Rajasthan Climate Change Project

Heat Action Plan
(India’s First Rural Climate Resilience Heat Action Plan)
(DMRD, RSPCB, Govt. of Rajasthan, UNICEF Rajasthan and IIPH-Gandhinagar Initiative)
ACKNOWLEDGEMENTS

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Executive Summary:

Climate change is causing an increase in severity and frequency of extreme weather events and disasters. Heatwaves are among the most dangerous of natural hazards, but rarely receive adequate attention. They often lack the spectacular and sudden violence of other hazards, such as tropical cyclones, earthquakes, or flash floods. Even the related death tolls are not always immediately obvious. Increased heat waves have become more common with the increasing rate of global temperatures. Extreme heat can lead to dangerous, even deadly, health consequences, including heat stress and heatstroke resulting in deaths. India is also vulnerable to such impacts of climate change and the heat wave casualties over the past decades have increased. There have been 25,716 deaths recorded from 1992 to 2016 in various parts of the country. But this is most likely the tip of a iceberg. Therefore, actual deaths related to heatwaves could be much more than estimated.

There could have been many possible reasons, which are going to be exacerbated in coming years with growing urbanization, population and industrialization. The problem is further going to be magnified with ongoing climate change. According to estimates, the scenario is likely to become aggravated in coming years, and the World Meteorological Organization (WMO) predicts heat related fatalities will double in less than 20 years.

There are number of evidences suggesting that heat-related risks might be reduced through systematic development of heat wave early warning systems, alerting decision-makers and the general public to impending dangerous hot weather. It is important that public-health measures and advice on how to avoid negative health outcomes associated with hot-weather extremes are elaborated in advance of the events.

Rajasthan having a semi-arid climate records high day time temperature which are being more aggravated every year by the rising global temperatures. on 19th May 2016, Phalodi in Jodhpur district of Rajasthan recorded the day time temperature as 51 degrees Celsius, ranking third among all highest temperature documented globally for that day.

Under the guidance of the Disaster Management and Relief Department (DMRD) and Rajasthan State Pollution Control Board (RSPCB), Government of Rajasthan, Indian Institute of Public Health-Gandhinagar and Disaster Risk Reduction (DRR) Section of UNICEF, Rajasthan have developed and implemented Heat Action Plan (HAP) in selected blocks of rural Rajasthan. In the first phase on pilot basis this plan is being developed and implemented in Jalore and Udaipur districts. Rishabhdeo block of Udaipur district and Sanchore and Chitalwana blocks of Jalore districts were selected for implementing activities of HAP. This is India’s first Climate Resilience Heat Action Plan for rural settings and block level heat action plan. The Jalore and Udaipur Districts were selected for implementing this project as these districts are experiencing temperature rise in last several years and their adaptive capacity is lower when compared to Barmer, Jaisalmer, Churu and other high temperature districts, where people are used to hot temperature.
In the first phase we have carried out various activities which involves conducting situational analysis, communication need assessment, discussion with stakeholders regarding understanding burden of climate sensitive diseases and heat related illnesses in Rajasthan. The HAP also involves approaches for assessing heat stress, heat-intervention strategies, communication strategies, and evaluating the intervention.

On the ground climate preparedness actions are crucial components to the global fight against climate change and are particularly focused on protecting the communities that are most vulnerable to the short and long term effects of climate change.

It is hoped that the HAP will act as a catalyst for bringing together key players from line department and policy-makers, as well as the general public, for initiating action concerning the overall management of heat as a hazard. Growing concerns over climate change have brought to the fore three important aspects: adaptation, disaster risk reduction and the need for climate information and services to support these. The HAP brings together these three facets and exemplifies an effective demonstration of disaster risk reduction in practice. We expect this plan to enable various department of Government of Rajasthan to provide effective strategy prevention and management of climate sensitive diseases and heat related illnesses.

The Plan creates immediate and longer-term actions to increase preparedness, information-sharing, and response coordination to reduce the health impacts of extreme heat on vulnerable populations.

The Heat Action Plan aims to implement the following key strategies:

- **Establish Early Warning System and inter-agency coordination**
  To establish the early warning system and inter-agency coordination to alert the community regarding sudden high and extreme temperatures. Creating formal communication channels to alert governmental agencies, the Met Centre, health officials and hospitals, emergency responders, local community groups, and media outlets of forecasted extreme temperatures.

- **Preparedness at the local/Primary level for health and education department**
  To implement capacity building and training programmes for health care professionals at local level to recognize and treat the heat related illnesses as early as possible in order to reduce emergency admissions in the hospitals. Such trainings focus on primary medical officers and other paramedical staff such as FLW’s, community health staff as well as school teachers so they can effectively prevent and manage heat-related cases so as to reduce mortality and morbidity.

- **Health system capacity building**
  Standard Treatment Guidelines (STGs) and Treatment regimens for heat related illnesses so as to recognize and respond to heat-related illnesses, particularly during extreme heat events.
- **Public awareness and community outreach**  
  To increase public awareness and community outreach by dissemination of awareness messages in the community about how to prevent themselves from exposure to extreme temperatures by using IEC material, posters, banners etc. Do’s and Don’ts for people to follow.

