAT ACTION PLAN 2022 for Odisha

OSDMA

Prepared by
Odisha State Disaster Management Authority (OSDMA)


BEAT THE
HEAT

CONTENT

ABBREVIATION

ANM	Auxiliary Nurse Midwife
AIR	All India Radio
ASHA	Accredited Social Health Activist
AWS	Automatic Weather Station
BCC	Behavioral Change Communication
BMC	Bhubaneswar Municipal Corporation
CDMO	Chief District Medical Officer
CHC	Community Health Center
CMRF	Chief Minister Relief Fund
CPA	Critically Polluted Area
CPCB	Central Pollution Control Board
DHH	District Headquarters Hospital
DPH	Directorate of Public Health
ECBC	Energy Conservation Building Code
EOC	Emergency Operation Centre
ERP	Excess Risk Point
EWS	Early Warning System
HAP	Heat Action Plan
H&UD	Housing and Urban Development
HRI	Heat Related Illness
IHI	Industrial Heat Island
IEC	India Meteorological Department
IIPH	Indian Institute of Public Health
IIPH-B	Indian Institute of Public Health-Bhubaneswar
IMD	India Meteorological Department
I & PR	Information & Public Relation Department
IRADe	Integrated Research & Action for Development

IDRC	International Development Research Centre
DSP	Integrated Disease Surveillance Programme
LAI	Leaf Area Index
LULC	Land Use Land Cover
MHU	Mobile Health Unit
MRP	Maximum Risk Point
NDMA	National Disaster Management Authority
NDRF	National Disaster Response Force
NHM	National Health Mission
NOAA	National Oceanic and Atmospheric Administration
NRDC	National Research Development Organization
ORS	Oral Rehydration Solution
OSDMA	Odisha State Disaster Management Authority
PHC	Primary Health Center
PRI	Panchayat Raj Institution
RI	Routine Immunization
RIMES	Regional Integrated Multi-Hazard Early Warning System
SDH	Sub Divisional Hospital
SDRF	State Disaster Response Fund
SIHFW	State Institute of Health and Family Welfare
SPCB	State Pollution Control Board
SRC	Special Relief Commissioner
SRO	Special Relief Organization
TERI	The Energy and Researches Institute
ULB	Urban Local Bodies
UHI	Urban Heat Island
VHND	Village Health Nutrition Day
WMO	World Meteorological Organization
WHO	World Health Organization
WUA	Water User Board

FOREWORD

Odisha has a history of extreme heat conditions and the state government has taken various preparatory measures over the years to reduce the fatalities due to Heat Waves.

The state has been witnessing an increasing trend of Heat Wave for the past few years due to global warming. This year also the temperatures are soaring above 40 degrees in several districts with high humidity which is making life difficult for the people.

Advisories have been issued to take precautionary measures in addition to several preparedness measures by the government for the vulnerable. These measures will need to be updated regularly in the coming days, if the estimates of World Meteorological Organization (WMO) are to be believed which predict that heat related fatalities will double in less than 20 years.

Considering steady increase in temperature and frequent and prolonged occurrences of Heat Wave in the state; it was decided to include preventive and adaptive measures in the Heat Action Plan (HAP) 2022 to build resilience of the people in line with the local and livelihood needs.

The HAP has been prepared and updated through a consultative process with inputs from various key departments. It is a fluid document which would be updated at regular intervals based on the changing climatic conditions.

I hope that HAP will be used by the different stakeholders including policy makers, administrators, government officials and field level functionaries for guidance and implementation of timely measures to tackle the Heat Wave.

Shri Pradeep Jena, IAS
DC-cum-ACS, Special Relief Commissioner &
Managing Director, OSDMA

Stay hydrated

Stay covered

Block direct sunlight

Remain indoor
during 12:00 PM – 04:00 PM

PREFACE

The State of Odisha has been facing an on slaught of Heat Waves that have resulted in huge losses of lives. Starting from the landmark year 1998, the state has unabatedly been challenged by Heat Wave situations over the last two decades. Extreme weather conditions will only increase in frequency and intensity in the coming years due to the adverse effects of global warming and climate change. Keeping this in mind, the Odisha State Disaster Management Authority (OSDMA) has taken some robust measures to combat the impact of heat waves.

In 2014, OSDMA prepared the first Heat Action Plan (HAP) that highlighted the roles and responsibilities of various government departments and organizations to meet these rising challenges. Since then, it is updated every year. The HAP, 2022 has been updated as per the National Guidelines, 2019. It is a framework for implementation and coordination of preparatory and response measures pertaining to extreme heat conditions.

This Action Plan provides an overview of some of the main actions that have been undertaken to address Heat Waves in Odisha. A compilation of many Heat Wave related research and findings of different departments has also been included for future response and mitigation planning. The plan also includes a chapter on the new innovative measures in early warning and dissemination. The Standard Operating Procedures (SOPs) of relevant departments and district administration have been added for a clear understanding of the actions to be taken in a coordinated response against the calamity. Finally, a list of Do's and Don'ts has also been included for awareness on some of the quick measures that can be taken at the community level for preparation to tackle Heat Waves or incases of heat strokes.

OSDMA acknowledges the invaluable inputs given by all the concerned departments and organizations in the preparation of the Heat Action Plan, 2022. We have made a sincere effort to incorporate as much relevant and authentic information as possible in the preparation of the documents. However, we welcome any feedback, corrections, or suggestions that can help us strengthen the plan further, so that it meets its said objectives.

Dr. Gyana Ranjan Das, IAS
Executive Director, OSDMA

1. INTRODUCTION

Rationale for strengthening the Heat Action Plan (HAP)

Odisha has a history of Heat Waves with soaring temperatures being recorded in several parts of the state. About 2042 people died in the State in the year 1998 due to Heat Wave. Casualties related to Heat Wave were experienced by the state again in 2005 when 236 lives were lost. There could have been many possible reasons including growing urbanization, rising population and industrialization. The problem is further going to be magnified due to climate change. According to the estimates, the situation is likely to worsen in the coming years; the World Meteorological Organization (WMO) predicts heat related fatalities will double in less than 20 years. The situation demands that the policy makers and researchers revisit and strengthen the current HAP. Till date, the Heat Wave measures have been mostly preventive in nature. However, prolonged summers, increased temperature and climatic changes require designing adaptive measures and building resilience in the informal sector (vulnerability assessment and alternate livelihood generation of the vulnerable population) along with the preventive actions. Under these circumstances, adaptation is a key response strategy to minimize potential deaths and other adverse effects on health due to Heat Waves (NDMA Guideline 2019).

Objective of Heat wave Action Plan

The Heat Action Plan aims to provide a framework for implementation, coordination and evaluation of response activities in cities/ town to reduce the negative impacts of extreme heat. The primary objective is to spread awareness at places where extreme heat conditions exist or are imminent and alert people at risk of heat related illnesses to

take appropriate precautions. The Plan also calls for preparedness measures to protect livestock/ animals as extreme heat causes significant stress to them as well. The Heat Action Plan intends to mobilize different stakeholders like government authorities and communities to help protect their neighbors, friends, relatives, livestock and themselves against preventable health problems during spells of scorching temperatures. The Plan also aims to support early warning agencies as well as the media for timely information dissemination. The administrative and preventive actions that need to be taken by multiple agencies, ministries and departments are enumerated in Table 5. All States/ districts/cities/towns can learn from their/ others' experiences and develop a plan to tackle Heat Wave situations effectively (NDMA Guideline 2019).

Heat wave Definiation

Heat wave is defined based on the temperature thresholds over a region in terms of Heat Wave is defined based on the temperature thresholds over a region in terms of actual temperature or its departure from normal. It is a condition where air temperature becomes fatal to human body when exposed. The World Meteorological Organization (WMO) 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'. Again, depending on the upper deviation from the normal temperature it can be moderate Heat Wave or Severe Heat Wave (www.imd.gov.in)

As per India Meteorological Department (IMD) classification, Heat Wave is considered if maximum temperature of a station reaches at least 40°C or more for plains, 37°C or more for coastal stations and at least 30°C or more for hilly regions. Following criteria are used to declare a Heat Wave:

Based on Departure from Normal

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

Based on Actual Maximum Temperature (for plains only)

- **Heat Wave:** When actual maximum temperature ≥ 45°C
- **Severe Heat Wave:** When actual maximum temperature ≥47°CTo declare a Heat Wave, the above criteria should be met at least at two stations in a Meteorological sub-division for at least two consecutive days. A Heat Wave will be declared on the second day. Higher peak temperatures daily and longer and acute Heat Waves are becoming increasingly frequent globally due to climate change

Temperature / Humidity Index

Heat Wave is a condition of increased atmospheric temperature that leads to physiological stress, which sometimes can claim human life. The level of heat discomfort is determined by a combination of meteorological (temperature, RH, wind, direct sunshine), social/cultural (clothing, occupation, accommodation) and physiological (health, fitness, age, level of acclimatization) factors. Physiologically human body can tolerate environmental temperature of 37° C. There will be no harm to the human body if the environmental temperature remains at 37° C. When 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 restricts loss of heat from human body through perspiration.

Preparing a Heat Wave Plan (NDMA guidelines -October 2019)

City-level medium/long term measures

Identification and evaluation of factors leading to disproportionate increase in temperature within the city.

- Generating a risk and vulnerability map of Heat Wave for developing strategic mitigation action plan.
- Mapping hot-spots within the city and integrating them in vulnerability assessment.
- Measures to reduce temperature in the identified hot spots by developing vertical gardens, small parks with a water fountain etc.
- Co-ordination with different research and educational institutions for built environment assessment.
- Earmark finances for research and development in the financial budget for Heat Action Plan
- Limiting the UHI by incorporating findings from the built environment assessment into urban planning and design policies or byelaws.
- Integrating Heat Action Plan with development plan. Development plan should focus on reducing heat stress and water stress in the city.
- Adhering to building codes in the city

Goals

Recurring /Regular Activities

- Putting up display boards for Heat Wave alerts based on colour codes and Do's and Don'ts at public places such as parks, hospital, etc. (preferably in local languages)
- Use of multiple mediums of communication like TV, Radio and newspaper for awareness generation
- Identification of knowledge gaps and addressing them through information dissemination using pamphlets, hoardings, LED display on advertisement boards.
- Change in timings of school, college, office, markets, etc.

Short-Term

- Installing temporary kiosks for shelter and distribution of water, medicines, etc
- Developing mobile application for awareness generation on heat-related issues and locating shelters, drinking water kiosks, etc.
- Issuing advisories for tourists.
- Setting up special cool shelters under "Wage Employment Programmes" such as Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGA).
- Providing shade and drinking water for on-duty traffic personnel.

Medium Term

- LED Display Boards installed at District Headquarters displaying the real-time weather data pertaining to Rainfall, Temperature, Humidity and Wind Speed should also display precautionary measures for Disaster Management.
- Involving Forest department for collating local coping and adaptation strategies, indigenous technologies such as vernacular building materials, construction of the green building, Energy Conservation Building Code (ECBC) etc. related to Heat Wave risk mitigation.
- New Heat Wave criteria must be evolved based on gridded data with maximum and minimum temperature, to develop a scientific model to determine all-cause mortality.
- Zonal / Regional Heat Action Plan for megacities like Delhi, Mumbai etc should be developed.
- Identify "Heat Hot-Spots" in India through appropriate tracking and modelling of meteorological data. Promote timely development and implementation of local Heat Action Plan with inter-agency co-ordination and response targeting the most vulnerable groups.

Long Term

- Focused capacity building-Heat Wave mitigation management should be added in school curriculum to sensitize school children. Training programmes at local level/ community level for awareness generation amongst people.
- Integrate climate variability mitigation and adaptation efforts in HAP.
- Yearly improvisation of HAP through response and feedback data collection.
- Operational forecast of maximum temperature over India in short, medium and extended range timescale is beneficial in giving Heat Wave outlook.
- Up-gradation of forecast system and associated equipment to provide Heat Wave alerts, minimum 2 to 3 weeks prior to the event.
- Health- harming air pollution apportionment studies, emission inventories and health impact assessment of ambient and household air pollution through State-wise Clean Air Action Plan and use these findings to inform policies targeted at reducing the main sources of pollution via an inter-ministerial approach.
- Evaluation of cascading effects of Heat Waves over flood, drought and hydrological models.
- Involvement of academia through collaboration and participation of higher educational institutes should be focused. The centers for excellence and dedicated research centers may play a pivotal role.

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 by working closely with health and related departments on a long- term strategic plan.

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

Checklist for States to Develop Heat Action Plan

Step 1: Government Engagement

Developing a Heat Action Plan requires participation from State and District government leaders, municipal health agencies, disaster management authorities and local partners.

Step 2: Appointing a State Nodal Agency and Officer

The State should appoint a head/nodal officer at the State or district levels and depute an agency to oversee the Heat Action Plan. It should also build the capacity of key officials and agencies to recognize their roles in the State Heat Action Plan. The State Nodal Agency and Officer can also conduct table-top exercises, simulations and drills before the heat season as well as identify and resolve communication gaps between participating departments, partners and the public.

Step 3: Vulnerability Assessment and Establishing Heat-Health Threshold Temperatures

It is important to identify vulnerable areas and populations in order to establish priorities and minimum thresholds for heat alerts and activities. Threshold temperatures can be determined by several methods: percentile approach and specific approach, as well as using combined temperature metrics or a departure-from-normal approach. The state should coordinate with the Indian Meteorological Department (IMD) to develop thresholds as well. Identifying and coordinating with local academic/research institutes like medical colleges can support in the determination of thresholds and other precautionary and preparatory measures.

Step 4: Drafting and Developing the Heat Action Plan

The State Nodal Officer and Agency can then coordinate with the local IMD office to start receiving summer season forecasts annually from March to June and set up the early warning and daily alert system with colour codes based on predicted peak daily temperatures relative to different local threshold temperatures.

Step 5: Team Preparation and Coordination

Governments should ensure that State officials and agencies are well prepared for the heat season, key officials are well-trained and have information regarding pre, during and post heat season activities. Team members then develop a clearly defined interagency emergency response plan with clearly marking out the roles and flow of information.

Step 6: Implementation and Monitoring

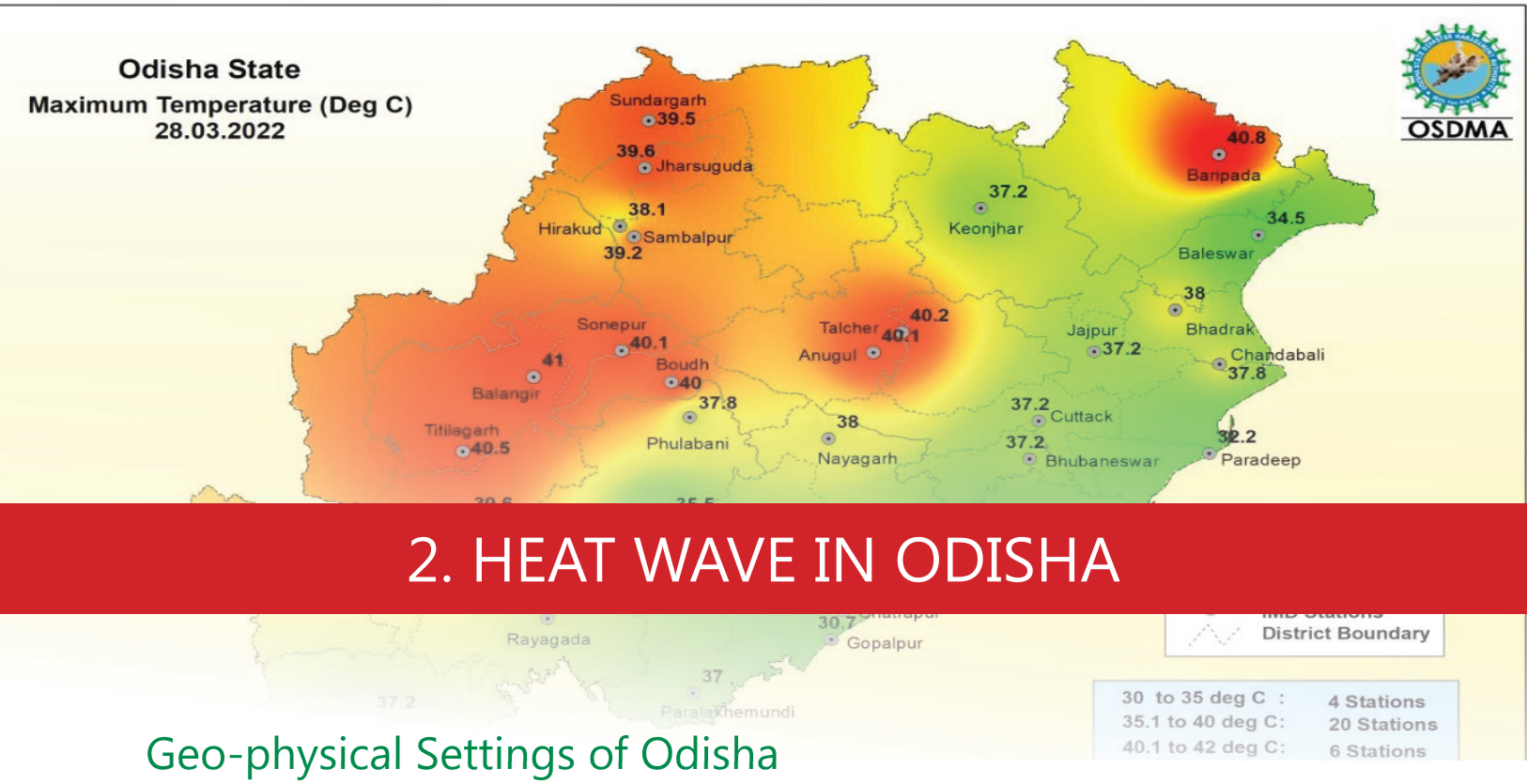
While the government departments (and partners) are responsible for implementing many components of a Heat Action Plan concerned, the public should be made aware of how to prepare and respond to extreme heat. Information, Education and Communication (IEC) plays an important role in widely disseminating key messages to communities in advance. Specific messages should be developed to cater to vulnerable groups such as elderly, young children, outdoor workers and slum residents. "Do's-and-Don'ts" during a Heat Wave should be available in local languages and disseminated through media, including social media such as SMS that is easily accessible by vulnerable sections of the population.

Step 7: Evaluating and Updating the Plan

The approach towards extreme heat must be flexible and frequently updated to deal with unintended consequences. The process should determine if the strategies to deal with heat are effective, such as traditional remedies for mitigating heat that includes eating onions and drinking beverages like raw mango juice that cool the body. After every heat season, the city or State must assess the efficacy of the Heat Action Plan, including the processes, outcomes and impacts. Stakeholders should then identify changes and improvements for the next heat season. The plan should be revised and updated as required. The changes carried out should be brought to notice of key officials and other stakeholders.

Step 8: Strategies for Reducing Extreme Heat Exposures and Adapting to Climate Change (Long term plans)

States should consider mitigation strategies to reduce the impact of extreme heat, such as increasing the green cover in a city to reduce the Urban Heat Island effect, or implementing cool roofs to provide comfort as well as reduce the impact of increased urbanization. Vulnerability assessment should also consider climate change scenarios wherever possible.

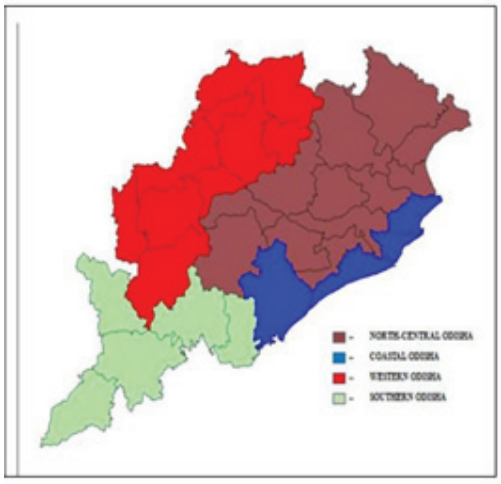


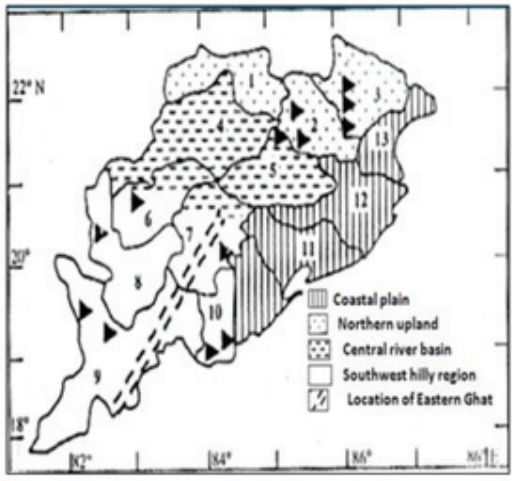
2. HEAT WAVE IN ODISHA

Geo-physical Settings of Odisha

Odisha is surrounded by the states of West Bengal to the north-east, Jharkhand to the north, Chhattisgarh to the west and north-west, Telangana to the south-west and Andhra Pradesh to the south. The state has 480 km of coastline along the Bay of Bengal on its east. According to the 2011 census of India, the total population of Odisha is 4,19,74,218, of which 2,12,12,136 are male and 2,07,62,082 are female, or 979 women per 1000 men. This represents a 14.0% increase over the population in 2001. The population density is 270 per square kilometer. The state projects distinct yet homogeneous features of topography. With a blend of several physiographical features in Odisha, the state exhibits three broad distinct morphological features: coastal plains, southern mountains and plateau, western rolling uplands. The summer season in Odisha commences in March and stretches till June. The temperatures are quite high during this time and the sun is very harsh. The maximum temperature of Odisha, in the summer season, goes well above 40 degree Celsius. The pattern of Heat Wave is different in various parts of the state, like coastal area experiences humid heat, whereas western part experiences more dry heat. Different temperature zones and temperature ranges are given in *Figure 1.*

Figure- 1 :Different Temperature Zones in Odisha and Their Temperature Ranges





Coastal Odisha:q>=350 C < 390C (Gopalpur, Paradeep, Puri); North-Central Odisha:q>=420C < 44.50C (Balasore, Cuttack, Baripada, Phulabani, Keonjhar, Chandbali, Bhubaneswar); Western Odisha:q>=44.50C <= 480C (Titilagarh, Bhawanipatna, Jharsuguda, Bolangir, Anugul, Sambalpur, Sundergarh, Hirakud) and Southern Odisha:q>390C <=400C (Koraput)

Occurrence of Heat Wave

The Heat Waves over Odisha generally occur during the summer season which commences in March and stretches until June/July. The maximum temperature during this period goes well above 400 C. Heat Wave pattern differs from region to region, coastal area of the state experiences humid heat and western part experiences more dry heat. Normal Temperature in the interior districts of the state is comparatively higher than coastal districts due to presence of sea breeze

Relative humidity remains less during the summer months, since the monsoon onset occurs at the end of May. Heat Wave in June is more severe if onset of Monsoon is delayed. It is observed that there is increasing trend of Heat Waves in Odisha over the past several years.