- **Collaboration with non-government and civil society**  
  Collaborations with non-governmental organizations and civil organisations to develop the ‘Public Cooling Places’ at public places. In addition to this, few activities like building temporary shelters, streamlining of drinking water delivery systems and other innovative measures are planned.

- **Assessing the impact (feedback for reviewing and updating the plan)**  
  To carry out case Surveillance, Monitoring, evaluation and supportive supervision in routine manner to assess the impact of heat. Heat action plan updating will be done timely as per need. Mapping exercise of high risk areas and identification of vulnerable population and heat health risks, Development of effective strategies, activities and output indicators as well as response planning addressing heat risks.

**Government Departments involved:**

Apart from the DMRD and RSPCB, Public Health Department, District and Block Administration, Public Health Engineering and Education Department, etc. are also involved in the activities to streamline the quick responses for prevention.

Heat action Plan includes the strategies for prevention of deaths from heat waves, process indicators or activities and output indicators. Outcomes will be assessed on the basis of the implementation progress of the plan. Plan focuses on mapping of vulnerable population from the block and strategies to protect them. Heat action plan helps to train the health workers who work in the community very closely to people and can provide early diagnosis and treatment.  
Action Plan focuses on communication and awareness strategy for public.

It is the anticipated that Government of Rajasthan in collaboration with Disaster Risk Reduction Section of UNICEF, Rajasthan and Indian Institute of Public Health-Gandhinagar will develop and implement such action plans in other cities and rural areas of Rajasthan. Further, this action plan will act as a model or templet to other urban and rural areas in Rajasthan to adapt and develop specific measures of preventative action to reduce deaths as the weather becomes progressively hot and more extreme.
Background

Geographically Rajasthan is the eighth most populous and land area wise largest state of India. 80% of the population depends on agriculture and 19% on animal husbandry for their livelihood. The Aravalli range of hills starting from Gujarat and passing through the state from south west to north east and going up to Haryana divides the state in to two physiographic divisions. The regions lying north of Aravalli range is mostly desert in nature. The region in south and south-east of Aravalli is a diversified region for agricultural purposes, studies claim that the southern parts are now progressing towards Hilly deserts. Uneven distribution of socio-economic and cultural factors affects various population groups and capacity to respond as well as to adapt to the hazards. Lack of adequate provision of many essential determinants of health such as access to safe drinking water, adequate sanitation systems, diet and nutrition, safe housing and gender equality play a crucial role in establishment of vulnerability among the population. The rural Rajasthan is dually vulnerable than the urban because of lack of awareness, poor access to healthcare and access to cooler places. Rajasthan is one of those states having hottest districts of India.

Children and elderly are most affected by the climate change and climate sensitive diseases. The developing bodies of children are sensitive to environmental hazards such as heat waves and the spread of infectious disease and damage experienced during these initial years can have lifelong impacts. In 2007, it is found that more than 200 million children under five years of age in developing countries do not reach their development potential due to poverty, malnutrition and poor health which disrupts their cognitive, physical and socio-emotional development after exposing to hazardous pathogenic agents. Apart from that, lower resistance and poor access to preventive interventions contributes to major part of these causes. Older persons are at risk because of higher rates of comorbidity medications use, immobility and blood volume depletion.

Heat Waves is one of the biggest issues facing the world today it is not a new phenomenon in the Earth's history. It’s a one of the most seen reaction of Climate Change. Climate Change refers to a significant variation in either the mean state of the climate or in its variability, persisting for an extended period, typically, decades or longer. Climate change scenario has notable detrimental effects such as droughts resulting into food insecurity and increased malnutrition, migration, and diminished water resources etc. Studies indicate that the decade (2007-2017) across the globe recorded the warmest years during the past century, the three years viz. 2015,2016, and 2017 recording warmer conditions, increasing in sequence. It is predicted that by year 2099 earth average temperature will rise 3-6 °C, which will lead to many more severe heat waves.
Situational analysis:

As per census 2011, the area of Rajasthan state 3,42,239 sq. km and the total population is 6.86 crores (5.66 percent of Indian population). Out of which more than 2/3rd people live in rural part. ‘Thar’ desert area consists of 12 districts covering 60 percent area of the state and 40 percent of the entire state population. Rajasthan contributed 9.1 percent of India’s total livestock emissions. In the matter of transport, as total number of the registered vehicles has increased in the state by six times from 1990 to 2009 (GoR 2010c).

Looking at the larger picture, In Rajasthan the rural areas are largely neglected in terms of climate change and its impact on health. And, very less work is done about Community perception and awareness, which is important for developing adoption strategies.

Therefore, we have carried out rapid situational analysis for understanding community perspective, specific need and gaps. In our assessment we have found than only 27 percent respondents were aware about what is climate change. The study carried out was a cross-sectional survey of residents of these two blocks. A total of 150 households were selected randomly and survey completed by a structured questionnaire. This was supplemented with 10 key informant interviews (KIIIs) and some informal talks.

Overall, 98.33 percent of the respondents reported that the heat during the summers had increased and 96.66 percent reported that rainfall pattern had changed, 83.33 percent reported that ground water level gone down, 85.33 percent stated decrease in crop production compared to previous experience. Only 8.66 percent respondent were looking for weather forecast daily and almost 50.66 percent never looked for any weather forecast. KIIIs and informal talks also reported that summers and winters were warmer than previous years.