Highest Temperature during 2009-2018

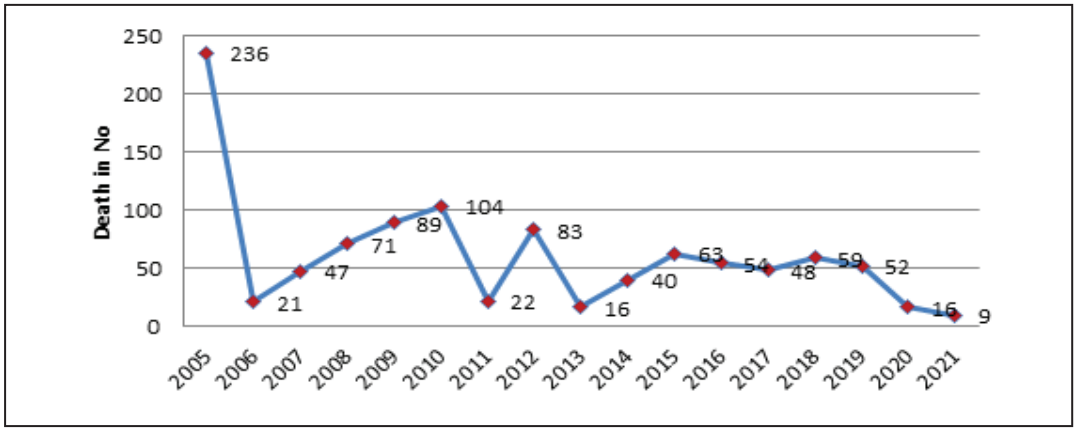
Sl No.	Stations	Highest Temp(^{0}C)	Sl No.	Stations	Highest Temp(^{0}C)
1	BHUBANESWAR	46.7 (05/06/2012)	13	PHULBANI	44.0 (02/06/2012)
2	JHARSUGUDA	46.9 (30/05/2012)	14	CHANDBALI	47.2 (05/06/2012)
3	BALASORE	46.0 (05/06/2012)	15	BHAWANIPATNA	48.0 (04/06/2014)
4	GOPALPUR	43.2 (13/06/2014)	16	HIRAKUD	46.9 (24/05/2013)
5	ANGUL	47.0 (25/05/2015)	17	TALCHER	46.8 (23/04/2016)
6	SAMBALPUR	47.4 (24/05/2013)	18	BARIPADA	46.1 (20/04/2010)
7	PURI	43.6 (13/06/2014)	19	SUNDARGARH	46.0 (22/04/2016)
8	PARADIP	40.1 (18/06/2018)	20	DARINGIBADI	40.5 (26/05/2015)
9	KORAPUT	40.3 (18/05/2017)	21	MALKANAGIRI	46.5 (02/06/2012)
10	TITILAGARH	48.5 (24/04/2016)	22	BOLANGIR	47.5 (24/05/2013)
11	CUTTACK	44.2 (06/06/2012)	23	SONEPUR	47.2 (02/06/2012)
12	KEONJHAR	44.5(05/06/2012)			

N.B: Daringbadi & Talcher from 2014-2018,Sonepur & Malkangiri from 2011-2018. *Data Source: IMD, Bhubaneswar*

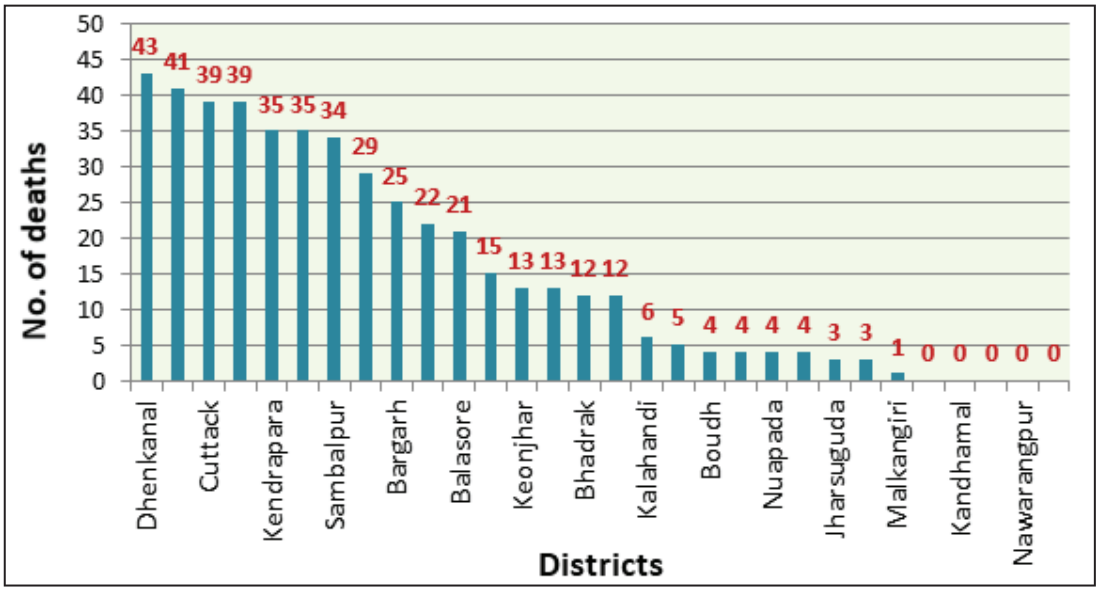
Heat Wave casualties in Odisha

In the year 1998, the state of Odisha faced an unprecedented Heat Wave situation, as a result of which 2042 persons lost their lives. Though extensive awareness campaigns have largely reduced the number of casualties during post 1998 period, still the Heat Wave situations pose a danger to human lives each year. Heat Wave has become a menace causing insurmountable human suffering. The poor people, farmers and workers are the most vulnerable groups. The state experienced another massive Heat Wave casualty in 2005 where 236 lives were lost. However, casualties have reduced substantially in the subsequent years. During 2020, the death toll was limited to 16 followed by 9 in the year 2021.

Heat wave Deaths in Odisha during 2005-2021



Heat wave Deaths District-wise during 2011-2021



Impact of Heat Wave on Agricultural Productivity

Apart from the impact on human life, the Heat Wave also profoundly affects crop production both in terms of quantity and quality. Primarily, crop loss happened due to flower drop and higher mortality in new plantations. Kharif crops are more impacted than Rabi crops owing to variability in rainfall associated with Heat Wave. Since, Kharif crops are sown in May to June and harvested in September to October; any extreme change in temperature affects the productivity. Within Kharif, particularly rice production is significantly affected with decreased grain yield which is a matter of concern as rice is a staple diet of Odisha. (NDMA, 2019).

Impact of Heat Wave on Life and Livelihood

The human the rmoregulatory system has limits. To maintain our core temperature of about 98.6°F (37°C) various physical processes have to be used. Evaporation of sweat helps human bodies to keep cool when it is hot, however, when there is excessive sweating it leads to dehydration with consequent rise in internal body temperature which could be fatal. More or less, Odisha's population might be acclimatized to heat and humidity but there is an upper level of heat tolerance limit. However, acclimatization to heat can only offer limited protection. When temperature soars beyond the tolerance limit, precautionary measures like avoiding the sun and physical exertion, keeping oneself hydrated and resting in a cool place are suggested.

However, serious challenges arise when extreme heat events linger for prolonged periods, as cessation of activities for weeks is often not an option. Especially, majority of the Odisha's population is working in unorganized and informal sectors to earn their livelihood. Thus, during the advent of long spells of Heat Wave, they either have to stay indoors and compromise their source of income or run the risk of succumbing to Heat Wave related illnesses upon exposure to sun while working. This necessitates exploring alternate options of income generation for such kind of vulnerable population to sustain a healthy life. In view of the above, there was a need to revisit and strengthen the existing Heat Wave response plan in order to make it more specific and strategic..

Odisha's Preparedness

Keeping in view of the massive deaths due to Heat Wave in the past, the state has declared 'Heat Wave' a state specific disaster from 2015 and Rs. 50,000 compensation is given to the family of victim who dies due to sunstroke. Online Ex-gratia payment of Rs 50000/- to the family of each stroke victim have been initiated since 2021 through DAMPs (Disaster Assistance Monitoring & Payment System) software.

OSDMA has prepared the 1st Heat Action Plan (HAP) of the state in the year 2014, in which the department specific roles and responsibilities are highlighted. The plan is updated yearly taking inputs from different departments of the government and other organizations.

Heat Alert/ warning messages are disseminated to the concerned authorities/ institutions/public after receiving warning from IMD. Timely issuance of appropriate directives to all the districts and concerned departments is being done for taking preparatory measures for Heat Wave Management.

Odisha State Disaster Management Authority (OSDMA) has collaborated with the Regional Integrated Multi-Hazard Early Warning System (RIMES) for Asia Pacific and African Region and has developed an application, Satark, to send Heat Wave alerts to focal points identified in districts and blocks. Heat stress is calculated using the heat stress index criteria by means of maximum day time temperature and relative humidity (used at National Weather Services, NOAA, USA). The advisories are available in both Odia and English through SATARK mobile application, which is freely available

in Google App Store. Advisories are generated through bulletins and are disseminated automatically to the State, Districts and concerned Block officials through email.

Various awareness activities have been undertaken to educate people for tackling Heat Wave situation. Awareness campaigns in print and electronic media are being done. Short video clips have been developed for targeted groups of people. Heat Wave awareness posters are being distributed to the villages every year. Civil Society Organizations are being involved for taking different mitigation activities. Capacity building of different stakeholders on Heat Wave management is conducted on a regular basis.

3. RESEARCH AND FINDINGS ON HEATWAVES IN ODISHA

1. Study on Health Effects of Exposure to Heat Stress, Vulnerability, and Heat Threshold in Odisha

'Effect of heat stress on health and productivity of high risk population in Bhubaneswar' (Conducted by IIPH-Bhubaneswar, funded by IRADe). IIPHB conducted a survey during May-June 2018 on vulnerable households and individuals with high risk occupations. It identified 10 hot-spot clusters in Bhubaneswar city. Some of key finding/suggestions are derived from the study for Preventing Heat Illness at Work.

While Travelling to Workplace

- Provision of public transport instead of using bike/cycle
- Travel timing to office should not be between 12 noon-3pm (including lunch)
- Sheds at public bus stops with water facility
- 'First aid' training of the drivers, conductors, students and others
- Senior citizens and people with illnesses should adopt special precaution with an identity card
- Promote selling of water in public transport and 'not carbonated drinks'
- All the transport services should have cold water, ice box and first aid box
- Plantation of more trees on road side and at major public stoppages

- First aid box should have two components: Medical emergency and Environmental hazards (Sun stroke, chemical spill).

At Workplace

- Change of working time (if possible) and encourage shift duty hours.
- Provide adequate cover or shed, water, ice box and 'first aid' at workplace.
- Change in timing of lunch or provision of canteen at workplace with quality food
- Work station designs such as shifting of heavy work station from top floor (Also in hospitals wards for vulnerable group of patients).
- Adequate ventilation and cooling mechanism (albedo painting).
- Creation of heat resistant building instead of 'tin roofed' vending zones.
- Periodic checking of health status of those working in direct sun such as construction workers, manual labourers etc.
- Plantation and creation of green environment at workplace.
- Specific Do's and Don'ts for key occupation groups has to be developed and shared.

2. Urban Heat Island Effect and Mitigation Action Plan for Ib-Jharsuguda, Odisha

A study on Urban Heat Island Effect and Mitigation Action Plan for Ib-Jharsuguda, Odisha was conducted by The Energy and Resources Institute (TERI) in collaboration with TERI University under the Climate Change Innovation Programmes. Some of the key findings of the study are:

1. There has been a steady build-up of heat in the region over the years resulting in higher night time temperatures. Coal Mining, Industries, urban settlements and open non- vegetated surface have been identified as thermal hot spots. - based on Remote Sensing – Land Surface Temperature Model

2. 'Bhushan Steel Area' and 'Market Road' are hotspot locations in summer; 'Market Road' is hotspot location in monsoon as well as combined period (summer and monsoon). This is likely because of the high built-up area on market road - based on Ambient Air- Temperature- Thermal Retentivity Model.

3. 'Bhushan Steel Area', 'Municipality', and 'Market Road' are hotspot locations in summer; 'OPGC', 'Market Road', 'Municipality' are hotspot locations in monsoon; 'Bhushan Steel Area', 'Market Road', 'OPGC' are hotspot locations in the combined period. Higher heat sources combined with higher built-up as well as more

rotating population contributes to the higher heat index - based on Ambient Air Temperature- Heat Index Model.

4. Coal Mining, Industries and Urban settlements are high thermal sources; forests, vegetation and water bodies are high thermal sinks. - based on Remote Sensing-Biophysical Model.

5. Coal Mining – Impact of bio-reclamation of de-coaled area (in terms of heat release per unit de-coaled area) highest for Lajkura and Lakhanpur, least for Lilari.- based on Heat Release Model.

The sectoral contribution of different sources and sinks to heat islands has been analyzed to determine where actions can be targeted. Sector specific measures to reduce the heat island effect over the IB-valley region in Jharsuguda have been recommended on the basis of analysis of the contribution of each measure to the reduction in heat release.

Coal Mining

Key measures recommended for the five open cast coal mining projects viz. Samleshwari, Lakhanpur, Lajkura, Lilari and Belpahar include:

a) Improved management of de-coaled areas through creation of water bodies in void spaces to reduce self-oxidation as well as act as a heat sink and through increased bio-reclamation area within the mine boundary;

b) Setting up of more coal washers which would decrease the ash content of coal, thereby reducing its self-oxidation potential – an exothermic process which releases heat into the ambient atmosphere;

c) Shifting to 100% surface miner technology for removing coal which would completely replace the conventional blasting operations, thereby improving the stability of benches and high-walls. This would consequently result in reduced self-combustion of loose coal due to the limited presence of oxygen;

d) Large-scale afforestation of the deserted forest area.

Industries

a) Stockpile inventory management which would enable optimizing coal purchase and keeping the stockpile inventory at an optimal level, thereby not only resulting in cost savings but also environmental benefits;

b. Stockpile design changes from cuboidal to dome-shaped so that lesser surface area is exposed to environment, consequently resulting in lower heat radiation.

Urban Planning

Traffic congestion in certain parts of the district has been identified as a key issue to be addressed. Some of the measures that can be taken in this regard include: shifting the bus terminus away from the market road, construction of flyover at strategic points, construction of new approach road to State Highway (SH10) :Sambalpur-Jharsuguda bypass road), etc. In addition, plantation of trees with higher LAI (Leaf Area Index) bordering the pavements of national highways, state highways and newly proposed roads have also been included under the urban planning section. Species specific recommendations have been provided for national and state highways, city artillery roads and the municipal areas. Jharsuguda airport has been identified as a priority area for undertaking plantation drive due to extreme barrenness of the area. In the buildings sector, green roofing has been recommended as a voluntary measure to reduce ambient air temperature to reduce the demand of air conditioners. Adopting higher albedo road surface materials such as concrete, where possible, can also go a long way to mitigate the rise in temperature.

Agriculture

In the agriculture sector, the key recommendation includes moving towards conservation tillage, which not only improves the productivity of land but also increases the surface albedo of the land mainly during the fallow period, thereby reflecting most of the incoming solar radiation back into the atmosphere.

Adaptation

On the adaptation front, the focus is on developing coping mechanisms to deal with heat stress in the hotspot regions. This involves coordination amongst agencies such as Indian Meteorological Department (IMD), state government agencies and urban local bodies. Apart from the government establishment, civil society also plays a key role in creating public awareness and knowledge dissemination. Additional roles have been recommended for the various government agencies over and above their current role in HAP. It has been recommended to increase the number of Automatic Weather Stations (AWSs) especially in the Heat Wave prone districts to obtain a spatial distribution of temperature. This would improve the quality of early warning forecasts sent by IMD to the state government. Odisha State Disaster Management Authority

(OSDMA) to undertake capacity building measures to deal with emergency response and preparedness for Heat Wave and Heat Island effect, especially among the health workers and District Medical Officers. The Disaster Management (DM) office is the key point to implement emergency response measures. Hence, it must be equipped with information on heat-stress vulnerable regions in the municipality and villages. In addition, they must ensure water availability through kiosks at strategic points; create public awareness through newspapers and radios in hotspot zones, municipality and panchayats to ensure the safety of women and children in the vulnerable zones, etc.

Heat Island Study in Angul-Talcher Area of Odisha

Heat Island Study in Angul-Talcher Area of Odisha has been done By Prof. Manju Mohan, Consultant-In-charge, Centre for Atmospheric Sciences, Indian Institute of Technology, Delhi to assess Industrial Heat Island (IHI) scenario in Angul-Talcher area of Odisha . Some of the key findings are mentioned below.

Future of the climatic conditions over the Angul-Talcher area and its surrounding regions has been projected for the representative concentration pathway 8.5 emission scenario up to the year 2090 using the simulations of NCAR-global climate model, at a spatial resolution of 25x25 km.

(i) The region will experience a marginal decrease in temperature in the next couple of decades, however subsequently (2030-2060) the temperature will increase up to 1°C, and then in the later phase of the century (1960-2090) the temperature will fall.

(ii) A similar behaviour is noticed over the southernmost part of Orissa i.e. Koraput and Rayagada districts. However, north-eastern Orissa will experience severe warming in the mid-future and relatively more than that will occur over the Angul-Talcher area.

(iii) In the later phase of the century (2060-2090), the state in general will experience cooling - this is counter intuitive as most of the nation and the globe will experience warming then.

(iv) Analysis of rainfall reveals that in the near future there will be a marginal reduction in rainfall over the Angul-Talcher area as well as Bargarh, Sambalpur, Jajpur, Dhenkanal and Kendrapara regions. Whilst other parts of the state will receive more rainfall (by 6-7 mm/day). However, there will be an increase in rainfall over the regions in the mid and far future with varying magnitude. Relatively southern and northern parts of the state will gain more than the central belt in terms of the increase in rainfall.

absenteeism from the work. It is observed that majority of the males have reported maximum productivity loss. In addition, the average loss in number of days due to extreme heat event in both males and females is 1 day. Casual laborers are the most vulnerable and have reported majority of productivity loss across all the occupations. This could be due to the prolonged exposure to heat.

THRESHOLDS BASED ON PUBLISHED RESEARCH

A preliminary Study to estimate Temperature Threshold for Heat Wave Warning in India : September 2019 by NDM.

Bhubaneswar is a rapidly growing urban centre with a population of 837,737 (Census 2011). The city experiences hot and humid summers, starting in March and continuing up to July, when the advent of monsoon rains ushers in relatively cooler weather. The thresholds for Bhubaneswar city have been calculated by India Institute of the Public Health Bhubaneswar. The study found a 2 % increase in the risk of mortality at 36.2C maximum temperature.

Heat- Health Temperature Warning for Bhubaneswar

Yellow	Hot day advisory	36.2^{0} C
Orange alert	Heat alert day	39.1^{0} C
Red alert	Extreme heat alert day	Above 41.4^{0} C

Month-wise Threshold for Heat Wave Warning for some Towns

City	Month	Yellow	Orange Alert (Heat Alert Day)	Red Alert (Extreme Heat Alert Day)
Bhabanipatna	April	42.5	43.0	44.5
	May	43.5	44.5	45.5
	June	39.5	40.6	42.7
Jharsuguda	April	44.0	44.5	45.2
	May	44.3	45.0	45.5
	June	44.5	45.0	45.5
Keonjhargarh	April	40.0	41.0	42.1
	May	40.0	40.8	42.5
	June	36.3	37.8	40.4
Koraput	April	37.0	37.4	38.2
	May	37.0	37.6	39.1
	June	33.5	35.0	37.3
Sambalpur	April	42.2	43.2	44.6
	May	43.4	44.5	45.7
	June	41.1	42.6	44.8

3. Prevention, Preparedness and Mitigation Measures

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 these communities facing the adverse impacts of extreme heat. 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 in the open or in unventilated conditions, they live in homes constructed of heat-trapping materials such as 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 and untreated chronic medical conditions due to poor access to healthcare heighten slum community members' susceptibility to the effects of extreme heat on health.

- Fewer Adaptation Options Available: Slum residents lack control over their home and work environments with limited access to (and inability to afford) reliable electrical and cooling methods like fans, air coolers and air conditioning, insufficient access to cooling spaces and a lack of knowledge on precautionary health measures. . All these factors reduce slum residents' prospects 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 (UHI) 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 thermal comfort.