The concept of “Climate Change” is relatively new in rural areas although they had clear perceptions about changes in heat, cold and rainfall patterns that had occurred over the last five to ten years. Local perceptions of climate change include overall warmer winter and increased heat in summer with changing patterns of precipitation. The effect of climate change was mostly related to decrease in ground water level and its effect on livelihoods, livestock and health. Most local perceptions are consistent with the evidence regarding the vulnerability of rural areas to Climate change. Rural Rajasthan has dual burden of Climate change because of absence of awareness and second lack of resources for treatment and adaptation. The systemic collection of these information will enable policy makers, researchers and scientists to design and implement different action plans and strategies for climate change in rural areas which are more vulnerable.

Criteria for Heat Wave

World Meteorological Organization (WMO) defines heat wave as five or more consecutive days during which the daily maximum temperature exceeds the average max temperature by 5° C
Extreme heat events in India pose a serious danger to the people. The spells of hot weather are often seen to move from one region to another. This phenomenon is termed as ‘Heat wave’.7

(As defined by Indian Meteorological Department)

Heat wave need not be considered till maximum temperature of a station reaches at least 40° C for Plains and at least 30° C for Hilly regions.

When normal maximum temperature of a station is less than or equal to 40° C
- Heat Wave Departure from normal is 5° C to 6° C
- Severe Heat Wave Departure from normal is 7° C or more

When normal maximum temperature of a station is more than 40° C
- Heat Wave Departure from normal is 4° C to 5° C
- Severe Heat Wave Departure from normal is 6° C or more

When actual maximum temperature remains 45°C or more irrespective of normal maximum temperature, heat wave should be declared.

Rationale of Heat wave action Plan:

May is typically the hottest month in India with temperatures reaching up to 45°C in certain areas before the cooling southwest monsoon rains arrive in July. In this season, it is an utmost priority to prevent heat related illnesses in the vulnerable population especially, children, elderly as well as the slum population who. The need of the moment is to have a plan to help them for adaptation to the temperature changes. As climate change as well as Global warming, are the broad issues needed the coordinated action. Human induced climate change increases the probability of occurring the heat events as well as susceptibility to such heat events. On 19th May 2016, Phalodi in Jodhpur district of Rajasthan recorded the day time temperature indicating 51° C. It ranked as third highest temperature globally. Most of the places in Rajasthan recorded day temperature more than 46 °C on that day and top seven highest day time temperatures in India were found from Rajasthan state. From the fact that, 16 heat related deaths and increased admissions in hospitals are reported in Rajasthan on the day of highest temperature. Hence, the necessity of having a proper action plan on priority basis is ratified during the dialogues.

Clarity and sound understanding is needed about roles and responsibilities of various department involved in action, sharing of data, triggers of activation, mapping of vulnerable populations and analysis of extreme heat wave impact etc. As ‘heat wave’ is not a notified disaster at national level in India, accurate information and data related to heat wave deaths and illnesses are not available. In order to take appropriate action, the mortality data as well as weather data need to be gathered. Development of heat action plan is the step ahead to guide and help the officials to get clarity on their role for developing sound coordination. The HAP will help reduce impacts of heat wave on health.
In the past, Ahmedabad was the first city in India to develop the heat wave action plan in 2013, at urban level in whole of south Asia. In the context of this, ‘Heat Action Plan’ is the important step ahead to develop the heat wave action plan in rural set up of Rajasthan and will become cornerstone of environmental health in Rajasthan in order to mitigate the issues.

**Implementation of Heat Action Plan:**

The purpose of heat action plan is to provide the framework for implementation, co-ordination, evaluation of extreme heat response activities in rural set up of Rajasthan for reducing the negative impact of heat.

The plan helps to identify the at-risk population, the hot spots (at risk places where extreme heat conditions may arise) and to take appropriate administrative as well as preventive action to deal with extreme heat events.

**Key Components of Heat Action Plan:**

Heat wave action plan is required in order to prevent and mobilize the individuals to help and protect themselves and their neighbors, friends, relatives etc. from extreme spells of heat wave.

There are few important components to implement heat action plan at various levels

- To establish the early warning system and inter-agency coordination to alert the community regarding sudden high extreme temperatures through radio, banners or other medias
- To implement capacity building or training programmes for health care professionals at local level to recognize and treat the heat related illnesses as early as possible in order to reduce emergency admissions in the hospitals.
- Mapping exercise of high risk areas in the blocks selected.
- Identification of vulnerable population and heat health risks specific to each group.
- Development of effective strategies, activities and output indicators as well as response planning addressing heat risks.
- To increase public awareness and community outreach for dissemination of awareness messages to community how to protect themselves from extreme temperatures through IEC material. Do’s and Don’ts protocols are being established. Treatment regimens for heat related illnesses are developed.
- To carry out case surveillance, monitoring, evaluation and supportive supervision every year to assess the impact of heat. The updating of heat action plan is being done timely.
- To make collaborations with non-governmental organizations and civil societies to maximize and improvise the ‘cool public places’ such as public bus stands etc., building temporary shelters, streamlining of drinking water delivery systems in public areas and other innovative measures to tackle heat waves.
- Collaborated with academic institutions to measure the impact and document the experience.

Roles and Responsibilities of various departments:

There needs to be clarity about the roles and responsibilities for actions for the management of heat wave in Rajasthan. The proper leadership is necessary for preparation and response to heat wave. The DMRD may act as control agency or nodal agency and other departments such as department of health and family welfare, department of education, district and block administration, public health engineering department can act as support agency for providing resources like human resources, services, drinking water, IEC materials etc. In administrative context, Sub Divisional Officer (SDO) may execute the heat action plan related activities in a block. Block Development Officer (BDO) acts as a coordinator for disaster management and relief department as well as forest department. Block Chief Medical Officer (BCMO) is the nodal officer for health department activities at block level. Though he has all controlling powers for PHCs, sub centers etc., Chief Medical and Health Officer (CMHO) acts as supervisor for Community Heat Centers (CHCs) and can lead activities at district level. From education department, Block Education officer (BEO) will be responsible for coordinating action regarding heat action plan in schools. Public health engineering department has executive engineer as well as junior engineer who will handle all the matters of water and sanitation as well as construction in rural areas and towns.

The steps include:

1. Explicit forecasting of extreme heat event along with frequency as well as intensity needs to be done by Indian Meteorology Department (IMD).
2. Recognizing the severity of heat waves in Rajasthan by collaborating various government agencies as well as civil societies.
3. Immediate notification to public and other stake holders is very crucial to ensure the status of heat action plan.
4. Mapping exercises of the concerned high risk and vulnerable areas is to be done.
5. Heat wave alerts with the help of various forms of media will be issued at grass root level.
6. Coordinated action efforts among government departments, health care professionals, emergency medical staffs, hospital staffs and community groups are required for successful implementation.
Heat wave alerts based on thresholds determined in Ahmadabad Heat Action Plan 2016, are adopted. It is given as follows.

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<th>Yellow alert</th>
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<td>Orange alert</td>
<td>Heat alert day</td>
<td>43.1- 44.9-degree C</td>
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<td>Red alert</td>
<td>Extreme heat alert day</td>
<td>≥ 45-degree C</td>
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Source: Indian Meteorological Department, http://imd.gov.in/section/nhac/termglossary.pdf The Meteorological Centre, Ahmedabad ("Met Centre") currently determines whether to declare a heat wave once the daily maximum temperature exceeds a 40°C (104°F) threshold.
Figure 1 Communication Plan of Nodal Officer with various Department Officials
Heat Action Plan Objectives, Strategies and Activities:

Objectives:

1. **Develop, implement, co-ordinate and evaluate** Climate Resilience Heat Action Plan in rural and block level setting
2. **Developing technical material** for health promotion and communication in local language, development of climate resilience plans, capacity building of various stakeholders in collaboration with technical partners.
3. **Capacity building of various stakeholders**- block administration, block health department, education department and other line department
4. **Assess Impact of climate change** to understand impact of climate change on health and climate sensitive diseases

At Block level, there is a need to appoint ‘Nodal officer’ for monitoring and supervision of this heat related activities. The appointed nodal officer is responsible for coordination, communication and providing support to all concerned officials. Block Nodal officer would be doing the preparations under Heat Action Plan (as given in Agency action checklists).

The action plan will be implemented in three phases, given as follows.

(A). **Strategies and Activities in Pre-Heat Season (Annually from January through February)**

(B). **Strategies and Activities during the Heat Wave Season (Annually from March through July)**

(C). **Strategies and Activities in Post Heat Season (Annually in July through September)**
(A). Strategies and Activities in Pre-Heat Season (Annually from January through March)

1. Block Nodal Officer/Sub Divisional Officer (SDO)

Strategy 1.1: To establish an early Warning system and inter-agency coordination

➢ Activity: 1.1

1.1.1. To identify key agency leaders and linking them (DC, BDO, BCMO, BEO, Executive Engineer, local NGOs leaders etc.)

1.1.2. Facilitate internal communication with community groups, local agencies working on environmental health, State and district officials, medical colleges, municipal bodies of towns and various public private partnerships (PPPs) in the district.

△ Output indicators 1.1

1.1.1 Number of coordination meetings done
1.1.2 Number of inter-sectoral meetings and dialogues done.
1.1.3 Number of banners/posters/hoardings prepared as a part of early warning.

Strategy 1.2: To implement capacity building through training programmes for health care professionals

➢ Activity: 1.2

1.2.1. To organize trainings for healthcare workers, teachers, community members and school children.

1.2.2. To conduct monitoring and supervision of processes or activities related to trainings.

Output indicators 1.2

1.2.1. Number of trainings organized for medical officers and healthcare workers in one year
1.2.2 Number of trainings conducted for teachers and school children.
1.2.3. Number of trainings conducted for community leaders, NGO coordinators
**Strategy 1.3:** To make collaborations with non-governmental organizations (NGOs) and civil societies (CSOs)

- **Activity 1.3**

  1.3.1. To identify and list all NGOs as well as CSOs working in the block

  1.3.2. To establish public private partnerships and collaboration with NGOs for community mobilization and better outreach implementation programmes.

  1.3.3. To map the block and identify the high-risk areas in the block, vulnerable to heat waves for focused course of action with the help of CSOs and NGOs.