4. EARLY WARNING AND COMMUNICATIONS

Forecast and Issuance of Heat Alert by IMD

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

IMD has a big network of surface observatories covering entire country to measure various metrological parameters like Temperature, Relative humidity, pressure, wind

speed & direction etc. Based on daily maximum temperature station data, climatology of maximum temperature is prepared for the period 1981-2010 to find out normal maximum temperature of the day for the particular station. Thereafter, IMD declares Heat Wave over the region as per its definition. IMD issues temperature forecast & warnings in following range:

a) Short to medium range (lead time/validity of 1 to 5 days)

b) Extended range (lead time/validity upto 4 weeks)

c) Seasonal range (lead time/validity upto 3 months)

IMD predicts Heat Wave based on synoptic analysis of various meteorological parameters and from the consensus guidance from various regional & global numerical

prediction models like, WRF, GFS, GEFS, NCUM, UMEPS, UM Regional etc. available at Ministry of Earth Sciences (MoES) and other international models accessible under bilateral multi-institutional arrangement

A common man may get Heat Wave information from, All India Weather Forecast Bulletin (https://mausam.imd.gov.in) and special Heat Wave guidance bulletins (http://internal.imd.gov.in/pages/heatwave_mausam.php) every day from 1 April to 30 June.

The Heat Wave information is shared with concerned State Government Authority, Media and other stakeholders like Indian Railway, Health departments, Power Sector etc. The general public is informed through Print & Electronics Media.

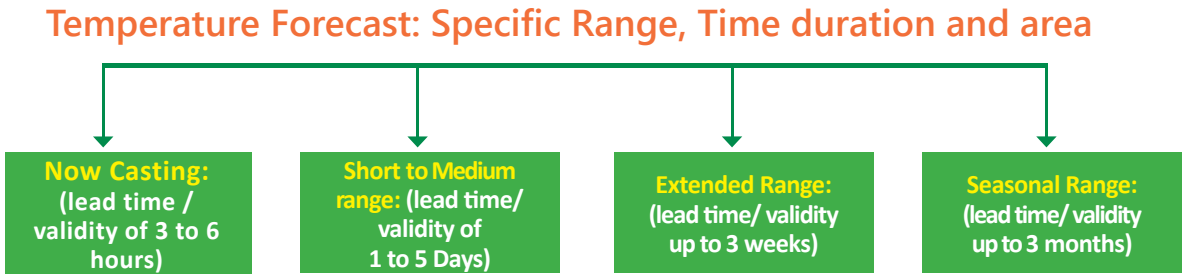
IMD issues forecasts and warnings for all weather-related hazards in short to medium range (valid for the next five days) every day as a part of its multi-hazard early warning system. These warnings, updated four times a day, are available at http://www.imd.gov.in/pages/ allindiawxfcbulletin.php.

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

In addition to the above, forecast maps from Climate Forecast System of daily maximum temperatures and their departure from normal for the next 21 days (issued every Thursday) are also available on IMD website (http://nwp.imd.gov.in).

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

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



It currently provides weather forecast information on the basis of satellite imagery, mathematical modeling, GPS, Sonde monitoring and Doppler radar system. It gives weather forecast taking into account the temperature (both dry bulb temperature and dew point temperature), wind pattern, cloud pattern and a few other parameters. The temperature/ city forecast is done two times a day i.e. at 10 AM, and 6 PM for one week for 16 cities in the State of Odisha. Besides city forecast, forecast along with warnings are also issued for next five days at 10 AM, 1 PM, 6 PM & 9 PM. The 1 PM forecast is forwarded to state agencies and media by fax and E- mails.

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

- 37 °C for the coastal areas
- 40 °C for the interior areas

The IMD also issues warnings based on heat index (based on temperature and humidity). The reliability of these forecasts are up to a level of 85%. It disseminates information directly to Special Relief Commissioner's (SRC) office and to Odisha State Disaster Management Authority (OSDMA) by fax and by sending mails to various state agencies such as Doordarshan, All India Radio (AIR) and other media houses. In case of an expected Heat Wave, mails are also sent to all the District Collectors to alert them to take appropriate actions.

Identification of Colour Signals for Heat Alert

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

Figure-4: Color Code, Meaning, Temperature Details and Action Needed

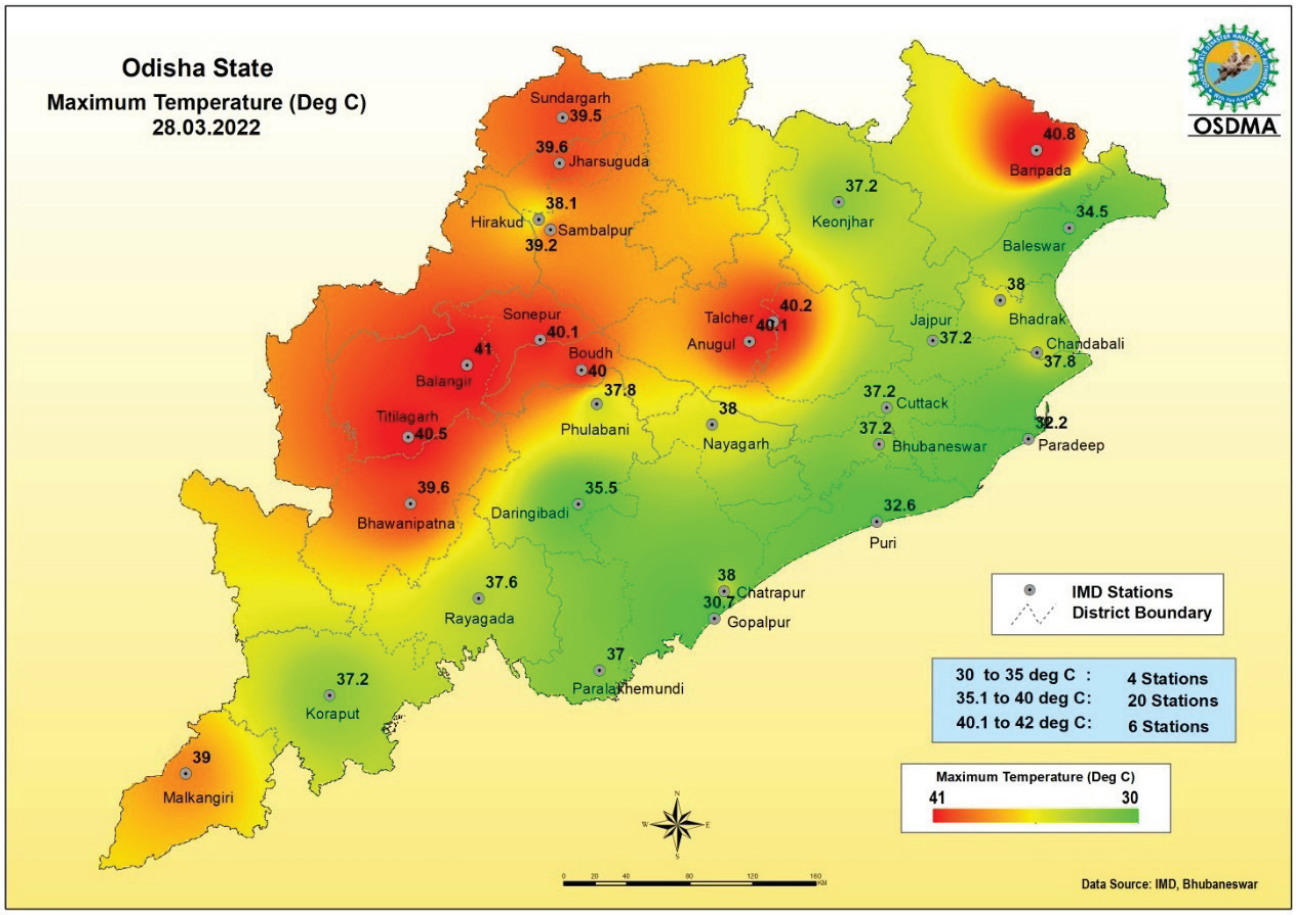
Colour Code	Alert	Warning	Impact	Suggested Actions
Green (No action)	Normal Day	Nil	Comfortable temperatures	No cautionary action required
Yellow Alert (Be updated)	Heat Alert	Heat wave conditions at district level, likely to persist for 2 days	Heat is tolerable for general public but moderate health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

Impact & action suggested is based on NDMA Guideline on heat wave

(https://ndma.gov.in/images/guidelines/heatwaveguidelines2017.pdf)

Monitoring Heat wave by OSDMA

Based on IMD observations, heat conditions of Odisha are analyzed on a daily basis by OSDMA from March-June every year. Maximum temperature map of the state is prepared on GIS platform. The information is disseminated to the different stakeholders through social media.



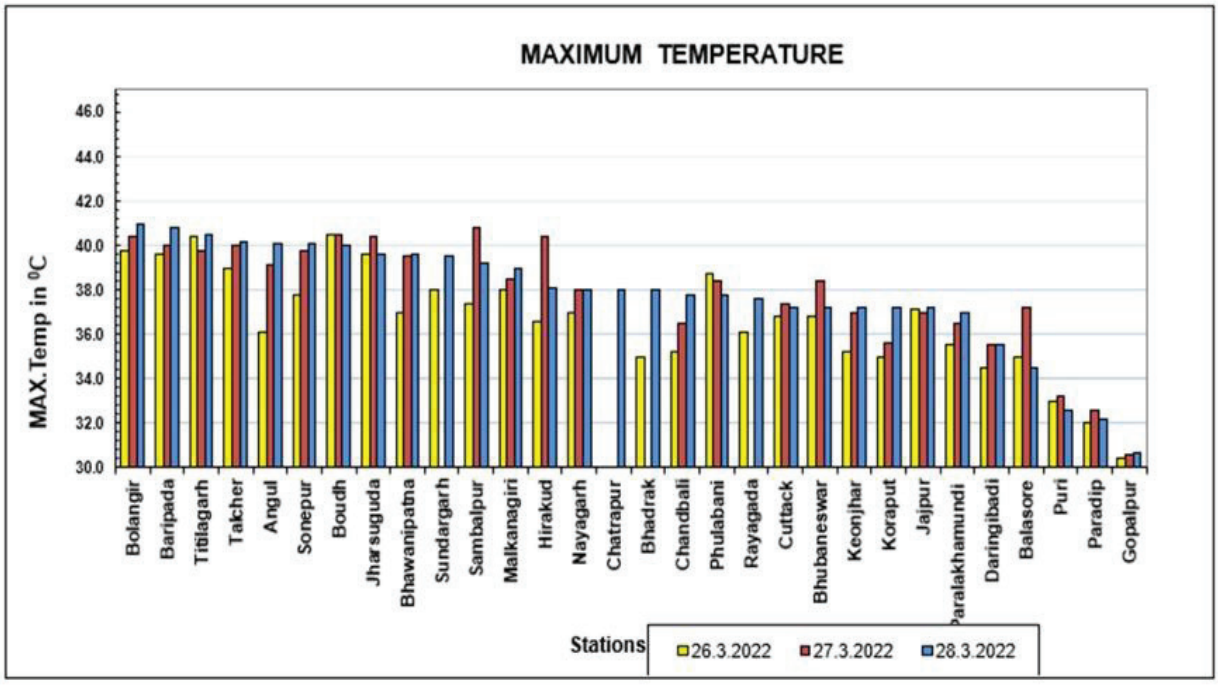
28.3.2022

Heat Condition over Odisha

Sl. No.	Station	Maximum Temperature (^{0}C)	Relative Humidity (%) at 17.30	Sl. No.	Station	Maximum Temperature (^{0}C)	Relative Humidity (%) at 17.30
1	Bolangir	41.0	72.0	16	Bhadrak	38.0	62.0
2	Baripada	40.8	58.0	17	Chandbali	37.8	74.0
3	Titilagarh	40.5	39.0	18	Phulabani	37.8	38.0
4	Talcher	40.2	25.0	19	Rayagada	37.6	71.0
5	Angul	40.1	49.0	20	Cuttack	37.2	65.0

Cont...

Sl. No.	Station	Maximum Temperature (^{0}C)	Relative Humidity (%) at 17.30	Sl. No.	Station	Maximum Temperature (^{0}C)	Relative Humidity (%) at 17.30
6	Sonepur	40.1	51.0	21	Bhubaneswar	37.2	75.0
7	Boudh	40.0	86.0	22	Keonjhar	37.2	26.0
8	Jharsuguda	39.6	19.0	23	Koraput	37.2	35.0
9	Bhawanipatna	39.6	22.0	24	Jajpur	37.2	69.0
10	Sundargarh	39.5	89.0	25	Paralakhamundi	37.0	71.0
11	Sambalpur	39.2	43.0	26	Daringibadi	35.5	93.0
12	Malkanagiri	39.0	83.0	27	Balasore	34.5	80.0
13	Hirakud	38.1	66.0	28	Puri	32.6	85.0
14	Nayagarh	38.0	67.0	29	Paradip	32.2	85.0
15	Chatrapur	38.0	77.0	30	Gopalpur	30.7	92.0



Observations:

- Variation of Maximum Temperature in all the stations.
- 6 stations recorded max temp more than 40 ^{0}C

Forecast:

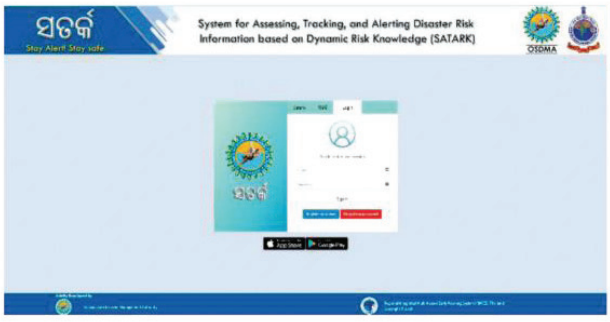
- No large change in Maximum temperature (Day Temperature) during next 2 days over the districts of Odisha.
- It will gradually rise by 2 to 3 °C at a few places over the districts of Interior Odisha and subsequent 2 to 3 days.

Data Source: IMD, Bhubaneswar

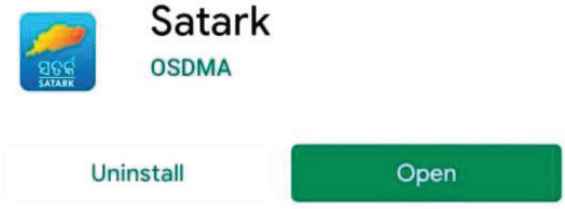
GIS Cell, OSDMA

Information dissemination on Heat Wave through SATARK application:

SATARK is a decision support system based on the Web / Smartphone that helps to provide early warning information for different risks. It is an application developed by OSDMA in collaboration with RIMES. Heat Wave advisory system uses IMD defined Heat Wave thresholds to automatically generate advisories based on forecast and disseminate advisories to the users well ahead of time about the likelihood of a Heat Wave along with precautionary measures to be taken. Every day, the SATARK system transmits the 10-day forecast information to the concerned government officials at State, District and Block level through e-mail automatically. It has improved risk communication in the state. "SATARK" mobile application was developed both in IOS and Android, providing block level alerts and preparedness advisories (Do's and Don'ts) in Odia and English languages. The application is incorporated with observation and forecast data from Indian Meteorological Department (IMD) and the best available forecast products. Block level and location specific alerts are issued through Mobile App, E-Mail, SMS and other available sources. The advisories are freely available through SATARK mobile application. In the near future, all the forecast information provided by the application will include the value-added information provided by IMD-RC.



Web Link : https://satark.rimes.int/Login/login_form



What's new •

Last updated 11 Dec 2019

SATARK Mobile App is available in the App Store for Android &

5. EXISTING INSTITUTIONAL MECHANISMS TO ADDRESS HEAT WAVE IN ODISHA

Ongoing Activities of Government of Odisha

Every year all the District Collectors are instructed to take required precautionary measures for mitigating the heat-wave situation and the Chief Minister reviews the preparedness activities of the related departments. The chain of command that is followed after the issuance of a heat alert is depicted in figure 5.

Figure 5: Flow of Information Followed in Government of Odisha During a Heat Wave Alert

(Source: OSDMA)

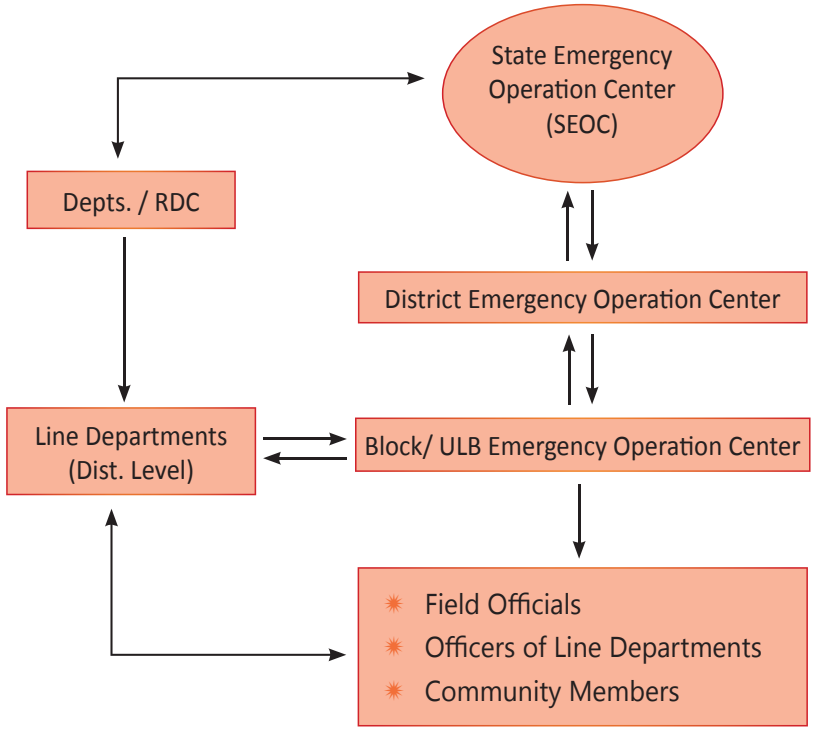
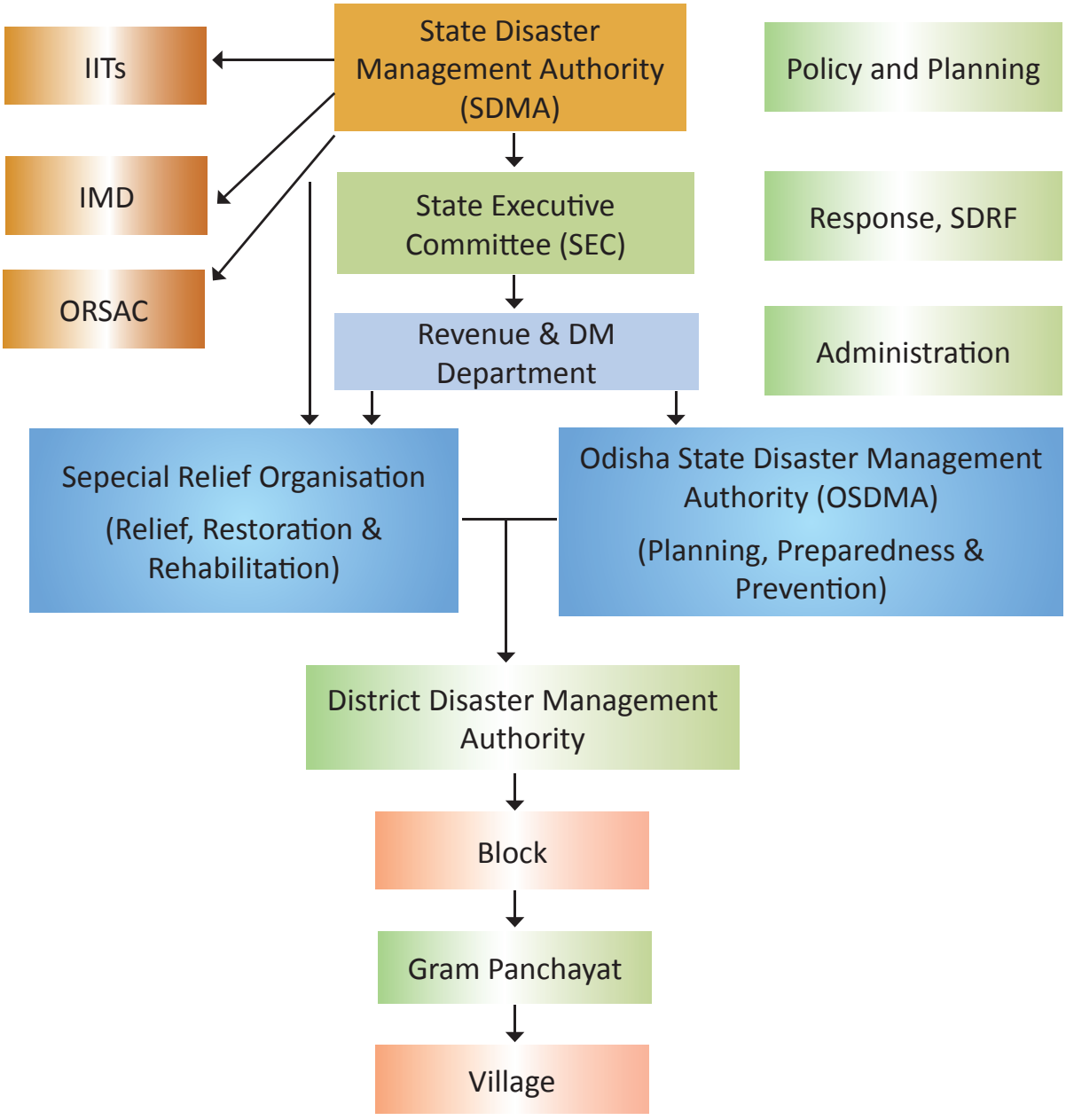


Figure 6: Institutional Mechanism for Heat Wave Management



During the summer months (March to June), the role Indian Meteorological Department (IMD), the Emergency Operations Centre (EOC) (Control Room) at the state and also at the district levels become alert about Heat Wave warning by analyzing the daily reports of India Meteorological Department (IMD). Immediately upon receipt of such a warning, the state and district Emergency Operation Centers make the necessary arrangements for flashing warnings through all forms of media. Simultaneously, departments of Health and Family Welfare, School and Mass Education, Labour & Employees' State Insurance, Transport and Commerce, Public Health Engineering & other related departments remain alert and put necessary emergency measures in place. OSDMA is the nodal agency that is responsible for prevention and mitigation activities. The most important work of OSDMA is to sensitize the necessary stakeholders, engage in their capacity building in forms of intra-departmental trainings and prepare and share the guidelines for different occupational groups, institutions, urban local bodies, PRIs and civil society. It works in tandem with the Special Relief Organization which acts as the main executing body under the leadership of the SRC during a Heat Wave and issues directives to all the concerned governmental and non-governmental organizations for prompt action. Apart from this, OSDMA is also involved in establishing the Heat Wave mortality tracking system and updating the data set periodically.

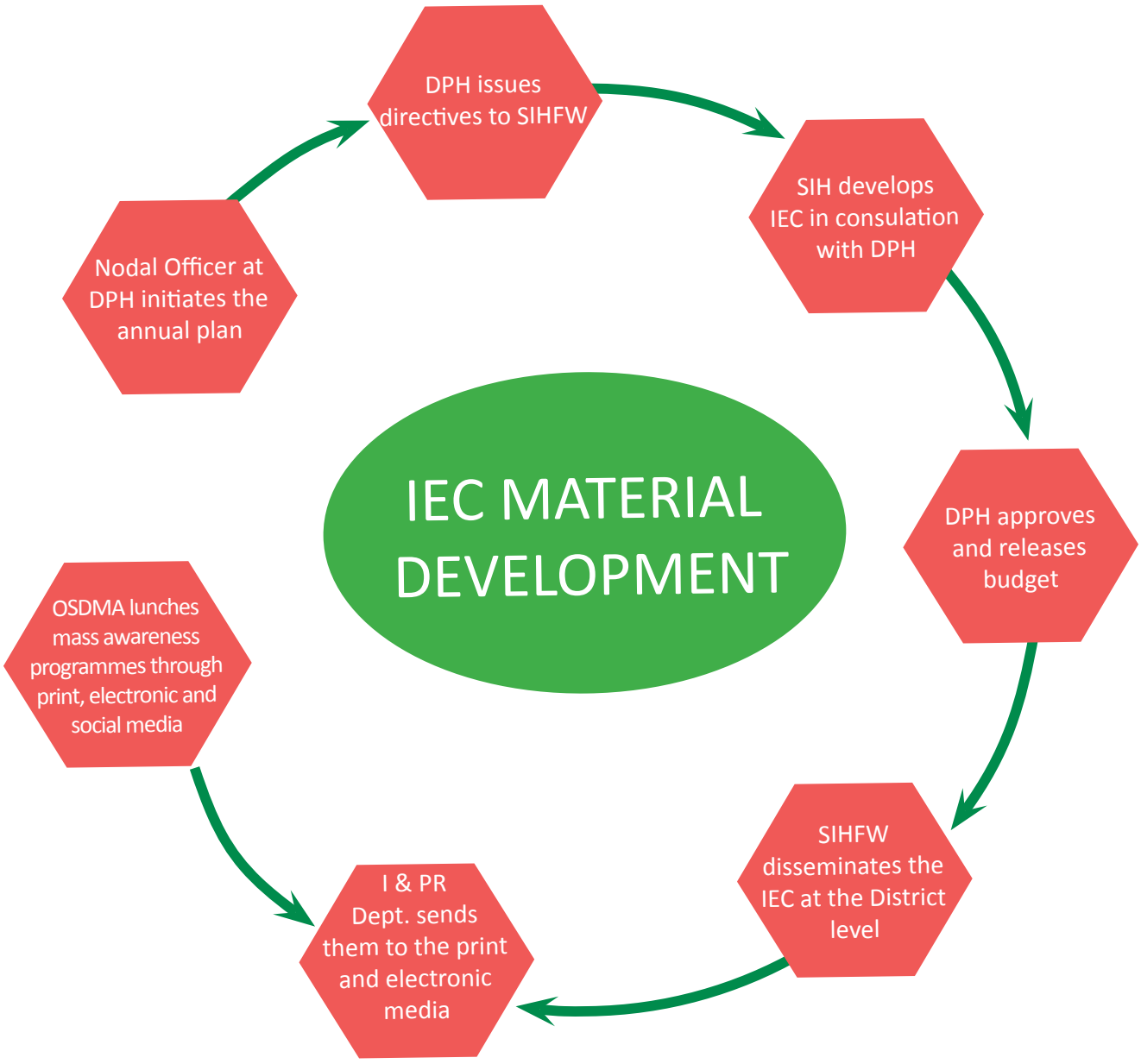
Ex-Gratia Relief

The State Government had earlier made a provision in the Odisha Relief Code for the payment of Rs.10,000/- towards ex-gratia relief to the bereaved family of each heatstroke victim. However, as there is no provision inthe State Disaster Response Fund (SDRF) & the National Disaster Response Fund (NDRF) to provide relief to the victims of 'Heat Wave', the State Government was incurring such expenditure out of the Chief Minister's Relief Fund (CMRF). The State Government has declared Heat Wave as a State Specific Disaster with effect from 1st April 2015 under the revised provisions of SDRF/NDRF norms & made the provision for payment of ex-gratia of Rs. 50,000/- to the next of kin of heatstroke victims.

Process of Awareness and IEC plan

The proposal is initiated by OSDMA and the concerned nodal officer of Directorate of Public Health (DPH) and it communicates to the State Institute of Health and Family Welfare (SIHFW) which develops the prototype of IEC in consultation with DPH. Once the prototype is approved by DPH, funding is released, and the materials are printed at

SIHFW and distributed to districts and to lower levels. For media (print and electronic), the SIHFW sends the prototype to the Information and Public Relations (I&PR) Department. They publish it in newspapers and disseminate it through electronic channels.



6. STANDARD OPERATING PROCEDURES (SOP) FOR DIFFERENT DEPARTMENTS, DISTRICT ADMINISTRATIONS AND OTHERS

1. Special Relief Organization (SRO)

Under the direction of the Special Relief Commissioner the SRO would ensure the following:

- Issue appropriate directives to the concerned departments for taking preparatory and precautionary measures for Heat Wave management.
- Posters and IEC materials on safety tips relating to heat-wave are prepared and distributed by Department of Health & Family Welfare for general awareness of the public. Advertisements on such safety tips to be given through local newspapers, radio and television channels.
- To instruct All India Radio, Door darshan and other private Television channels to organize discussions and other programmes for creating public awareness.
- Issue directives to Department of Forest and Environment, Fisheries and Animal Resources, Women and Child, Health and Family Welfare and OSDMA for awareness activities, provision of water and essential preparatory measures concerning Heat Wave management.
- Action Plan is preapred for mitigating water scarcity problems in different towns and rural areas, where acute scarcity of drinking water is felt.. Required numbers of water tankers are to be deployed for supply of drinking water and defunct tube wells to be replaced / repaired. Essential medicines, saline and ORS packets to be stored in the District Headquarters Hospitals, Community Health Centers

and Primary Health Centers. Special arrangements to be made and separate beds are earmarked for treatment of heat-stroke patients in different Hospitals.

- The working hours for daily laborers need to be re-scheduled i.e. from 6 a.m. to 11 a.m. and 3.30 pm to 6 pm. Orders to be given to make provision of drinking water at the work sites.
- Plying of buses during peak hours i.e. between 11.00 AM to 3.30 PM will be regulated. Orders must be given to carry portable water and ORS in public transport vehicles.
- Power distributing companies to be instructed to ensure uninterrupted power supply in summer.
- The time table of the schools to be re-scheduled from 6.30AM to 10.30 AM.
- Facilitate involvement of Civil Society Organizations for taking different mitigation activities.
- An amount of Rs.50,000/- as ex-gratia relief to the bereaved family of each heatstroke victim is provided by the State Government.

2. Odisha State Disaster Management Authority (OSDMA)

- Convene State level meetings to review and update the Heat Action Plan annually and share the revised Plan in a broader platform.
- Periodic coordination meetings with all the departments towards implementation of Heat Action Plan.
- Addand update information related to Heat Wave in the existing website of OSDMA.
- Review of current IEC initiatives and accredit all IEC materials along with knowledge partners.
- Promote research on heat related morbidity, mortality and mitigation measures in collaboration with knowledge partners located in the state.
- Organize capacity building programs on Heat Wave prevention and management for different stakeholders.
- Mobilization of funds for heat action plan review, documentation and Heat Wave management.
- Review and follow-up action of the Heat Action Plan.
- Issue of GIS based information on the heat conditions and Heat Wave situation on a daily basis and dissemination through different modes.

3. India Meteorological Department (IMD)

- Issue early warning and disseminate heat alerts to all the key stakeholders

- Issue bulk emails to the key institutions/ key offices and persons.
- Media brief using TV/ Radio/ FM/ Newspapers
- Provide temperature data for determination of Heat alert and for better mitigation activities, daily as well as annually.
- Provide 5 days forecast and warning on Heat Wave for all the districts of Odisha.
- Provide past 24 hours weather data
- Provide city forecast for 7 days consisting of Maximum & Minimum temperatures, sky condition and weather of selected cities of Odisha.

4. Agriculture & Farmers' Empowerment Department

- • Popularizing crops needing less water like Maize, Ragi, Pulses etc and short duration varieties of crops.
- • Improving Water Use Efficiency by advocating use of Micro Irrigation(Drip, Sprinkler irrigation)
- • Popularizing PUSA Hydrogel especially in crops like Mung, Biri to retain the soil moisture by preventing evaporation from soil and releasing water in slow phases based on the need of the crop.
- Promoting adoption of Mulching technique for soil moisture conservation.
- The water holding capacity would be improved by applying coir pith before sowing.
- Irrigate the crops in critical stages of crop growth period.
- Repairing of bunds and closing of holes to stop water loss.
- Timely weeding, inter-cultural operation and application of herbicides.
- Spraying of need based pesticides during morning or afternoon hours.
- Taking appropriate control measures for incidence of Stem borer in Paddy, Thrips infestation in Pulses, Groundnut and Sunflower.
- Risk Coverage under crop insurance scheme for mid-season adversity, localized calamity & post-harvest loss.
- Creation of awareness to farming community on effects of Heat Waves.
- Provision of Drinking water supply, first-aid facility and temporary shed in the work site would be ensured.
- The labourers would be engaged up to 11 PM and there will be interval from 11 AM to 3 PM
- Morning office for the districts officials would be held from April, as per the decision of Govt.

5. Fisheries & ARD Department

A. ARD Sector

- In each district as well as Sub-division level, a Control Room for Heat Wave should be opened with adequate staff to attend any eventualities arising due to Heat Wave.
- The livestock holders need to be educated regarding the management practices to be followed while rearing of animals and birds during scorching heat of Summer.
- The scrolling news on Heat Wave needs to be telecast in different TV channels. The publications of advertisements on Heat Wave in different Odia newspapers needs to be made for the awareness of public.
- Leaflets, Pamphlets and hand-outs will be circulated for wide publicity among the farmers and field functionaries.
- Livestock and poultry are prone to heat stress due to herd system of management resulting in Summer diarrhea, dehydration and subsequent shock. Hence, they are to be treated immediately with fluid therapy and essential life-saving drugs.
- There is also a need for supplementary post Heat Wave treatment to the affected animals and birds for which the veterinary Institutions (VDs &LACs) are to be equipped with sufficient stock of medicines.
- General Public would be advised to keep wide-mouthed water pots outside their houses for animals and birds.
- Temporary shallow water vats will be constructed for stray animals in strategic locations and in cattle markets through PR&DW Department. Accordingly, the detailed list with locations will be given to the respective DRDAS.
- The tube wells and animal vats should be constructed/ repaired in Veterinary Hospitals, Dispensaries and Livestock Aid Centers through PR&DW Department.
- The Mobile Veterinary Units in each block shall be utilized for monitoring the Heat Wave situation and for providing emergency veterinary service care.
- The farmers would be educated regarding the management of heat stress in animals and birds either during village meetings / trainings on Animal Husbandry activities or through different media.
- The successful management of heat stress includes the following:
- In order to treat or provide necessary first-aids to heat affected animals, all the Veterinary Dispensaries/ Livestock Aid Centersneed to be properly assessed with regard to availability of cold drinking water, stock of essential medicines and technical personnel.
- All subordinate Staff / Officers are to be instructed to render selfless services

to the affected livestock and poultry population in face of possible Heat Wave situations. Steps may be taken to open the field institutions beyond the prefixed schedule in case of necessity to cater the need of farmers.

- The NGO/ CBOs of the district may be requested to extend hands of co-operation to mitigate the sufferings of animals due to heat. Temporary arrangements for drinking water may be made with the help of District Administration, line Departments and voluntary organizations to overcome heat stress of susceptible animals.
- Care of affected animals should be taken immediately..3

B. Fisheries Sector

- During the excavation/ renovation of MPY, PMMSY or Departmental farms, labourers should not be engaged from 11 am to 3 pm. The Fishers must not go out during noon other than for exigency works.
- On the work site, temporary shed and drinking water facilities should be ensured by the beneficiaries.
- All field level officers AFO/SFTA/JFTAs should sensitize the Fishers about it.
- When temperature rises, dissolve oxygen decreases in the pond, pH level also decrease and fish start to get sluggish. Water tank level should be to minimum 1.0-1.5 mt. depth. The dissolved oxygen levels can be maintained by using aerators.
- Farmers must be sensitized on extreme heat in aquaculture practices through adequate awareness programs.

6. Housing and Urban Development Department

- Regular and adequate drinking water supply should be ensured by the PHEOULB to all the urban areas. For this, water supply pipe lines should be kept in good condition and any leakage or break down should be repaired within 24 hours on war footing.
- For emergency measures to ensure drinking water supply, water tankers should be deployed in different scarcity pockets to provide drinking water. Additional number of tankers, if required, may be arranged on hiring basis.
- Control Rooms are to be opened as usual and responsible officials should manage and attend to the complaints received on water scarcity.
- The ULBs should start opening more no. of water kiosks- PANIYA JAL BITARAN KENDRA i.e. drinking water distribution centers at strategic places i.e. on road sides, cross roads, public offices, bus stand, railway station, market places etc. keeping in view the sanitation and hygiene of water distribution points. Support of NGOs may be taken for this purpose, if necessary.

- All the Tube Wells/ Hand Pumps must be kept in running condition and spare parts should be kept ready for repairing of Hand Pumps/Tube Wells immediately in case of any complaint.
- Banning of burning of municipal solid waste, garden/tree residual should be ensured.
- To handle the emergency situation arising out of excessive Heat Wave, Health Care centers and hospitals under ULBs should be kept ready.
- Adequate awareness may be created among the urban inhabitants to keep one pot of water in front of households for stray birds and animals. The water must be changed on alternate days for better hygienic purposes.
- City-Afforestation/ Adequate sustainable avenue plantations /plantations on vacant places like educational institutions, parks, official complexes need to be taken up by the Development Authorities/ Regional Improvement Trusts/ Urban Local Bodies.
- Roadside dust of urban areas is a major cause for temperature rise and excessive heat and almost all the urban areas are now suffering from the hazards of dust particles. Necessary precautions must be taken to check and arrest the flying dust..
- All the Environmental Acts/Rules, NGT guidelines concerning improvement of urban area environment must be followed strictly and authorities concerned like Police, Forest, OPCB etc. handling their respective portion of jobs may be requested accordingly.
- All the water bodies in and around urban areas should be renovated, restored and repaired and these should be made free from pollution to make them usable and increase access to general public.
- Urban Local Bodies/Development Authorities/RITs are also required to
  - Display Heat Wave alerts and precautionary measures at strategic points.
  - Provide shelter and shades in open and high congregation places.
  - Open public parks during peak hours to provide cool resting spaces for the public.
  - Water supply to slums through tankers if required.
  - Public announcements through public address system as per requirement.
  - Make provisions for water sprinkling to settledown the suspended particles on roads.
  - Implement building code that entail passive cooling practices such as increased reflectivity of building roofs, Green roofs, increased natural ventilation and rain water harvesting. Incentive mechanism (e.g. reduced taxes) can be used to accelerate green infrastructure development.

- Increase access to public parks, water bodies, public libraries for general public and create small, accessible green spaces by using vacant spaces such as side lots, parking medians, spaces between buildings and roads.
- Promote green energy technology, energy efficient building promotion, restricted use of heat producing equipments and increase use of renewable energy.
- Treated water coming out from the FSTPs and STPs may be reused for sprinkling of water on the road to keep the dust particles settled and the environment cool.

7. Information & Public Relations Department

- All the DIPROS /SDIPROs would be instructed to be vigilant for prompt dissemination of any message alerts at the District /Sub-Division level relating to Heat Wave publicity campaigns etc. They must also be ready for release of any emergency messages and disseminate information through social media updates.
- Round the clock Control Room will be opened and will operate under the supervision of the concerned District Collector/Sub Collector.
- Publicity campaign and stepping up of IEC activities through public announcements, news releases, advertisements in print media, Leaflets and pamphlets, hoardings, radio jingles, TV slots, social media uploads i.e., facebook, twitter, You Tube etc. to sensitize public and create mass awareness in a mission mode is to be done under the direction of the District Administration.
- The Information Officers of Groups of Departments will be in constant touch with the respective departments for quick sharing of information regarding the decision taken at the higher level with the approval of the concerned department.
- Control room at the State level will also be opened and a designated team of officials and staff of 1& PR Department function for the purpose and supervise the smooth functioning and dissemination of updated information relating to Heat Waves.
- Media briefings on updated information as and when necessary must be shared under the supervision of higher authorities at Sub-Division/District &State level.

8. Industries Department

- Avoid work time between 11 AM to 3 PM for workers, particularly for outdoor activities.
- Special provisions for health facility for heat stroke patients in the hospitals of respective industries.

- Provision for safe drinking water, ice pack, ORS water facility to be ensured at the industry/mining site.
- Provisions for water sprinkling to be made to settle down the suspended dust particles.
- Spreading awareness among employees/workers regarding the Heat Wave.

9. Department of Health and Family Welfare

- Capacity building of Health Care Service Providers (Doctor, Nurses, Pharmacist and health workers) on diagnosis and management of heat related illness.
- Maintaining data base and surveillance on heat related morbidity and mortality.
- Provision for Health facility readiness to manage heat affected patients (beds, staff, inventories, ambulance etc.).
- Special attention towards high risk patients like geriatric/ pediatric /pregnant women etc.
- Training of 108 workers and 'Mobile Health Units (MHU)' for management of heat related cases
- Display do's and don'ts of Heat Waves on 'Swasthya Kantha' (village health wall),
- Sensitize community on Heat Wave related issues at Kishori Swasthya Mela (adolescent health meet), and Village Health Nutrition Day (VHND) and Routine Immunization (RI) sessions and distribution of IEC materials
- Strengthen the control rooms for providing heat related information
- Establishment of mobile base alert systems for ASHA/ ANM/ health workers for effective and immediate assessment of heat stroke cases.
- Development of a specific reporting form for heat related events including morbidity and mortality.
- Coordinate with private hospitals to collect heat related morbidity and mortality data.
- Provision for power back up during summer.
- Provision for funds for Heat Wave management.
- Provide annual mortality data from their vital statistics division to OSDMA
- For the year 2022, IEC material must be circulated in print and electronic media with effect from 1st March for public awareness and precautionary measures
- These awareness activities should not be confined to the summer season only. They have to be done throughout the year for adoption of good practices and to change the general mindset of the people towards heat.

- Take necessary steps for albedo/white painting of roof tops of all hospitals, Community Health Centers (CHCs), Public Health Centers (PHCs) and patient resting areas.
- Instructions to be issued from Health and Family Welfare Department to all health officials to share a copy of the post-mortem report of Heat Wave as well as other disaster related causalities with the Tehsildars to make the payment of ex-gratia smooth.
- Take necessary steps to prevent diarrhea and other health hazards during summer season
- Daily reporting of cases and deaths to be done through the prescribed format. A daily report should be collected from all health institutions by evening. It should be complied and transmitted to the State health control room by Fax or E-mail by 12 noon of next day. This report must be transmitted by the State Control Room to the Revenue Control Room daily.

10. Labour & E.S.I. Department

- All the executive agencies of different Departments of the state Government • All the executive agencies of different Departments of the State Government as well as those of Government of India and private employers would be advised to reschedule working hours so that no work is executed during the peak heat hours from 11.00 AM to 3.30 PM from 1st April, 2022 to 15th June 2022.
- Rescheduling of work in progress would be made as far as is practical, so that the works are done during morning and late afternoon hours without hampering the quantum of production or work done and without reduction of wages. Such arrangements may be made keeping in view the local requirements and weather conditions.
- Where the nature of work is such that, the rescheduling of working hours is not possible or where the work is of emergent nature or connected with maintenance of essential services, the concerned employers, contractors and executants should be asked to ensure all appropriate precautionary measures such as provision of - O.R.S. packets and rest sheds for workers at worksite.
- The C.D.M.Os, S.D.M.Os, medical officers of the PHCS / CHCs and dispensaries should be sensitized and kept alert during the Heat Wave conditions. The ESI dispensaries, which are meant to cater to the health needs of workers/ labourers have a special role to play.. They should remain alert and ready to treat the patients suffering from heatstroke and other similar problems.
- The Project Directors of all NCLPs should be instructed to reschedule the school timing for all Special Schools run under NCLP in accordance with the timings prescribed by the Government in School & Mass Education Department.