- **Output indicators 1.4**

  1.3.1. Number of meetings made with NGOs as well as CSOs.

  1.3.2. Number of NGOs or private players collaborated.

  1.3.3. Number of people assessed for vulnerability.

**2. Media, Press and Communication Officer:**

**Strategy 2.1:** To increase public awareness and community outreach for dissemination of awareness messages

- **Activity: 2.1**

  2.1.1. Printing of pamphlets and advertisements on heat stress prevention and tips for health protection during extreme heat events

  2.2.2. Focus outreach efforts for identification of high risk villages.

  2.2.3. Collect and distribute to health and education department information and heat communication materials developed by Government of Rajasthan, UNICEF and IIPH-Gandhinagar.

- **Output indicators 2.2**

  2.2.1 Number of pamphlets and posters obtained.

**3. Block Chief Medical Officer (BCMO) / Chief Medical and Health Officer (CMHO) - Health Department:**

**Strategy 3.1:** To establish the early warning system and inter-agency coordination

- **Activity: 3.1**
3.1.1 Purchase and distribute reusable soft plastic ice packs in block as well as in all sub centers (outreach level), PHCs, CHCs and 108 ambulances.

3.1.2. Train staff for heat focused examination procedures in Primary Health Centers (PHCs) and Community Health Centers (CHCs).

3.1.3. As a matter of precaution, Health Department ensure the availability of deep freezers, ILRs and Vaccine carriers at the cold chain points in the high focused area to maintain the coverage of full immunization.

❖ Output indicators 3.1

3.1.1. Number of soft plastic ice packs distributed in the block at SC, PHC, CHC and SDH level.

3.1.2 Number of discussions/dialogues held for adoption of heat focused examinations in PHC/CHC.

3.1.3. Number of medical officers who trained for heat focused examination procedures.

3.1.4. Percentage of cold chain points functioning properly in pre-heat season.

Strategy 3.2: To implement capacity building or training programmes for health care professionals

❖ Activity: 3.2

3.2.1 To intensify targeted training programmes, capacity building efforts especially for the medical officers and health workers-ANMs and ASHAs in heat affected areas.

3.2.2. To impart trainings to improvise the practice of documenting the cause of death on death certificates.

3.2.3. To incorporate ‘IEC’ as a component in training module while training heath officials.

❖ Output Indicators 3.2

3.2.1. Number of trainings conducted for medical officers and health workers-ANMs and ASHAs in heat affected areas.

3.2.2. Number of IEC focused trainings conducted for medical officers and health workers.

Strategy 3.3: To develop communication strategy and IEC training for public awareness and community outreach during heat season

❖ Activity 3.3
3.3.1. Develop communication strategy for local rural health facilities and heat affected community groups with the help of medical, paramedical staff, field staff etc. based on the Framework for health professionals.

3.3.2. Develop behavioral change programmes such as drama, street play in the villages to give the friendly preventive and awareness message to the people.

❖ Output indicators 3.3

3.3.1 Number of IEC material developed

3.3.2 Number of staff trained for communication strategy

3.3.3. Number of Dramas or street plays developed for giving awareness messages regarding heat wave and illnesses as a part of climate change awareness.

Strategy 3.4: To make collaborations with non-governmental organizations and civil societies and private practitioners, trust hospitals etc. for implementing various activities of HAP

❖ Activity 3.4

3.4.1. Identify and list various NGOs and CSOs running hospitals

3.4.2. Train staff working at NGOs and CSOs hospitals for heat focused examination procedures

Output Indicators 3.4

3.4.1. Number of NGOs and CSOs identified and listed

3.4.2. Number of health staff trained for heat focused examination procedures at NGOs and CSOs hospitals

Strategy 3.5: To carry out monitoring and surveillance

❖ Activity 3.5

3.5.1. Develop a ‘Rapid Response Team’ (RRTs) along with disaster management officials for carrying out monitoring and surveillance in high risk area.

3.5.2. To conduct supportive supervision of medical officers at PHCs/CHCs level routinely.

❖ Output Indicators 3.5

3.5.1. Number of RRTs formed.

3.5.2. Number of monitoring visits conducted in the heat focused villages.
3.5.3. Number of supportive supervision visits conducted.

4. **Block Education Officers (BEO), Community Groups and individuals:**

**Strategy 4.1:** To implement capacity building or training programmes for teachers, education department officials and students

➢ **Activity 4.1**

4.1.1. Under the leadership of Block Education Officer (BEO) or Additional Block Education Officer (ABEO), conduct child friendly educational trainings and distribute heat protection materials at local schools in rural areas.

4.1.2. Build capacity among teachers about protection from heat and equip them with the separate awareness module, material which they can disseminate in classrooms and they can make activities that can engage students regarding extreme heat effects on health.

4.1.3. Conduct training workshops and outreach sessions with community Self Help Groups (SHGs) and community mobilizers like AWW or Multipurpose Health Workers (MPHW).