- Awareness programmes will be conducted in all industrial units and construction projects etc. to sensitize the labourers and workers on risks, signs and symptoms of heat stress.

11. Panchayati Raj & D.W. Department

- All Gram Panchayats/Panchayat Samities/Zilla Parishads must be instructed to open JalaChhatras/make arrangements for the supply of drinking water in earthen pots at weekly haats, Road crossings, Bus stops and other places of public gathering
- Deployment of Additional Vehicle and manpower for repair/maintenance by Block Development Officers.
- Deployment of tanker for the supply of water in areas of water scarcity, and provisions of water kiosks, tube wells, tankers strategic locations by Block Development Officers in coordination with RWSS authorities.
- Restrict the working hours from 11 AM to 3 PM under MGNREGS.
- Supply of drinking water and shade nets at working sites and construction of ponds, artificial lakes for cooling the environment by evaporation.
- 100% checks of tube wells and PWSSs shall be conducted on a priority basis as a part of preventive maintenance by the Nodal Officer of the concerned G.P. with the assistance of the Mobile Team followed by a 10% check by the BDO.
- The routine preventive maintenance shall be done in a mission mode and it should be ensured that the Blocks shall procure adequate spare parts, paints, riser pipes etc. by utilizing the Finance Commission Grants taking into consideration the indents of the Gram Panchayat on the recommendation of JE, RWSS-II.
- Nodal Officer (Extension Officer) of the concerned G.P. must review on the drinking water problem in the area on a daily basis and ensure that repair and maintenance of tube wells and PWSs are taken up on a priority basis. They are personally responsible for the availability of drinking water to people.
- Spare parts are to be procured at the Block level through the Purchase Committee inviting tenders as per norms of RWS&S/ OPWD/Odisha Panchayat Samiti Accounting Procedure Rules on the basis of the indent received from the G.Ps. The Purchase Committee will consist of BDO as Chairman, Assistant Executive Engineer/ Jr. Engineer, RWSS as a member and Accounts Officer as Member Convener. The spare parts so purchased shall be kept in the Stock of the Block Register and issued to the sites as per requirement and certificate gave by Junior Engineer-II, RWSS.
- A control room is to be made functional at each Block from 8 A.M. to 8 P.M. to register compliant on tube wells and PWSSs and the Complaint Register to be updated daily basis with remarks.

- The water scarcity villages as per experience in the last summer shall be identified and preventive measures shall be taken at the time of necessity for the supply of drinking water through tankers/tractors loaded with water tanks etc.
- The water tanks purchased during the last summer by the Block or G.P. shall be numbered and utilized properly during the water scarcity period in such villages with branding "BASUDHA".
- Any other critical issues regarding the supply of drinking water at the G.P. level shall be brought to the notice of the BDO and unresolved issues at the Block level shall be brought to the notice of the Project Director, DRDA during -summer.
- The GPs can take the assistance of Village Water and Sanitation Committee/ Women SHGs for ensuring proper drinking water supply to the habitations and also a collection of user fee from the household to whom the water connection is given.
- The Collector and PD, DRDA shall review weekly progress of preventive maintenance work of tube wells and PWS so that this can be completed in a mission mode.
- Nodal Officers of the PR & DW Department have been allotted to all 30 districts to supervise and monitor the supply of drinking water to the annual preparation of the State. All possible steps will be taken from villages to district level to meet the challenges of the Heat Wave conditions.
- All tube wells and PWC will be checked thoroughly and in case of water depletion rising pipes will be provided and grievances from the call center will be attended to within 48 hrs.
- VAT will be constructed near the tube wells platform for the Drinking purpose of cows.
- Every household should have a water pot in front of their home for birds, dogs and cats and water should be filled in every two days.

12. Rural Works Department

- Departmental State & district level Nodal officers would be identified for the Heat Wave management.
- Orientation programme for all the field staffs by the Nodal Officers would be conducted.
- Building public awareness and increasing community outreach to communicate the risks of Heat Waves and implement practices to prevent heat related death and illness must be done.
- Supply of Cold Water, ORS, emergency medicines & construction of cooling

spaces like shades during extreme heat periods must be ensured at work sites by the agency.

- Outdoor work site from 11A.M to 3 P.M. would be restricted.
- Issue instruction for workers to keep their body covered with long sleeved shirts, caps & clothes for protection of ears and necks.
- Instruction management of the construction site (s) to provide transportation facility for shifting labours to health facility centre, in case of an emergency.
- Instruction management of the construction sites to display contact details of nearest health centre.
- Schedule strenuous jobs to cooler times of the day.
- Increase the frequency and length of rest breaks for outdoor activity.

13. School & Mass Education Department

- Student should be advised to wear clean uniform and footwear.
- Schools with electricity shall be advised to ensure functional head fans and schools without electricity shall be advised to ensure availability of hand fans.
- Safe Drinking Water facilities shall be made available at school campuses.
- Adequate ventilation shall be ensured in classrooms.
- Physical Training/ exercise sessions as school periods may be restricted during summer season to avoid any inconvenience.
- Students shall be advised to come to school with umbrellas and water bottles.
- All teachers shall be instructed to sensitize children on Prevention measures in case of occurrence of Heat Wave.
- All schools shall be equipped with First Aid Boxes.
- All the transport services to schools should have cold water, ice box and First Aid box.
- Timing of all classes shall be re-fixed/ rescheduled as per the Heat Wave alert (preferably morning time 6.30 AM to 10.30 AM). This process shall be adopted for management of all schools.
- School Examination/ Assessment shall be scheduled in the morning hours.
- All school teachers, SMCs, students and parents should follow guidelines of govt. from time to time.
- Capacity building of teachers, Headmasters, education administration and SMC members should be made on the different precautionary measures.

- Local Health Centers may be contacted immediately in case of any health hazard or health emergency.

14. Steel & Mines Department

- The working hours for workers engaged in outdoor activities for carrying out geological investigation have been rescheduled from 6.00 AM to 11.00 AM and from 3.00 PM to 6.00 PM.
- The exploration in-charge of every geological exploration unit has been advised to create temporary rest shades for their workers.
- Provision for sufficient cool drinking water, ORS, lemon water, butter milk will be made available in the exploration units.
- Awareness on Do's and Don'ts including their display will be made at different conspicuous places for workers and employees.
- Ambulances with AC facility have been made available for emergency services at working sites.
- Fire extinguishing equipment would be kept ready for emergency situations at different sites.
- First Aid Kits should be ensured in all working sites.

15. Commerce and Transport (Transport) Department

- Timing of public transport services will be rescheduled so that plying of buses during peak Heat Wave hours i.e. between 11.00 AM to 3.00 PM is restricted.
- Provisions for safe drinking water ice pack, ORS in buses and provision of cool resting spaces at bus stops.
- Over-crowding of passengers in the public transport vehicles must be avoided.
- Jalachharas to be opened at bus stands and bus stops for the passengers.
- Temporary Passenger sheds are to be erected near the bus stops with provisions of drinking water.
- Provision of water kiosk on highways.
- Proper checking will have to be made by the enforcement wing of this Department and penalty be imposed against the earning transporters/ operators
- The control rooms at district level should function around the clock during the period of Heat Wave
- The bus/truck associations of the district and the local NGOs should suitably be instructed to involve themselves in public awareness campaigns on Heat Wave.
- Regular meetings must be held to sort out different issues.

16. Energy Department

TPSODL

- supply will not be affected during Summer-2022 except in any emergency situation such as under frequency, tripping of power transformers, feeder faults, planned shutdown for execution of Govt. work with prior announcement etc.
- TPSODL will abide with the guidance issued to it by SLDC from time to time.
- In case of any emergency maintenance work, the same will be done only during morning hours when the effect of heat is less.
- In case of power interruption, the same will be intimated to the public through Urja Mitra Scheme and also will be intimated via electronic media such as TV scrolling, twitter and public announcements etc.
- Lift irrigation points that are inoperative will be provided with power supply.
- TPSODL has taken steps for the operation of Control rooms at Division level, Circle level and Corporate level through PSCC (Power System Control Centre).
- District Headquarter Hospitals are being provided with uninterrupted power supply through dedicated feeders.
- All PHD and RD water supply points will be ensured steady power supply.
- Early replacement of failed PTRs/DTRs will be taken up. Outage, if required for rectification of faults or any urgent reason, will be done for the minimum possible time.
- All the contractors/ agencies working under TPSODL have been geared up to meet any exigency such as repair, maintenance work etc.
- Preventive maintenance works have been planned during March to April to rectify jumpers, tilted poles, low ground sagging and tree branch cutting with respect to all 33KV and 11KV feeders.

TPWODL

- Survey and maintenance of feeders, Sub-stations, Distribution Sub-station will be completed by 31st March 2022.
- Adequate manpower and vehicles are available in TPWODL for preventive and break down maintenance of Sub-stations and feeders.
- Adequate consumables and petty materials have been procured and kept ready in central/divisional/sectional stores for preventive and breakdown maintenance.
- TPWODL has set up Power System Control Center (PSCC) for round the clock monitoring, PSCC Officials will co-ordinate with field officials for early identification

and restoration of outages.

- All the 33/11 KV PSS within the jurisdiction of TPWODL has been supplied with android mobile phones and there are 9 Nos Satellites Phones for emergency contact during the exigency such as Kala Baisakhi and Cyclones.
- All the Circle Heads in-charge of Distribution Circles are empowered to release transformers in consultation with Chief Operation Services for early replacement of burnt transformers.
- All the TPWODL employees as well as BA employees with requisite maintenance gangs shall remain alert during the summer period.
- The Circle Heads/Divisional Managers will record/monitor the peak load of primary sub stations/feeders under their control daily so as to avoid breakdown due to failure of power transformers/overloading and consequent snapping of conductors in co-ordination with the Sub Transmission System.

TPWODL

- Sub-Transmission System Team shall monitor the load balancing of power Sub-Transmission System Team shall monitor the load balancing of power transformers and functioning of all the VCBs/ Relays to avoid any breakdowns.
- All the Divisional Managers have been directed to keep proper coordination with Grid Sub-stations under their control for proper load and outage management and the breakdown shall be attended at the quickest possible time for restoration of power supply and to minimize the duration of power interruption so as to avoid public confrontation.
- Prior information will be given to Customer Care Center (Ph: 18003456798) in case of shutdown and breakdown outages to keep consumers posted regarding ongoing outages.
- Preventive and breakdown outages information will be updated in Urja Mitra and TPWODL website for timely information to consumers.
- The Circle Heads of the Distribution Circle shall report to Chief Operation Services on power system status of their Circle.
- TPWODL will abide by the guidance issued to it by SLDC from time to time.
- In case of emergency maintenance work, the same will be done only during morning hour when the effect of the heat is less.
- TPWODL have taken steps for operation of Control rooms at Division level, Circle level and corporate level.
- District Head Quarter Hospitals are being provided with uninterrupted power supply through dedicated feeders. (N-1 Arrangements)
- All PHD and RD water supply points will be ensured steady power supply.

- Early replacement of failed PTRs/DTRs will be taken up.

17. Forest, Environment & CC Department

- Ensure proper afforestation (greenery) under public place.
- Continuous watch in the forest area to avoid forest fires.
- Directive for making water available for animals in reserved/ protected forests and make necessary provisions, where necessary.
- Issue directives to the Zoo Authorities for special arrangements for the animals in zoo to protect them from the effect of Heat Wave.
- Directive for provision of water to human habitations facing water scarcity inside reserved forests
- Provision of funds for Heat Wave management.
- Prior to the hot weather season, village level meetings should be conducted through NGOs who can make them aware regarding extinguish or not setting forest fire.
- Monitoring, prevention and management of Forest Fire should be made during summer season.

18. Department of Tourism

- Mapping of high-risk zones (e.g. Dhenkanal, Angul, Sundergarh, Cuttack, Khordha, Ganjam) under the guidance of Indian Meteorological Dept. (IMD) conducting workshops for the District Tourist Office staff covering the high-risk zones, including the use of SATARK platform for enabling greater responsiveness.
- Advisories on Do's & Don'ts and special provisions will be compiled for and disseminated to: Tourists - Digitally on Website, Social Media and physically at all Tourist Centers, Hotels, other hospitality accommodations, eateries and their employees, etc.
- Dept of Tourism in coordination with Health Department and district administration will review the responsiveness of links between tourist centers and nearest clinical care establishments (hospitals, clinics, etc.)
- Dept of Tourism & OTDC will encourage employees to exercise adequate precaution and positive habits by provisioning caps and water bottles
- Dept of Tourism will work with concerned authorities and departments to alter employee shift schedules to reduce heat exposure risks.
- Ensure proper registration of tourists who are visiting the State.
- Ensure availability of heat relief measures at tourist places.

- Display of Heat Wave precautionary measures for tourists during summer at tourist points and related information in website of department of tourism.
- Ensure the availability of drinking water and cool resting sheds.
- Restrict the timing of the visit of tourist places during peak summer days.

19. Water Resources

Short Term Measures:

- Sufficient storage of water at reservoir to meet the Heat Wave.
- Release and storage of water in all the canals during summer.
- Release of canal water to the affected areas for public use, to increase the underground water level, reduce the atmospheric temperature and also improve the green areas.
- Canal water to be fed to nearby ponds, tanks, low lands for secondary storage of water during summer.
- The working hours for daily labourers to be re-scheduled i.e. from 6 a.m. to 11 a.m. and 3.30 pm to 6 pm. Orders / instruction to be given to make provision of drinking water and rest shade at the work sites.
- Construction of small temporary earthen check dams at Rivers / streams to instantly store surface water for cooling the environment by evaporation.
- Regularly evaluate the availability of water in Reservoirs, rivers, ponds and lakes. Promote rotation of canal water supply.
- Create awareness among the community about Heat Wave through Water Users Associations (WUA)/ Pani panchayat.

Long Term Measures:

- Construction of check dams at small streams for in-stream storage and greater recharge.
- Periodically evaluate the availability of water in Reservoirs, rivers, ponds and lakes.
- Conservation of rain & stream water.
- Create awareness among the people on Water conservation and effective use.
- Steps have been initiated for Plantation at road side, Dam site, Office & Colony Campus, Canal & Flood Embankment etc. from 2018.

Long Term Measures:

- Improving the forest coverage and green areas.
- Construction of Barrage/ check dams at Rivers / streams for in stream storage of water. Conservation of storm water.

- Rejuvenation of Reservoir, rivers & streams to improve the water retaining capacity.

20. SSEPD Department on Heat wave

- Rescheduling the time of pension disbursement i.e from morning 7.30 A.M to 10.30 A.M.
- Ensure availability of drinking water, ORS packets etc. and shed at the site of pension disbursement.
- Ensure precautionary measures for field staff of SSEPD Department i.e, carrying drinking water, ORS packets and umbrella or use cap or while stepping out side on duty.
- Restrict visit of Senior Citizens and PwDs to outside during the peak hours especially from 11.00 A.M to 3.00 P.M during summers.
- Ensure availability of drinking water, ORS packets etc. in the Office of DSSO and other field Offices under SSEPD Department.
- Ensure availability of drinking water, ORS Packets and medicines of emergency nature in the Residential Schools and Old Age Homes under SSEPD Department.
- To keep the mobile number of BSSOs/SSSOs and emergency numbers in the Residential Schools, OAHs for immediate contact in case of any emergency.
- Weekly visit by Field Officers of SSEPD Department to OAHs and Residential Schools under SSEPD Department.

21. ST & SC Development Department

- PA ITDAs and DWOs should ensure adequate and safe drinking water in all these residential schools and hostels.
- All toilets and bathrooms should have piped water supply provisions.
- Sufficient packs of ORS, ice packs and other first aid kits in schools / hostels to manage Heat Wave related illness, should be stacked in the residential schools.
- All HMs, teachers, ANMs, Matrons, CCAs/LCCAs and Students should be briefed and trained on Heat Wave Management. They shall ensure that all necessary precautions are taken up in these schools and hostels.
- Awareness generation among students should be conducted by teachers through IEC materials, displays and activities. DWOs to plan with prior consultation with CDMO and concerned Health Officers.

- If any student boarder has any sign and symptoms of sunstroke, instant first aid shall be provided and he/she should be hospitalized immediately.
- Daily monitoring should be ensured and all DWOs should submit the daily Disease Surveillance Report to Department's Control Room. All PA ITDAs and DWOs shall review the school-wise Heat Wave preparedness with the respective HMs time to time and inform the Department's Control Room in regular basis.

22. Women and Child Development & Mission Shakti Department

- Non-functional tube wells, if any, at AWCs may immediately be repaired by coordinating with concerned BDOs.
- Provision for sufficient safe drinking water may be made in all AWCs and Mini-AWCs. Parents may be advised to ensure that children use umbrellas and carry water bottles on opening of the AWCs.
- Adequate public awareness may be created in the community with special focus on children and pregnant and nursing women to take measures for protection from dehydration.
- IEC materials may be displayed at Anganwadi Centres and lCDS functionaries sensitized to disseminate Heat Wave related information.
- Village Health Sanitation Nutrition Day (VHSND) and Routine lmmunization (RI) session platforms may be used to educate the children, adolescent girls, mothers and guardians on Heat Wave related hazards and precautionary measures to mitigate/prevent the same.
- ORS packets may be kept at all AWCs and AWWs sensitized to use them as and when required. AWW/ AWHs to also be suitably sensitized about Heat Wave related hazards &precautionary measures to mitigate/prevent the same.
- Ensure that all Swadhar Homes/ Ujjawala Homes and all CCIs have adequate safe drinking water which are suitable to meet the Heat Wave conditions.
- Further, on opening of AWCs throughout the State (likely to be opened shortly) , the Pre-School activities in all AWCs and Mini-AWCs may be conducted from 7.30 A.M. to 9.30 A.M .. Hot cooked Meals under Supplementary Nutrition Programme (SNP) may be served at 9.00 A.M. and Home visits may be completed by 10.00 A.M. This schedule may continue till end of the Heat Wave condition. However, these are subjected to specific instruction at the time of opening of AWCs

23. WORKS DEPARTMENT

- Adequate provision of rest shed at work site or near camp office site.
- Sufficient ventilation, windows and fans at rest shed.
- Provision of ORS and portable drinking water should be there at work sites and camp sites.
- Workers must wear proper summer clothing, protective hats, sun glasses etc.
- Maintaining of work break cycle and no work during prohibited hours.

During working, the Agencies shall be instructed to ensure following at work sites for occupational health safety measures of construction workers:

- During periods of elevated temperature, employees should wear light-colored, lightweight, loose-fitting cotton clothing that allows ventilation of air to the body.
- Protection from the sun by wearing a wide-brimmed hat/ cotton towels in lieu of hat and/ or sunglasses and sunscreen, if available, to prevent glaring heat and solar radiations.
- Provision of portable cool water, ORS and encourage employees to take breaks and hydrate any time they feel necessary.
- Pacing the job to allow more frequent breaks for fluid intake and sufficient recovery time.
- Work breaks must be taken in a shaded area which has sufficient windows and ventilation or an air-conditioned building.
- The contractors will be asked to remain alert to move the- Heat Wave affected persons having HRI symptoms working at site to the nearest PHC/ CHC or Hospital without delay.
- Opening of windows and adding fans to increase air movement in order to provide air cooling and ventilation of heat.
- Shielding radiant heat sources or exhaust at the point of heat generation.
- Providing shaded areas during remote outdoor work (e.g., constructing temporary shelters using tarps) tractors, lawnmowers and other outdoor equipment.

24. Civil Society Organizations/ Corporate Social Sectors

- To support the Govt. departments in generating awareness in community
- To support in setting up of Jal Jogana Kendras (water kiosks) on road ways and remote places
- To distribute IEC materials duly accredited by the state health department and OSDMA
- To promote healthy living during the summer
- To support the state government in establishing shelters and sheds.

25. Action plan for the Districts

Government of Odisha has taken various measures for mitigating adverse effects of Heat Waves and the water scarcity situation in the State. Instructions are issued to all Districts from Special Relief Commissioner to take different precautionary measures in this regard.

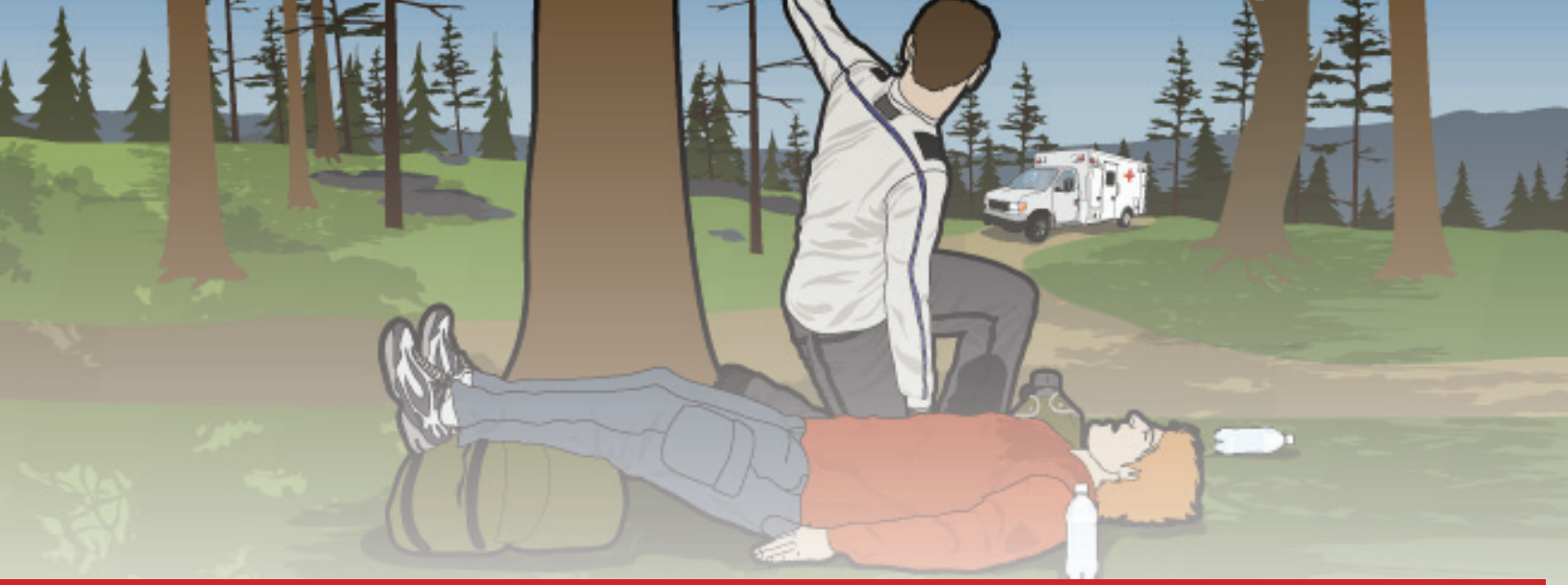
- Public awareness is the key to check Heat Wave related illness and casualties. Hence, awareness campaigns may be taken up immediately to make the people aware of the risks associated with Heat Wave, identifying the risks, "Do's and Don'ts" to protect oneself from the said risks and what to do if someone is affected. Civil Society Organizations may be widely involved in such awareness campaigns. On receiving Heat Wave warning messages, besides other modes of communication, local media should also be utilized to keep the public on alert.
- Water scarcity is often associated with Heat Wave situations and needs special attention. The District Administration is required to take steps in advance to identify the water scarcity pockets (village/ hamlet/ ward wise) and prepare an Action Plan for ensuring supply of water for drinking and other uses through tankers to those areas. Reports of water scarcity must be responded to immediately.
- Preventive maintenance of tube wells and piped water supply systems should start immediately, if not taken up already. Necessary arrangements may be put in place for attending to the complaints about the functioning of tube wells and piped water supply systems.
- Water Resources Department will take steps to release water through canals from reservoirs depending on the requirement.
- `PaniyaJalaSevaKendras' (Drinking Water Kiosks) are required to be opened by Urban Local Bodies/ Gram Panchayats at market places, bus stands and other congregation points. Water provided in such water kiosks must be of portable quality and proper sanitation maintained including use of long handle dispensers and change of water daily. Sincere and willing Civil Society Organizations may

be engaged for this task. Agencies doing such work only for self-publicity and discontinuing the same after initial days should be avoided and dealt with strongly.

- Construction/ repair of shallow vats may also be ensured for roaming livestock. F & ARD Department may take up suitable IEC measures on care for animals during summer to prevent them from Heat Wave.
- This year, Schools, Colleges and other Academic/ Technical institutions may be required to continue classes during the summer to compensate for the loss due to COVID-19 pandemic, though timing of classes and examinations may have to be rescheduled to morning hours. In case schools and educational institutions remain open, extra care has to be taken to ensure availability of drinking water in all Schools and Colleges. Wherever required, tube wells inside the school campus may be repaired to ensure uninterrupted drinking water supply. Sufficient ORS must also to be kept in schools, colleges and provided to students/ staff requiring the same. Outdoor activities have to be restricted so that the students - are not exposed to Heat Wave conditions.
- All parents should be sensitized to ensure that their children carry a water bottle while going to school/ college. This should be sufficiently publicized to create awareness among the parents.
- Schools may also be advised to allocate some time during school hours to give Heat Wave precautionary tips to the students.
- S & ME/ HE/ Skill Dev. & Tech. Education Department may issue detailed instructions on the points above.
- Anganwadi Centres may remain open in morning hours only. Availability of portable water in all AWCs must be checked and ensured. Sufficient nos. of ORS packets should also be available with ASHA and AWWs.
- Sufficient life saving medicines, saline, ORS may be stored in dispensaries, PHCs, CHCs and Subdivision/ District Headquarters Hospitals to meet the requirement. Special arrangements may be made and separate wards/ beds be earmarked for treatment of heat stroke patients in different hospitals. The ESI Dispensaries may be directed to treat the general public.
- All public transport vehicles must carry sufficient portable water and ORS packets to be provided to passengers/ staff requiring the same. During severe Heat Wave condition, timings of non-airconditioned public transport services may have to be rescheduled avoiding their plying during peak hours of Heat Wave. However, while doing so, inconvenience likely to be caused to long route passengers must be kept in mind. C & T (Transport) Department may issue detailed instructions in this regard.

- The timing for engagement of labourers / workmen at worksites may be rescheduled. No work should be executed in peak hours during Heat Wave period. The employers must make necessary arrangements for the supply of drinking water, ORS packets and provisions of rest shed at the worksite. Labour & ESI Department may issue detailed instructions in this regard.
- The Energy Department will issue instructions to the distribution companies to maintain uninterrupted power supply during summer months. In case, load shedding is absolutely necessary in some areas, the schedule must be announced for information of consumers sufficiently in advance.
- Awareness raising measures may be taken up on the concept of cool roof technology ie., white painting of roofs to reduce the indoor atmospheric temperature.
- The control rooms at the State level and the District level shall function round the clock during the period of Heat Wave. The Heat Wave warnings issued by IMD should be tracked on a regular basis and if necessary, Control Room of IMD/ State EOC may be contacted for such information.
- Members of Panchayati Raj Institutions in the district may be sensitized and impressed upon to monitor the Heat Wave mitigation measures in their areas and observance of Heat Wave safety protocols by the people.
- The Collector may depute Senior Officers to verify and ensure necessary arrangements in medical institutions, schools, colleges, anganwadi centres etc.
- All effort should be made to see that no human causality occurs due to Heat Wave. However, if any information on casualty is received or news report published in media, it should be immediately enquired into and the veracity of such reports should be promptly reported to this office.
- Where reports regarding death of a person due to sunstroke either at the work place or any other area are received, the Collector should arrange to conduct immediate joint enquiry of the case by the local Revenue Officer like Tehsildar or Additional Tehsildar (in rural areas) or any other Revenue Officer in Urban areas (authorized by concerned Sub-Collector) and the local Medical Officer (to be nominated by the CDMO/ SDMO). The joint enquiry report with countersignature of the Collector should reach this office within 48hours of the reported death. This is to be ensured by all Collectors unfailingly. A copy of the letter No.895/SR dt.27.4.05 containing the procedure for enquiry into the reports of alleged heat stroke deaths is enclosed for ready reference.

- Where, upon enquiry, the death is confirmed to have occurred due to sunstroke, immediate steps shall be taken to process the case in DAMPS for sanction and payment of ex-gratia to the bereaved family.
- During Heat Wave period, a Calamity Management Group under the leadership of the Collector should review the situation as well as relief measures everyday and a daily situation report should be sent by the Collector to the office of Special Relief Commissioner.
- Meeting of the District Level Committee on Natural Calamities/District Disaster Management Authority may be convened at the earliest to discuss different preparedness measures to be taken by different officials/agencies to manage the possible Heat Wave & water scarcity situation in the districts as per the advice/ direction of the committee/ authority latest by 11/03/2022.



7. DEALING WITH HEAT RELATED ILLNESS

1. Prevention of Heat Related Illness

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

Heat related illnesses can be best prevented if the vulnerable populations/ communities are made aware of prevention tips basic Do's and Don'ts through effective use of various media. Physicians and pharmacists must have knowledge of effective prevention and first-aid treatment of heat related illnesses. It is also crucial to have an awareness of potential side-effects of prescription drugs during hot weather, to ensure the mitigation of heat illnesses.

Symptoms and First Aid for various Heat Disorders

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

Hospital Preparedness Measures for Managing Heat Related Illness

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

- A detailed action plan to tackle heat-related illnesses well in advance of hotter months.
- Standard Operating Procedures to tackle all levels of heat-related illnesses. Capacity building measures for doctors, nurses and other 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 calls 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 centers must refer the patients to the higher facility only after ensuring adequate stabilization and basic definitive care.
- Hospitals must network well with nearby facilities and medical centers to share the patient load which exceeds their surge capacities.
- All cases of heat-related illnesses should be reported to IDSP (Integrated Disease Surveillance Programme) unit of the district.

Acclimatization

Those who come from cooler climatic conditions to warmer places face the risk of Heat Wave illnesses and need to be acclimatized. Acclimatization is achieved by gradual exposure to the hot environment during a Heat Wave. . They should be advised not to move out in the open for at least one week to help the body acclimatize to the heat. t They should also be advised to drink plenty of water.

1. Heat Illness Treatment Protocol

Recognizing that treatment protocols may vary slightly in different the settings (EMS, health centers, clinics, hospital emergency departments, etc.), the following should apply in general to any setting and to all patients with heat related illnesses:

1. Initial assessment and primary survey of patient (airway, breathing, circulation, disability, exposure), vital signs including temperature.

2. Consider heat illness in differential diagnosis if:

   a. Presented with suggestive symptoms and signs

   b. Patient has one or more of the following risk factors:

- Extremes of age (infants, elderly)
- Debilitation/physical reconditioning, overweight or obese
- Lack of acclimatization to environmental heat (recent arrival, early in summer season)
- Any significant underlying chronic disease, including psychiatric, cardiovascular, neurologic, hematologic, obesity, pulmonary, renal, and respiratory diseases
- Taking one or more of the following:
  - Sympathomimetic drugs
  - Anticholinergic drugs
  - Barbiturates
  - Diuretics
  - Alcohol
  - Beta blockers

3. Remove from environmental heat exposure and stop physical activity

4. Initiate passive cooling procedures

   a. Cool wet towels or ice packs to axillae, groin, and around neck; if patient is stable, may take a cool shower, but evaluate risk of such activity against gain and availability of other cooling measures

   b. Spray cool water or blot cool water on to 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.

2. Livestock preparedness During Hot Weather

Extreme heat causes significant stress to livestock. There is a need to plan well for reducing the impact 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.

3. Maintenance of Data on Heat Related Deaths and Illness

As per "Guidelines for preparation of Action Plan – Prevention and Management of Heat- Wave 2017" issued by National Disaster Management Authority (NDMA), New Delhi, data on age group, sex, occupation, economic status of those who died due to Heat Wave, place of death etc. are to be collected and furnished for proper analysis and under taking of mitigation measures.

As per the instructions issued by the O/ o Special Relief Commissioner vide letter No. 1777/ R & DM (DM) Dated 03.04.2018 information as per Format-I (Annexed) may be collected and furnished to the Department along with every joint enquiry report of heat stroke death. Besides, a permanent register with detailed information as per Format- II (Annexed) is to be maintained both in the Tehasil Office and District Office and weekly report in the said format must be submitted to the Department every Monday by 1.00 PM.

Further, data on heat related illness is needed to carry out meaningful analysis of heat related health events and to undertake appropriate measures. Information of all cases of heat related illness and deaths as per Format- A (Annexed) needs to be collected by the Directorate of Health Services and submitted to the Department daily.

4. Health Impacts of Heat Waves

The health impact of Heat Waves typically involve dehydration, heat cramps, heat exhaustion and/ or heat stroke. The signs and symptoms are as follows:

- Heat Cramps: Edema (swelling) and Syncope (Fainting) generally accompanied by fever below 39°C i.e.102°F.
- Heat Exhaustion: Fatigue, weakness, dizziness, headache, nausea, vomiting, muscle cramps and sweating.

Figure-8: Conceptual Framework of HAP at the State Level

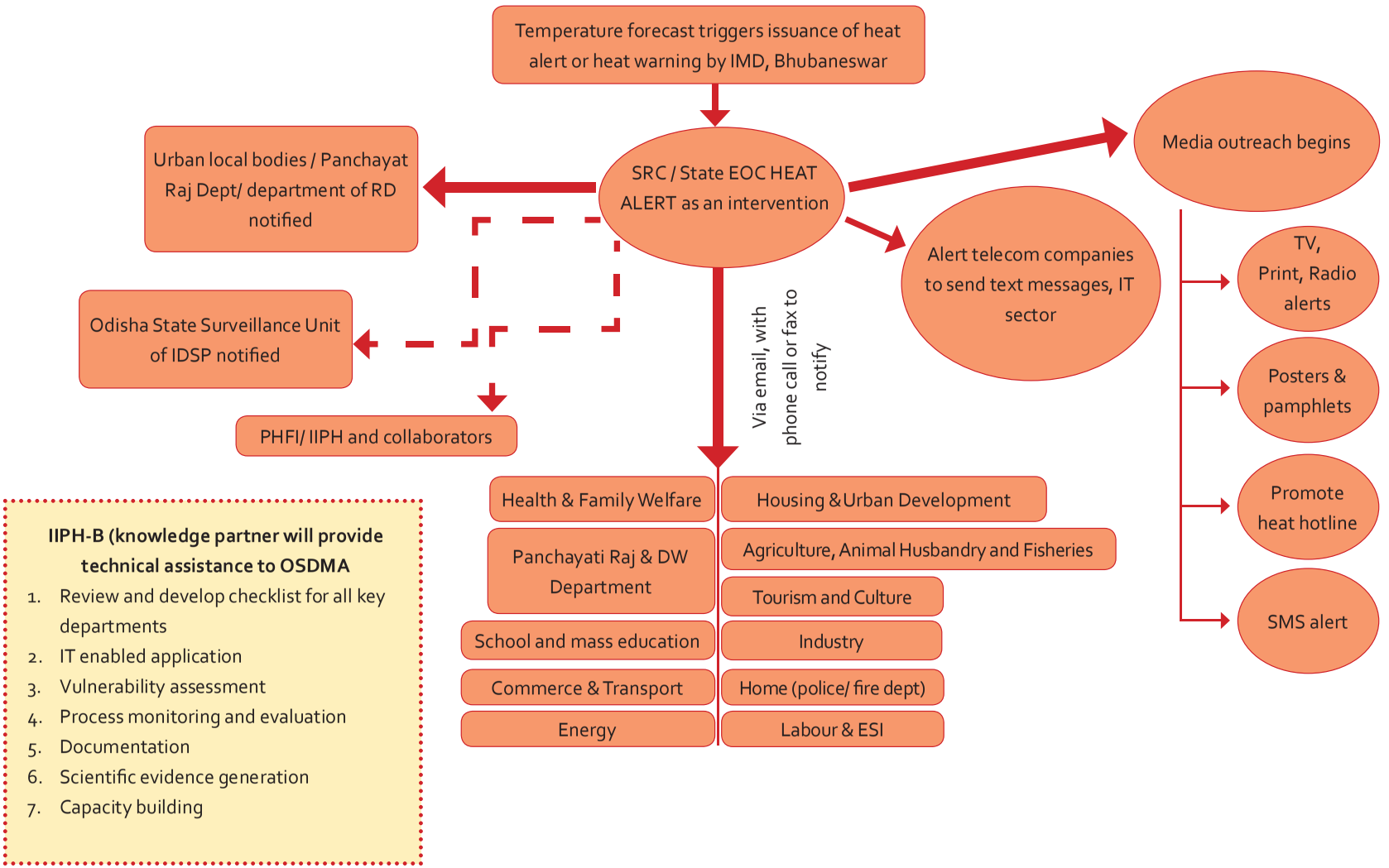


Figure-9: Flow of Information from State to District During a 'Heat Wave' Alert

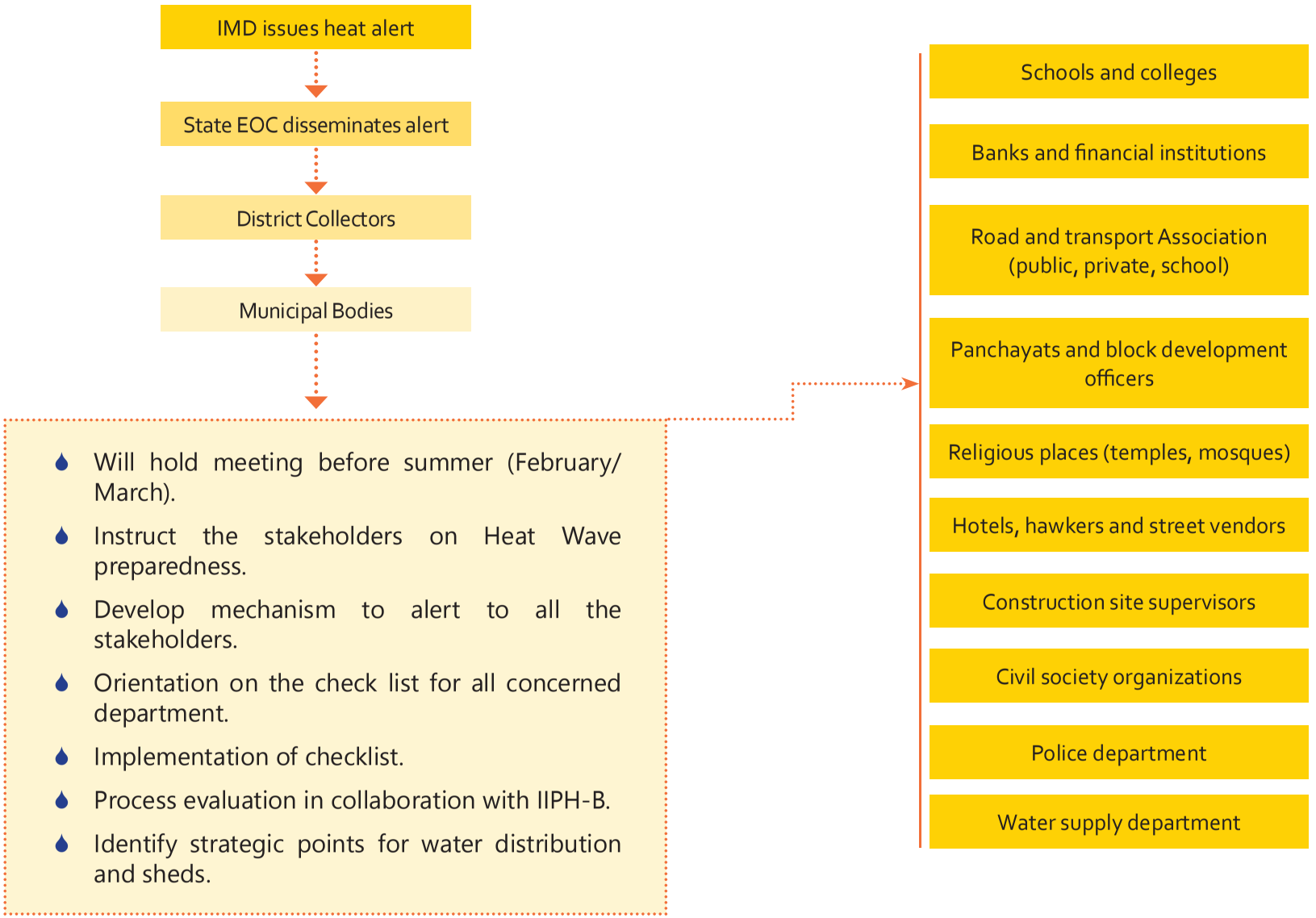


Figure-10: Time Duration and Importance of the Roles and Responsibilities

of concerned departments in execution of the strengthened HAP

Department/ Organizations	Immediate (**Before and During Summer**)	Short term (**Before Six months of Summer**)	Long term (**Throughout the Year**)
OSDMA			
Indian Meteorological Department			
Health and Family Welfare			
Panchayat Raj			
School & Mass Education			
Road and Transport			
Labor			
Energy			
Information and Public Relation			
Water Resources			
Animal Welfare and Fisheries			
Steel and Industry			
Tourism and Culture			
Forest and Environment			
Women and Child			
Home and Fire			
Housing and Urban Development			
Tribal affairs			
IIPHB/PHFI			
SRC/ SEOC			

Colour code indicates period of involvement in HAP

- Heat Stoke: Body temperatures of 40°C i.e. 104°F or more along with delirium, seizures or coma. This is potentially a fatal condition

5. Recover and Build

If you think someone is suffering from the heat:

- Move the person to a cool place under the shade
- Give water or a rehydrating drink (if the person is still conscious)
- Fan the person
- Consult a doctor if symptoms get worse or are long lasting or the person is unconscious
- Do not give alcohol, caffeine or aerated drink
- Cool the person by putting a cool wet cloth on his/her face/body
- Loosen clothes for better ventilation

Emergency Kit

- Water bottle
- Umbrella/ Hat or Cap / Head Cover
- Hand Towel
- Hand Fan
- Electrolyte / Glucose / Oral Rehydration

Heat Wave DOs and DON'Ts

DOs

Heat Wave conditions can result in physiological strain, which could even result in death.

- To minimise the impact during the Heat Wave and to prevent serious ailment or death because of heat stroke, you can take the following measures:
- Avoid going out in the sun, especially between 12.00 noon and 3.00 p.m.
- Drink sufficient water and as often as possible, even if not thirsty
- Wear lightweight, light-coloured, loose, and porous cotton clothes. Use protective goggles, umbrella/hat, shoes or chappals while going out in sun.
- Avoid strenuous activities when the outside temperature is high. Avoid working outside between 12 noon and 3 p.m.
- While travelling, carry water with you.
- Avoid alcohol, tea, coffee and carbonated soft drinks, which dehydrate the body.
- Avoid high-protein food and do not eat stale food.
- If you work outside, use a hat or an umbrella and also use a damp cloth on your head, neck, face and limbs
- Do not leave children or pets in parked vehicles
- If you feel faint or ill, see a doctor immediately.
- Use ORS, homemade drinks like lassi, torani (rice water), lemon water, buttermilk, etc. which helps to re-hydrate the body.
- Keep animals in shade and give them plenty of water to drink.
- Keep your home cool, use curtains, shutters or sunshade and open windows at night.
- Use fans, damp clothing and take bath in cold water frequently.