➢ **Output indicators 4.1**

4.1.1 Number of child friendly education trainings conducted.

4.1.2 Number of teachers trained, education department officials and students for heat wave awareness.

4.1.3. Number of awareness modules distributed among schools.

4.1.4. Number of community mobilizers capacitated.

5. **Executive Engineer-Block Public Health Engineering Department:**

**Strategy 5.1** To collaborate with non-governmental organizations and civil societies

➢ **Activities 5.1**

5.1.1. Construction of shelters and cooling public places in the identified heat affected areas.

5.1.2. Provision of drinking water at water points in various vulnerable areas and work sites of block.

➢ **Output Indicators 5.1**

5.1.1. Number of shelters/shades built in the block.

5.1.2. Number of ‘Public cooling spaces’ formed.

5.1.3. Number of drinking water points developed in block.
1. Block Nodal Officer/ Sub Divisional Officer (SDO):

Strategy 1.1: To establish the early warning system and inter-agency coordination

- Activity 1.1

1.1.1. Activate the heat alert and the local response block wide when extreme temperature is forecasted.

1.1.2. Monitor and increase the heat alert level when necessary to match the severity of the forecast and threshold established along with the Block Nodal Officer conveying the same in a special meeting assembling of key agency leaders.

1.1.3. Conduct frequent, possible daily, conference calls to discuss reports and breaking developments during heat alerts and ensure that communication channels remain operational.

1.1.4. Identify and set up public displays of temperature at places in the block with more population.

1.1.5. Continue passive and active surveillance of temperature data and forecasts along with monitoring of vital indicators.

1.1.6. Notify the steering committee and relevant agencies when heat alert is over.

- Output Indicators 1.1

  1.1.1 Frequency of activated alerts.
  1.1.2 Number of special meetings conducted at the time of extreme temperatures
  1.1.3 Number of conference calls made during the summer.
  1.1.4 Number of monitoring visits made to the various part of block.

Strategy 1.2: To make collaborations with non-governmental organizations and civil societies

- Activity 1.2

1.2.1. Development of cooling centers in places such as temples, public buildings, schools, colleges etc. during heat wave season. Provide access to drinking water and electricity to vulnerable populations.

1.2.2. Provide temporary shelters for affected populations. Assure night shelters stay open all day for migratory populations during a heat alert. Expand access to shaded areas for outdoor workers, slum communities and other vulnerable populations.
1.3.3. Increase the efforts to distribute the fresh drinking water to the public, expansion of potable water access during heat alert at religious places including temples and mosques etc.

.getD Output Indicators 1.3

1.3.1. Number of cooling centers developed
1.3.2. Number of night shelters constructed.
1.3.3. Number of people used shelters/shades during heat events.

2. Media, Press and Communication Officer:

Strategy 2.1: To increase public awareness and community outreach for dissemination of awareness messages

➢ Activity 2.1

2.1.1. Initiate public awareness about the dangers of heat related illnesses involving the ‘Block Nodal Officer’ via press conference.
2.1.2. Circulate bulk warnings to the public via centralized email databases during heat alert.
2.1.3. Develop an SMS alert system to send direct messages to the community members, school headmasters, private practitioners and other important stakeholders
2.1.4. Use local radio to disseminate heat protection tips and high temperature warnings to the high-risk community in rural areas during heat wave period.
2.1.5. Explore other ways of communication such as social media e.g. WhatsApp mobile application/Instant messaging.

➢ Output Indicators 2.1

2.1.1. Number of press conferences arranged for dissemination of awareness messages.
2.1.2. Frequency of bulk warnings sent via email
2.1.3. Number of SMS alerts sent during heat wave period
2.1.5. Number of people accessed through WhatsApp/Instant messaging.

3. Block Chief Medical Officer (BCMO) / Chief Medical and health officer (CMHO) - Health Department:

Strategy 3.1: To strengthen the early warning system and inter-agency coordination to strengthen the health services.
Activity 3.1.

3.1.1. To ensure the preparation for heat wave related illnesses by Block Chief Medical Officer (BCMO) as well as Medical officers of PHCs and CHCs is being assured. Case audit conduction during heat season is being streamlined.

3.1.2. Ensure adequate Medical and drug supplies availability especially for heat focused areas.

3.1.3. Weekly reports of public health impact for SDO/Block Nodal Officer during heat wave alert.

3.1.4. Manage Human Resources and Infrastructure as per influx of patients during heat wave alert.

3.1.5. Focus more on high risk villages having vulnerable population in the relation of health service delivery, human resources and infrastructure.

3.1.6 Recruitment of new health workers as per feasibility and requirement.

Output Indicators 3.1

3.1.1 Number of drugs supplied during heat wave period

3.1.2 Number of reports submitted during heat wave period

3.1.3 Frequency of indents made during heat wave period

Strategy: 3.2 To increase public awareness and community outreach for dissemination of awareness messages

Activity 3.2

3.2.1. Educate the patients and the general community about heat related illness post exposure, prevention tips and how to stay cool at health facilities (Sub-centers/PHCs/CHCs/UHCs).

Output Indicators 3.2

3.2.1. Frequency of the education meetings to the patients as well community during heat wave period.

3.2.2. Number of Rapid Response Teams formed in block during heat wave.

4. Block Education Officers (BEO/ABEO), Community Groups and individuals:

Strategy 4.1: To increase student’s awareness and community outreach for dissemination of awareness messages
Activity 4.1

4.1.1. Continued activity of awareness and knowledge dissemination in schools for students and teachers both.

4.1.2. Educate family members or neighbors as well as community members about Do and don’t protocol for heat wave prevention.

Output Indicators 4.1

4.1.1. Number of awareness and knowledge dissemination activities conducted during heat wave period.

4.1.2. Number of families educated about heat related events and prevention strategies during heat wave period.

5. Executive Engineer-Block (Public Health Engineering department)

Strategy 5.1 Shelters and shades, water, electricity for the vulnerable population

Activity 5.1

5.1.1. Keep checking that constructed shades/shelters are in place and are useful to the community. Repair if needed on priority basis.

5.1.2. Provide potable drinking water in certain areas with water scarcity; even ensure that work places have adequate water provision.

Output Indicators

5.1.1 Number of shelter repairs done during heat season.

5.1.2. Number of potable drinking water points developed during heat season.

5.1.3. Number of shelters formed at bus stops during heat season

(C) Strategies and Activities in Post Heat Season (Annually in August through September)

1. Block Nodal Officer/SDO

Strategy 1.1: Evaluation meetings and Performance Assessment

Activity 1.1

1.1.1. Organize an annual Heat Action Plan Evaluation meeting with key agency stakeholders.

1.1.2. Evaluate the Heat Action Plan process based on performance and revise periodically.
1.1.3. Evaluate the impact and coverage of the heat action plan and revise accordingly.

1.1.4. Revised plan need to be highlighted on Government of Rajasthan website after 2017 Heat season for stakeholders.

**Output Indicators 1.1**

1.1.1 Number of evaluation meetings conducted after heat wave
1.1.2 Number of periodic meetings for heat action plan conducted

### 2. Block Chief Medical Officer (BCMO) / Chief Medical and health officer (CMHO) – Health Department

**Strategy 2.1. Surveillance, Monitoring and Evaluation, Supportive Supervision**

- **Activity 2.1**

2.1.1. Perform an epidemiological case investigation of heat related morbidities and mortalities during the heat wave season.

2.1.2. Collate the data from various sources, investigations regarding heat risk factors, illnesses and death based on daily average temperature. Measure the morbidity and mortality rates based on data before and after the plan implemented.

2.1.3. Incorporate data findings in upcoming Heat Action Plans each year.

2.1.4. Continue supportive supervision to the medical officers in PHCs and CHCs and other health facilities.

- **Output Indicators 2.1**

2.1.1. Frequency of case investigations performed

2.1.2. Number of supportive supervision visits made in the block

**Conclusion:**

As Rajasthan is one of the major states often getting affected by Heat Waves, there is an immediate need to develop and implement such plans in other areas of the state. In addition, nodal department -DMRD and RSPCB, other line department- Health, Education, PHED; development partner UNICEF; academic and technical partner-IIPH-Gandhinagar indicated strong commitment for effective implementation of first Block Level Heat Action Plan for rural settings. On ground IIPH-Gandhinagar has made efforts to make it possible with support of all these stakeholders.
Framework for Block Programme Management Unit and Health professionals:

For primary health care level and block level health facilities, there is a need to make a framework for proper implementation of the preparedness and the quick response for early diagnosis and treatment. The framework indicates the linkage of health care professionals with other departments involved. As Rapid Response teams consist of various government officials apart from medical officers, it’s necessary to understand the framework.

![Diagram of Framework for Block Programme Management Unit and Health professionals]

*Figure 2 Framework for Block Programme Management unit and health professionals*
## Case Definitions of various Heat related illnesses:

<table>
<thead>
<tr>
<th>Clinical Entity</th>
<th>Age Range</th>
<th>Setting</th>
<th>Cardinal Symptom</th>
<th>Cardinal Signs</th>
<th>Pertinent Negatives</th>
<th>Prognosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heat Rash</td>
<td>All, but frequently children</td>
<td>Hot environment; +/- insulating clothing or swaddling</td>
<td>Itchy Rash with small red bumps at pores in setting of heat exposure; bumps can sometimes be filled with clear or white fluid</td>
<td>Diffuse maculopapular rash, occasionally pustular, at hair follicles; pruritic</td>
<td>Not focally distributed like a contact dermatitis; not confluent patchy; not petechial hemorrhages</td>
<td>Full recovery with elimination of exposure and supportive care</td>
</tr>
<tr>
<td>Heat Cramps</td>
<td>All</td>
<td>Hot environment typically with exertion; +/- insulating clothing or swaddling</td>
<td>Painful spasms of large and frequently used muscle groups</td>
<td>Uncomfortable appearance may have difficulty fully extending affected limbs /joints</td>
<td>No contaminate wound/tetanus exposure; no seizure activity</td>
<td>Full recovery with elimination of exposure and supportive care</td>
</tr>
<tr>
<td>Heat Exhaustion</td>
<td>All</td>
<td>Hot environment; +/- exertion; +/- insulating clothing or swaddling</td>
<td>Feeling overheated, lightheaded, exhausted and weak, unsteady, nauseated, sweaty and thirsty, inability to continue activities</td>
<td>Sweaty/Diaphoretic; Flushed skin; hot skin; normal core temperature; +/- dazed, +/- generalized weakness, slight disorientation</td>
<td>No coincidental signs and symptoms of infection, no focal weakness, no aphasia, dysarthria, no overdose history</td>
<td>Full recovery with elimination of exposure and supportive care; progression if continued exposure</td>
</tr>
<tr>
<td>Heat Syncope</td>
<td>Typically adult</td>
<td>Hot environment; +/- exertion; +/- insulating clothing or swaddling</td>
<td>Feeling hot and weak; lightheadedness followed by brief loss of consciousness</td>
<td>Brief Generalized loss of consciousness in hot setting, short period of disorientation if any</td>
<td>No seizure activity, no loss of bowel or bladder continence, no focal weakness, no aphasia/dysarthria</td>
<td>Full recovery with elimination of exposure and supportive care, progression if continued exposure</td>
</tr>
<tr>
<td>Heat Stroke</td>
<td>All</td>
<td>Hot environment; +/- exertion; +/- insulating clothing or swaddling</td>
<td>Severe overheating, profound weakness, disorientation, obtundation, seizures or other altered mental status</td>
<td>Flushed dry skin (not always), core temperature ≥ 40-degree C, altered mental status with disorientation, possibly delirium, coma, seizures, tachycardia, +/- hypotension</td>
<td>No coincidental signs and symptoms of infection; no focal weakness; no aphasia/dysarthria, no overdose history</td>
<td>25-50% mortality even with aggressive care, significant morbidity if survive</td>
</tr>
</tbody>
</table>