Tips for Treatment of a Person Affected by a 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.
- Give the person ORS to drink or lemon sarbat/torani or whatever is useful to rehydrate the body.
- Take the person immediately to the nearest health center. The patient needs immediate hospitalization, as heat strokes could be fatal.

Acclimatization

People at risk are those who have come from a cooler climate to a hot climate. You may have such a person(s) visiting your family during the Heat Wave season. They should not move about in open field for a period of one week till the body is acclimatized to heat and should drink plenty of water. Acclimatization is achieved by gradual exposure to the hot environment during a Heat Wave.

Must for All

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

Employers and Workers

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

Other Precautions

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

DON'Ts

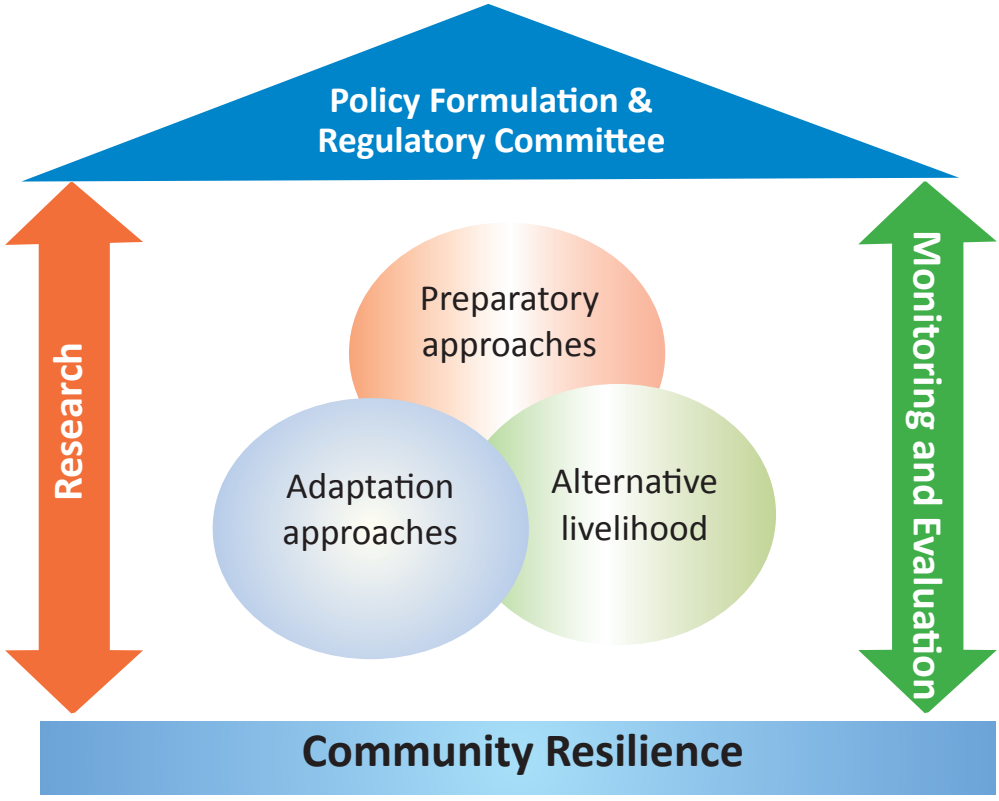
- Avoid going out in the sun, especially between 11.00 noon and 3.00 p.m.
- Avoid strenuous activities when outside in the afternoon.
- Do not go out barefoot.
- Avoid cooking during peak hours. Open doors and windows to ventilate cooking area adequately.
- Avoid alcohol, tea, coffee and carbonated soft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

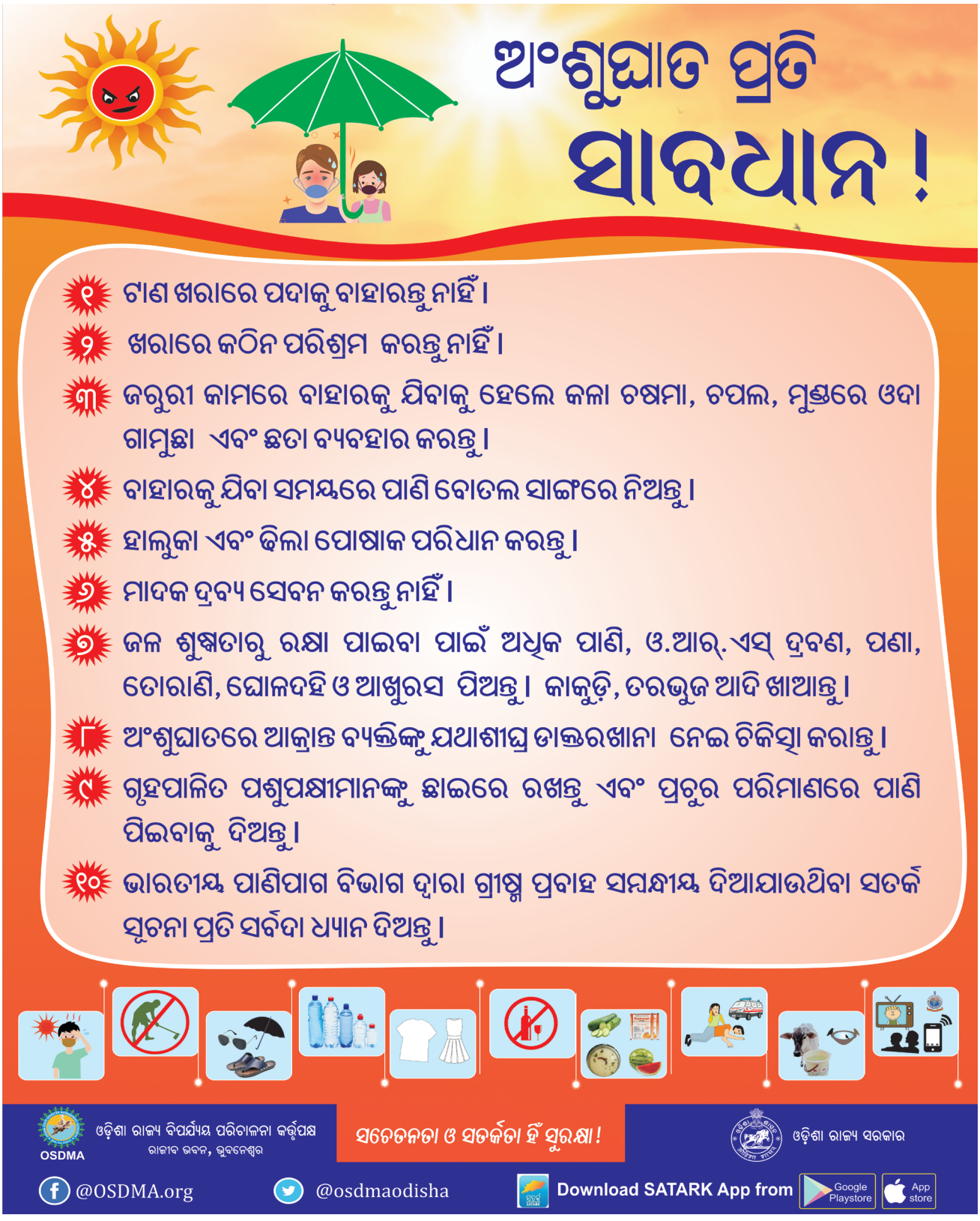
Way Forward

Heat Wave is a phenomenon culminating from multiple factors comprising both man-made and natural causes. Over the last two decades, it has been observed that the problem of intense and long heat spells is growing consistently almost assuming the proportion of a disaster. Further, with climate change and global warming the situation is going to be exacerbated in the future. Needless to say, this poses a perpetual and major public health threat for the state with potential repercussions on human life and productivity. Thus, there is a need for efforts to design context specific and cost-effective strategies which are informed by scientific evidence and knowledge generation. Creating such evidence base can strengthen the Heat Action Plan to achieve its stipulated goals and objectives efficiently and effectively. In the coming days, it is proposed that strengthening of the Heat Action Plan will be carried out in the following phases:

1. Determining threshold temperature for multiple cities and towns of Odisha

2. Conducting vulnerability assessment in more cities and designing an intervention.




ଅଂଶୁଘାତ ପ୍ରତି
ସାବଧାନ !
୧ ଟାଣ ଖରାରେ ପଦାକୁ ବାହାରନ୍ତୁ ନାହିଁ।
୨ ଖରାରେ କଠିନ ପରିଶ୍ରମ କରନ୍ତୁ ନାହିଁ।
୩ ଜରୁରୀ କାମରେ ବାହାରକୁ ଯିବାକୁ ହେଲେ କଳା ଚଷମା, ଚପଲ, ମୁଣ୍ଡରେ ଓଦା ଗାମୁଛା ଏବଂ ଛତା ବ୍ୟବହାର କରନ୍ତୁ।
୪ ବାହାରକୁ ଯିବା ସମୟରେ ପାଣି ବୋତଲ ସାଙ୍ଗରେ ନିଅନ୍ତୁ।
୫ ହାଲୁକା ଏବଂ ଢିଲା ପୋଷାକ ପରିଧାନ କରନ୍ତୁ।
୬ ମାଦକ ଦ୍ରବ୍ୟ ସେବନ କରନ୍ତୁ ନାହିଁ।
୭ ଜଳ ଶୁଷ୍କତାରୁ ରକ୍ଷା ପାଇବା ପାଇଁ ଅଧିକ ପାଣି, ଓ.ଆର୍.ଏସ୍ ଦ୍ରବଣ, ପଣା, ତୋରାଣି, ଘୋଳଦହି ଓ ଆଖୁରସ ପିଅନ୍ତୁ। କାକୁଡ଼ି, ତରଭୁଜ ଆଦି ଖାଆନ୍ତୁ।
୮ ଅଂଶୁଘାତରେ ଆକ୍ରାନ୍ତ ବ୍ୟକ୍ତିଙ୍କୁ ଯଥାଶୀଘ୍ର ଡାକ୍ତରଖାନା ନେଇ ଚିକିତ୍ସା କରାନ୍ତୁ।
୯ ଗୃହପାଳିତ ପଶୁପକ୍ଷୀମାନଙ୍କୁ ଛାଇରେ ରଖନ୍ତୁ ଏବଂ ପ୍ରଚୁର ପରିମାଣରେ ପାଣି ପିଇବାକୁ ଦିଅନ୍ତୁ।
୧୦ ଭାରତୀୟ ପାଣିପାଗ ବିଭାଗ ଦ୍ୱାରା ଗ୍ରୀଷ୍ମ ପ୍ରବାହ ସମ୍ବନ୍ଧୀୟ ଦିଆଯାଉଥିବା ସତର୍କ ସୂଚନା ପ୍ରତି ସର୍ବଦା ଧ୍ୟାନ ଦିଅନ୍ତୁ।
OSDMA
ଓଡ଼ିଶା ରାଜ୍ୟ ବିପର୍ଯ୍ୟୟ ପରିଚାଳନା କର୍ତ୍ତୃପକ୍ଷ
ରାଜୀବ ଭବନ, ଭୁବନେଶ୍ୱର
ସଚେତନତା ଓ ସତର୍କତା ହିଁ ସୁରକ୍ଷା !
ଓଡ଼ିଶା ରାଜ୍ୟ ସରକାର
@OSDMA.org
@osdmaodisha
Download SATARK App from
Google Playstore
App store

ସାବଧାନ ! ସାବଧାନ !

ଅଂଶୁଘାତକୁ ସାବଧାନ

ପାଖରେ ଥିବ ପାଣି ବୋତଲ
ହାତରେ ଥିବ ଛତା
ପାଦରେ ଥିବ ଚପଲ ଯଦି
ଖରାକୁ ନାହିଁ ଚିନ୍ତା

- ଦିନ ୧୧ ଟାରୁ ୩ଟା ଭିତରେ ଖରାର ତାତି ସବୁଠାରୁ ଅଧିକ ଥାଏ । ଏଣୁ ଟାଣ ଖରାରେ ପଦାକୁ ବାହାରନ୍ତୁ ନାହିଁ ।
- ଅଧିକ ପାଣି, ଓ.ଆର.ଏସ୍., ପଣା, ତୋରାଣି, ଘୋଳଦହି, ଆଖୁରସ ପିଅନ୍ତୁ ଓ କାକୁଡି, ତରଭୂଜ ଆଦି ଖାଆନ୍ତୁ ।
- ଖରାରେ କଠିନ ପରିଶ୍ରମ କରନ୍ତୁ ନାହିଁ ।
- ହାଲିଆ ଲାଗିଲେ ଛାଇ ଯାଗାରେ ବିଶ୍ରାମ କରନ୍ତୁ ।
- ମୁଣ୍ଡ ଓ ଦେହରେ ଓଦା ଗାମୁଛା ପକାନ୍ତୁ ।
- ନିଶାଖାଇ ଟାଣ ଖରାକୁ ବାହାରିଲେ ଜୀବନ ପ୍ରତି ବିପଦ ଥାଏ ।
- ଅଂଶୁଘାତ ରୋଗୀ ଦେହରେ ବରଫ ଘଷନ୍ତୁ ନାହିଁ ।

ସରକାରୀ ଡ଼ାକ୍ତରଖାନାରେ ଅଂଶୁଘାତ ରୋଗୀଙ୍କ ଚିକିତ୍ସା ପାଇଁ ସୁବିଧା କରାଯାଇଛି ।

ସ୍ୱାସ୍ଥ୍ୟ ଓ ପରିବାର କଲ୍ୟାଣ ବିଭାଗ, ଓଡ଼ିଶା ସରକାର

ପ୍ରସ୍ତୁତି : ରାଜ୍ୟ ସ୍ୱାସ୍ଥ୍ୟ ଓ ପରିବାର କଲ୍ୟାଣ ପ୍ରତିଷ୍ଠାନ, ଓଡ଼ିଶା

ଖରାରୁ ରକ୍ଷାପାଇଁ ସତର୍କତା
ଖରାରୁ ରକ୍ଷାପାଇଁ ସତର୍କତା
ଖରାରୁ ରକ୍ଷାପାଇଁ ସତର୍କତା
OSDMA

ଗରମ ଲୁ ଠାରୁ ସୁରକ୍ଷିତ ରହିବା ପାଇଁ ସତର୍କତା ଅବଲମ୍ବନ କରନ୍ତୁ
OSDMA
ଓଡ଼ିଶା ରାଜ୍ୟ ବିପର୍ଯ୍ୟୟ ପ୍ରଶମନ କର୍ତ୍ତୃପକ୍ଷ
ଓଡ଼ିଶାରେ ଗରମ ଲୁ ଠାରୁ ସୁରକ୍ଷିତ ରହିବା ପାଇଁ ସତର୍କତା
ଗରମ ଲୁ ଠାରୁ ସୁରକ୍ଷିତ ରହିବା ପାଇଁ ସତର୍କତା
ଘରୁ ବାହାରିବା ସମୟରେ ଛତା, ଟୋପି, ଗୋଡ଼ରେ ଚପଲ ପିନ୍ଧନ୍ତୁ ।
ଖରାରେ ଯାତ୍ରା ନକରି ଛାୟାରେ ରହନ୍ତୁ ।
ଖରାରେ ଯିବାକୁ ପଡ଼ିଲେ ଛତା, ଟୋପି, ଚପଲ ପିନ୍ଧନ୍ତୁ ।
ଖରାରେ ଯିବାକୁ ପଡ଼ିଲେ ପାଣି ପିଇବା ପାଇଁ ଘରୁ ପାଣି ନେଇଯାଆନ୍ତୁ ।
ଖରାରେ ଯିବାକୁ ପଡ଼ିଲେ ଘରୁ ଖାଇ ବାହାରନ୍ତୁ ।
ଖରାରେ ଯିବାକୁ ପଡ଼ିଲେ ଘରୁ ଖାଇ ବାହାରନ୍ତୁ ।
ଖରାରେ ଯିବାକୁ ପଡ଼ିଲେ ଘରୁ ଖାଇ ବାହାରନ୍ତୁ ।
ଖରାରେ ଯିବାକୁ ପଡ଼ିଲେ ଘରୁ ଖାଇ ବାହାରନ୍ତୁ ।

ଅଂଶୁଘାତ ପ୍ରତି ସତର୍କ ରୁହନ୍ତୁ

କ'ଣ କରିବା ଉଚିତ୍ !

- ଦିନ ୧୧ ଟାରୁ ୩ଟା ଭିତରେ ଖରାର ତାତି ସବୁଠାରୁ ଅଧିକ ଥାଏ । ଏଣୁ ଟାଣ ଖରାରେ ପଦାକୁ ବାହାରନ୍ତୁ ନାହିଁ।
- ଆବଶ୍ୟକ ସ୍ଥଳେ ବାହାରକୁ ଯିବାକୁ ହେଲେ ମୁଣ୍ଡକୁ ଓଦା ଗାମୁଛାରେ ଘୋଡାନ୍ତୁ ଏବଂ ଛତା, ଯୋତା ଓ କଳା ଚଷମା ବ୍ୟବହାର କରନ୍ତୁ ଓ ସାଥିରେ ଥଣ୍ଡାପାଣି ନିଅନ୍ତୁ ।
- ବାହାରକୁ ଯିବା ଆଗରୁ ଓ ପହଞ୍ଚିବା ପରେ ସୁରେଇ, ମାଠିଆ ଓ ଘୁମ ଆଦିରେ ଥିବା ପାଣି, ଲେମ୍ବୁ ସରବତ, ଘୋଳଦହି, ଲୁଣ ମିଶା ତୋରାଣି ପିଅନ୍ତୁ ।
- ଶରୀରରେ ବାୟୁ ଚଳାଚଳ ପାଇଁ ସୂତା ଲୁଗା ବ୍ୟବହାର କରନ୍ତୁ ।
- ହାଲିଆ ଲାଗିଲେ ଛାଇ ଯାଗା ଓ ପବନଚଳାଚଳ ସ୍ଥାନରେ ବିଶ୍ରାମ ନିଅନ୍ତୁ ।
- ଘରେ ଟିଣ ଓ ଆଜବେଷ୍ଟସ ଛାତ ଥିଲେ ତା' ଉପରେ ନଡ଼ା ବିଛାନ୍ତୁ ।
- ଦେହରୁ ଅଧିକ ଝାଳବୋହିଲେ, ପାଟି ଅଠା ଅଠା ଲାଗିଲେ - ପ୍ରଚୁର ପାଣି, ଓ.ଆର.ଏସ୍, ଓ ପଣା ପିଅନ୍ତୁ ।

କ'ଣ କରିବା ଅନୁଚିତ୍ !!

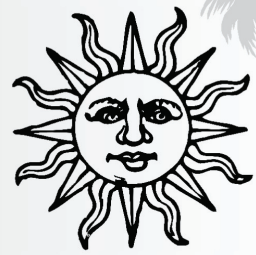
- ✗ ଟାଣ ଖରାରେ ଶାରିରୀକ ପରିଶ୍ରମ କରନ୍ତୁ ନାହିଁ ।
- ✗ ବୃଦ୍ଧ, ଅସୁସ୍ଥ ଲୋକ, ଶିଶୁ, ଗର୍ଭବତୀ ମହିଳା ଏବଂ ରକ୍ତଚାପ ଓ ମଧୁମେହରେ ପୀଡିତ ବ୍ୟକ୍ତି ଟାଣ ଖରାରେ ବାହାରକୁ ଯାଆନ୍ତୁ ନାହିଁ ।
- ✗ ଅଂଶୁଘାତ ରୋଗୀ ଦେହରେ ବରଫ ଘଷନ୍ତୁ ନାହିଁ ।
- ✗ କେହି ଅସୁସ୍ଥ ଅନୁଭବ କଲେ ତାଙ୍କର ଚିକିତ୍ସା ପ୍ରତି ଅବହେଳା କରନ୍ତୁ ନାହିଁ ।
- ✗ ନିଶା ଦ୍ରବ୍ୟ ସେବନ କରନ୍ତୁ ନାହିଁ ।

ଓ.ଆର.ଏସ୍ ପ୍ୟାକେଟ୍ ସମସ୍ତ "ଆଶା" ଅଙ୍ଗନୱାଡି କେନ୍ଦ୍ର, ସ୍ୱାସ୍ଥ୍ୟ ଉପକେନ୍ଦ୍ର, ସ୍ୱାସ୍ଥ୍ୟକେନ୍ଦ୍ର ଓ ସରକାରୀ ଡ଼ାକ୍ତରଖାନା ଗୁଡିକରେ ମାଗଣାରେ ମିଳେ । ସରକାରୀ ଡ଼ାକ୍ତରଖାନା ମାନଙ୍କରେ ଅଂଶୁଘାତ ରୋଗୀଙ୍କ ପାଇଁ ଚିକିତ୍ସାର ସୁବିଧା କରାଯାଇଛି ।

ରାଜ୍ୟ ସ୍ୱାସ୍ଥ୍ୟ ଓ ପରିବାର କଲ୍ୟାଣ ପ୍ରତିଷ୍ଠାନ, ଓଡ଼ିଶା

ଅଂଶୁଘାତ ପ୍ରତି

ସାବଧାନ !



- ଟାଣ ଖରାରେ ପଦାକୁ ବାହାରନ୍ତୁ ନାହିଁ।
- କଠିନ ପରିଶ୍ରମ କରନ୍ତୁ ନାହିଁ।
- ଜରୁରୀ କାମରେ ବାହାରକୁ ଯିବାକୁ ହେଲେ ମୁଣ୍ଡରେ ଓଦା ଗାମୁଛା, ଛତା, ଚପଲ ଏବଂ କଳା ଚଷମା ବ୍ୟବହାର କରନ୍ତୁ।
- ବାହାରକୁ ଯିବା ସମୟରେ ପାଣି ବୋତଲ ସାଙ୍ଗରେ ନିଅନ୍ତୁ।
- ଜଳ ଶୁଷ୍କତାରୁ ରକ୍ଷା ପାଇବା ପାଇଁ ଅଧିକ ପାଣି, ଓ.ଆର୍.ଏସ୍ ଦ୍ରବଣ, ପଣା, ତୋରାଣି, ଘୋଳଦହି ଓ ଆଖୁରସ ପିଅନ୍ତୁ। କାକୁଡ଼ି, ତରଭୁଜ ଆଦି ଖାଆନ୍ତୁ।
- ମାଦକ ଦ୍ରବ୍ୟ ସେବନ କରନ୍ତୁ ନାହିଁ।
- ହାଲୁକା ଏବଂ ଢିଲା ପୋଷାକ ପରିଧାନ କରନ୍ତୁ।
- ଅଂଶୁଘାତରେ ଆକ୍ରାନ୍ତ ବ୍ୟକ୍ତିଙ୍କୁ ଯଥାଶୀଘ୍ର ଡାକ୍ତରଖାନା ନେଇ ଚିକିତ୍ସା କରାନ୍ତୁ।
- ଗୃହପାଳିତ ପଶୁପକ୍ଷୀ ମାନଙ୍କୁ ଛାଇରେ ରଖନ୍ତୁ ଏବଂ ପ୍ରଚୁର ପରିମାଣରେ ପାଣି ପିଇବାକୁ ଦିଅନ୍ତୁ।

ତୋରାଣି | ପାଣି | ତରଭୁଜ | ଓ.ଆର୍.ଏସ୍ | ଚପଲ, ଛତା | କାକୁଡ଼ି

OSDMA

ଓଡ଼ିଶା ରାଜ୍ୟ ବିପର୍ଯ୍ୟୟ ପରିଚାଳନା କର୍ତ୍ତୃପକ୍ଷ
ରାଜୀବ ଭବନ, ଭୁବନେଶ୍ୱର

ସଚେତନତା ଓ ସତର୍କତା ହିଁ ସୁରକ୍ଷା !

Information Booklet Published by OSDMA for Heat Wave Situation During Summer

ଗ୍ରୀଷ୍ମ ପ୍ରବାହ (Heat Wave)

ଗ୍ରୀଷ୍ମ ପ୍ରବାହ କ'ଣ ?

ଯଦି କୌଣସି ସ୍ଥାନର ତାପମାତ୍ରା ୪୦° ସେଲ୍‌ସିଅସ ପାଖାପାଖି ଥାଏ ଏବଂ ଏହା ସେହି ସ୍ଥାନର ସାଧାରଣ ତାପମାତ୍ରା ଠାରୁ ୫°–୬° ସେଲ୍‌ସିୟସ ବୃଦ୍ଧି ହୋଇଥାଏ, ତାହାକୁ ଗ୍ରୀଷ୍ମ ପ୍ରବାହ ଓ ୭° ସେଲ୍‌ସିୟସରୁ ଅଧିକ ବୃଦ୍ଧି ହୋଇଥିଲେ, ପ୍ରବଳ ଗ୍ରୀଷ୍ମପ୍ରବାହ କୁହାଯାଏ ।

ଯଦି କୌଣସି ସ୍ଥାନର ସର୍ବୋଚ୍ଚ ତାପମାତ୍ରା ୪୦° ସେଲ୍‌ସିୟସରୁ ଊର୍ଦ୍ଧ୍ୱ ଥାଏ ଏବଂ ଏହା ସାଧାରଣ ତାପମାତ୍ରା ଠାରୁ ୪–୫° ସେଲ୍‌ସିୟସ ବୃଦ୍ଧି ପାଇଥାଏ ତେବେ ତାହାକୁ ଗ୍ରୀଷ୍ମ ପ୍ରବାହ ଓ ୬° ସେଲ୍‌ସିୟସରୁ ଊର୍ଦ୍ଧ୍ୱ ବୃଦ୍ଧିକୁ ପ୍ରବଳ ଗ୍ରୀଷ୍ମପ୍ରବାହ କୁହାଯାଏ ।

ଯଦି କୌଣସି ସ୍ଥାନର ତାପମାତ୍ରା ୪୫° ସେଲ୍‌ସିୟସ ବା ତଦୁର୍ଦ୍ଧ୍ୱ ହୁଏ, ତେବେ ସେ ସ୍ଥାନରେ ସାଧାରଣ ତାପମାତ୍ରା ଯାହା ହେଲେବି ଏହାକୁ ଗ୍ରୀଷ୍ମପ୍ରବାହ କୁହାଯାଏ ।

ବେଳେବେଳେ ଅତ୍ୟଧିକ ଗ୍ରୀଷ୍ମପ୍ରବାହ ହେତୁ ମଣିଷ ମୃତ୍ୟୁମୁଖରେ ପଡିଥାଏ । ୧୯୯୮ ମସିହା ଏପ୍ରିଲ୍‌ରୁ ଜୁନ୍ ମାସ ମଧ୍ୟରେ ଗ୍ରୀଷ୍ମପ୍ରବାହ ହେତୁ ଓଡ଼ିଶାରେ ୨୦୪୨ ଜଣଙ୍କର ମୃତ୍ୟୁ ଘଟିଥିଲା । ଏହାକୁ ଅଂଶୁଘାତ ଜନିତ ମୃତ୍ୟୁ ବୋଲି କୁହାଯାଏ ।

ସୁରକ୍ଷା ଉପାୟ –

ଗ୍ରୀଷ୍ମ ପ୍ରବାହ ଓ ଅଂଶୁଘାତର ପ୍ରଭାବ କମ୍ କରିବା ପାଇଁ ନିମ୍ନଲିଖିତ ସୁରକ୍ଷା ବ୍ୟବସ୍ଥା ଗ୍ରହଣ କରିବା ଉଚିତ ।

୧. ଟାଣ ଖରାରେ ବାହାରକୁ ବାହାରନ୍ତୁ ନାହିଁ । ହାଲୁକା, ଫିକା, ଢ଼ିଲା ସୂତା ଲୁଗା ବ୍ୟବହାର କରନ୍ତୁ । ଘରେ ପରଦା ଟାଣନ୍ତୁ । ରାତିରେ ଝରକା ଖୋଲା ରଖନ୍ତୁ, ଫଳରେ ଘର ଥଣ୍ଡା ରହିବ । ଯେତେଥର ସମ୍ଭବ ଥଣ୍ଡା ପାଣିରେ ଗାଧାନ୍ତୁ ।

୨. ଶୋଷ ନଥିଲେ ମଧ୍ୟ ପ୍ରଚୁର ପାଣି ପିଅନ୍ତୁ । ଓ.ଆର୍.ଏସ୍. ପାଉଡର କିମ୍ବା ଘରେ ଉପଲବ୍ଧ ପାନୀୟ ଯଥା : ଲସି, ଘୋଳ ଦହି, ଡୋରାଣି, ଲେମ୍ବୁ ପାଣି, ଦୁଧ ଇତ୍ୟାଦି ପ୍ରଚୁର ପରିମାଣରେ ପିଅନ୍ତୁ । ଗରିଷ୍ଠ ଖାଦ୍ୟ ଖାଆନ୍ତୁ ନାହିଁ ।

୩. ଚା, କଫି, ମାଦକଦ୍ରବ୍ୟ ଓ କାର୍ବନଯୁକ୍ତ ଥଣ୍ଡା ପାନୀୟ ବ୍ୟବହାର କରନ୍ତୁ ନାହିଁ ।

୪. ଯଦି ବାହାରକୁ ଯିବାକୁ ପଡେ, ନିଜକୁ ରକ୍ଷା କରିବା ଭଳି ଉପକରଣ ଯଥା : କଳା ଚଷମା, ଛତା ବା ଚପଲ ଏବଂ ଧଳାଛତା ବା ଟୋପି ବ୍ୟବହାର କରନ୍ତୁ । ସାଙ୍ଗରେ ପାଣି ନେବାକୁ ଭୁଲନ୍ତୁ ନାହିଁ ।

୫. ଭୀଷଣ ଖରାରେ ବିଶେଷକରି ଦିନ ୧୨ଟା ଠାରୁ ୩ଟା ପର୍ଯ୍ୟନ୍ତ କଷ୍ଟକର ଶାରୀରିକ ପରିଶ୍ରମ କରନ୍ତୁ ନାହିଁ ।

୬. ବାହାରେ କାମ କରୁଥିଲେ, ଛତା ବା ଟୋପି ବ୍ୟବହାର କରିବା ସହ ଓଦା ଗାମୁଛାରେ ମୁଣ୍ଡ, ବେକଆଦି ଶରୀରର ବିଭିନ୍ନ ଅଂଶକୁ ଘୋଡାଇ ରଖନ୍ତୁ ।

୭. ଅସୁସ୍ଥ ଅନୁଭବ କଲେ ତୁରନ୍ତ ଡାକ୍ତରଙ୍କ ପରାମର୍ଶ ନିଅନ୍ତୁ ।

୮. ବନ୍ଦ ଗାଡ଼ି ଭିତରେ ଛୋଟ ପିଲାଙ୍କୁ ଛାଡି ଆସନ୍ତୁ ନାହିଁ ।

୯. ଗୃହପାଳିତ ପଶୁମାନଙ୍କୁ ମଧ୍ୟ ଛାଇରେ ରଖି ପ୍ରଚୁର ପାଣି ପିଇବାକୁ ଦିଅନ୍ତୁ ।

ଅଂଶୁଘାତରେ ପୀଡିତ ବ୍ୟକ୍ତିର ଚିକିତ୍ସା

୧. ପୀଡିତ ବ୍ୟକ୍ତିର ଦେହ ଉତ୍ତାପକୁ କମାଇବା ପାଇଁ ଥଣ୍ଡା ଓ ଛାଇ ସ୍ଥାନରେ ଶୁଆଇ ରଖି ପ୍ରଥମେ ଓଦା କନା ବା ଗାମୁଛାରେ ତାଙ୍କୁ ପୋଛି ଦିଅନ୍ତୁ । ଆବଶ୍ୟକ ହେଲେ ମୁଣ୍ଡରେ ଥଣ୍ଡା ପାଣି ଢାଳନ୍ତୁ ।

୨. ଓ.ଆର୍.ଏସ୍. ପାଉଡର ପାଣି, ଡୋରାଣି କିମ୍ବା ଲେମ୍ବୁ, ଦହି ସର୍ବତ ଇତ୍ୟାଦି ପିଆଇ ଦେହର ଜଳୀୟଅଂଶ ପରିମାଣକୁ ଠିକ୍ ରଖିବାକୁ ଚେଷ୍ଟା କରନ୍ତୁ ।

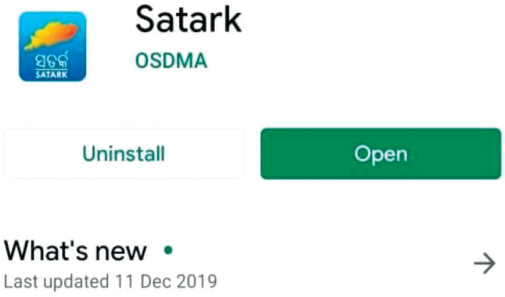
୩. ଅଂଶୁଘାତ ବେଳେବେଳେ ମୃତ୍ୟୁର କାରଣ ହୋଇଥାଏ । ଆଘାତପ୍ରାପ୍ତ ବ୍ୟକ୍ତିକୁ ତୁରନ୍ତ ନିକଟସ୍ଥ ସ୍ୱାସ୍ଥ୍ୟକେନ୍ଦ୍ରକୁ ପଠାଇବାର ବନ୍ଦୋବସ୍ତ କରନ୍ତୁ ।

ମନେରଖନ୍ତୁ :

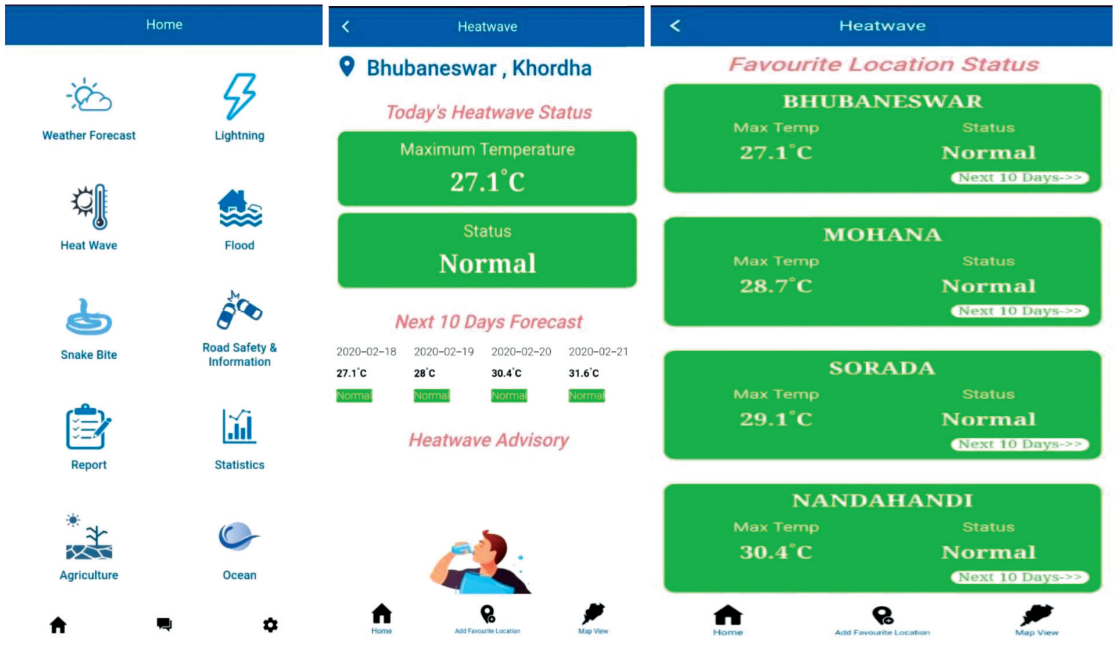
ଅଂଶୁଘାତରେ ପୀଡ଼ିତ ବ୍ୟକ୍ତିଙ୍କୁ ଏକାବେଳକେ ଅତ୍ୟଧିକ ପାନୀୟ ପିଇବାକୁ ଦିଅନ୍ତୁ ନାହିଁ । ସୁସ୍ଥ ହେବା ପର୍ଯ୍ୟନ୍ତ ପ୍ରତି ଅଧ ଘଣ୍ଟାରେ ଅଧା ଗ୍ଲାସ ପାନୀୟ ଦେବା ଉଚିତ ।

SATARK Web & Mobile App

Web Link : https://satark.rimes.int/Login/login_form



SATARK Mobile App is available in the App Store for Android & IOS



Format-I

Information to be submitted with every joint enquiry report of heatstroke deaths.

District: **Date:**

Sl.No.	Name of the deceased with Address (If unidentified mentiion unidentified)	Age	Gender (Male/Female/Third Gender)	APL/ BPL	Occupation of the deceased (Farmer/Labour/ Hawkers/ others to be specified)	Place of attack of Heat Stroke					date and time of attack of Heat Stroke	Date and time of Death	Whether person was hospitalized ?		Whether cause of death (Heat Wave) Confirmed by medical officer ? (Yes/No)	Any ancetedent illness chronic disease present (Ask the family member)	cause of death as per joint enquiry report	Whether post mortem conducted ? (Yes or No)	Remarks
						Name of the BLOCK/ ULB	Name of the Village/ Ward	Rural/Urban	Indoor/Outdoor	Location crop field market bus stop street home office any other			Yes / No	If Yes- Name of the hospital/ health center					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

(Name and Desination of the Reporting Officer)

Signature with Seal

Format-II

Details of the Death reported to Heat Wave Joint Enquiry & Payment of Ex- gratia

Recored to be maintained Tahasil & District Officer and Weekly report to be submitted by District officer to SRC)

District- Years-

Sl No.	Name of the deceased	Original Address of the deceased (Village /GP/Blocks/ ULB)	Age	Gender (Male Female Third gender)	Economic Status APL/BPL	Occupation of the Deceased Femal Labourer HawkerOther to be soecifide	Name of Block/ULB	Place of attack of Heat Stroke				Date and time of Attack of Heat Stroke
								Name of the Village/Ward	Rural/ Urban	Indoor /Outdoor	Location (crop field/market/ bus stop/street/home/office/ any other)	
1	2	3	4	5	6	7	8	9	10	11	12	13

Date and Time of Death	Maximum Temperature of the Day(in C) recorded at nearest weather stations (mention the location of weather station)	Whether the persons was hospitalised ?		Maximum Temperature Recorded (retail and Oral)	Date and time of Post Mortem Conducted	Date of Joint enquiry by the local revenue and medical officer	Any antecedent illeness/ chronic disease present (Ask the Family memebers)	Remarks regarding cause of death		No. of date Sanction Order of ex-gratia	Name of NOK	Date of Payment of ex-gratia
		(Yes)/Not)	If Yes Name of the Hospital/ Health Centre					As per Post Mortem/ Report of treating physician	As per Joint Enquiry Report			
14	15	16	17	18	19	20	21	22	23	24	25	26

Format- A

Daily Report to be Submitted by Health Department on Cases and Deaths Due to Heat Related Illness

Date:

Sl.No.	Name of the District	New cases admitted / treated due to Heat Related Illness during the day	Cumulative no. of cases admitted / treated due to Heat Related Illness since 1st April 2018	Deaths reported due to Heat Related Illness During the day	Cumulative no. of deaths due to Heat Related Illness since 1st April 2018	Remark (If any shortage of ORS / IV Fluids / Treatment facilities etc.)
1	2	3	4	5	6	7

(Name & Designation of the Reporting Officer)

(Signature & Seal)

References

1. Guidelines for preparation of Action Plan- Prevention and Management of Heat Wave, October-2019, National Disaster management Authority (NDMA), Govt. Of India.

2. A Preliminary Study to Estimate Temperature Threshold for Heat Wave Warning in India, September 2019.

3. Climate Change Innovation Programme-Heat Island Mitigation Action Plan for Ib-Jharsuguda, Odisha by The Energy and Resources Institute (TERI).

4. Studying Health Effects of exposure to heat stress, vulnerability, and heat threshold in Odisha by Indian Institute of Public Health, Bhubaneswar, Public Health Foundation of India (IIPHB).

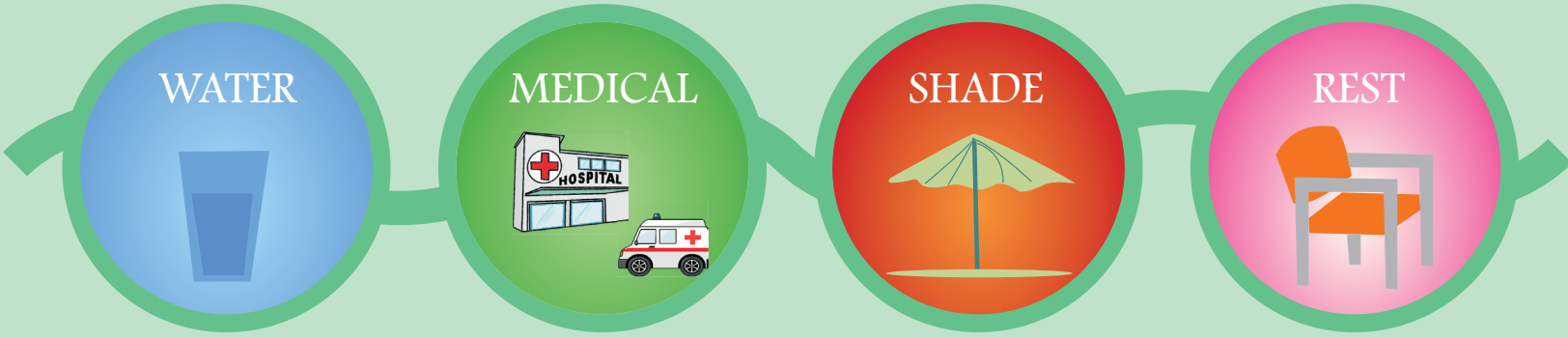
5. Early Warning and Communications –India Meteorological Dept. (IMD).

6. Heat Island Study in Angul-Talcher Area of Odisha" By Prof. Manju Mohan – *Consultant-Incharge, Centre for Atmospheric Sciences, Indian Institute of Technology, Delhi*

7. Climate Adoptive HAP for Bhubaneswar by R. Magotra, Dy. Director, IRADe, New Delhi

8. Natural Resources Defense Council, "Looking Up: How Green Roofs and Cool Roofs Can Reduce Energy Use, Address Climate Change, and Protect Water Resources in Southern California", June 2012, https://www.nrdc.org/sites/default/files/GreenRoofsReport.pdf (last accessed on April 5, 2017)

9. Vishal Garg, Cool Roofs Toolkit, "Cool Roof Activities in India", http://www.coolrooftoolkit.org/wp-content/uploads/2012/04/Vishal-Presentation.pdf (last accessed on April 5, 2017)



OSDMA

Odisha State Disaster Management Authority(OSDMA)
9th Floor, Rajiv Bhawan, Unit-5, Bhubaneswar-751001
Tel: 0674-2395398/2395531, **Fax:** 0674-2391871
E-mail: osdma@osdma.org, **Website:** www.osdma.org