**Table 1 Case Definitions of Heat related illnesses**

India's First Rural Climate Resilience Heat Action Plan
**Heat illnesses – Treatment Protocol**

Under the treatment protocol, for primary assessment, we need to consider the risk factors existing for the heat related illnesses as given in following chart:

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Risk factors for Heat Related Illnesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Age &lt; 15 years and &gt; 65 years</td>
</tr>
<tr>
<td>2</td>
<td>Cognitive impairment</td>
</tr>
<tr>
<td>3</td>
<td>Heart and lung diseases</td>
</tr>
<tr>
<td>4</td>
<td>Limited access to air conditioning</td>
</tr>
<tr>
<td>5</td>
<td>Mental illness</td>
</tr>
<tr>
<td>6</td>
<td>Obesity</td>
</tr>
<tr>
<td>7</td>
<td>Physical disabilities</td>
</tr>
<tr>
<td>8</td>
<td>Poor fitness level</td>
</tr>
<tr>
<td>9</td>
<td>Sickle cell trait</td>
</tr>
<tr>
<td>10</td>
<td>Strenuous outdoor activity during the hottest day time hours</td>
</tr>
<tr>
<td>11</td>
<td>Urban residence or living on higher floors</td>
</tr>
<tr>
<td>12</td>
<td>Alcoholism</td>
</tr>
<tr>
<td>13</td>
<td>Uncontrolled diabetes</td>
</tr>
<tr>
<td>14</td>
<td>Medications contributing to heat related illness</td>
</tr>
</tbody>
</table>
## Symptoms and First Aid for various Heat illnesses:

<table>
<thead>
<tr>
<th>Heat Illness</th>
<th>Symptoms</th>
<th>First Aid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heat rash</td>
<td>Skin redness and pain, possible swelling, blisters, fever, headaches.</td>
<td>Take a shower using soap to remove oils that may block pores preventing the body from cooling naturally. If blisters occur, apply dry, sterile dressings and seek medical attention.</td>
</tr>
<tr>
<td>Heat Cramps</td>
<td>Painful spasms usually in leg and abdominal muscles or extremities. Heavy sweating</td>
<td>Move to cool or shaded place. Apply firm pressure on cramping muscles or gently massage to relieve spasm. Give sips of water. If nausea occurs, discontinue.</td>
</tr>
<tr>
<td>Heat Exhaustion</td>
<td>Heavy sweating, weakness, Skin cold, pale, headache and clammy extremities. Weak pulse. Normal temperature possible. Fainting, vomiting.</td>
<td>Get victim to lie down in a cool place. Loosen clothing. Apply cool, wet cloth. Fan or move victim to air-conditioned place. Give sips of water slowly and if nausea occurs, discontinue. If vomiting occurs, seek immediate medical attention, call 108 and 102 for ambulance.</td>
</tr>
<tr>
<td>Heat Stroke (Sun Stroke)</td>
<td>High body temperature. Hot, dry skin. Rapid, strong pulse. Possible unconsciousness or altered mental status. Victim will likely not sweat.</td>
<td>Heat stroke is a severe medical emergency. Call 108 and 102 for ambulance for emergency medical services or take the victim to a Health center or 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.</td>
</tr>
</tbody>
</table>

### Clinical evaluation or differential diagnosis:

**Mild heat illness:** A rectal temperature is most reliable measurement as alternatives; oral, tympanic, axillary and skin temperature are less accurate. Core temperature and absence of central nervous system symptoms will help the diagnosis and treatment of heat related illnesses. In the absence of hyperthermia, presence of central nervous system symptoms suggests the investigation for differential diagnosis.

**Heat Exhaustion:** In the case of heat exhaustion, the skin may appear pale associated with tachycardia or hypotension. Headache, dizziness, nausea, vomiting as well as diarrhea and loss coordination may occur. Such patients are advised to be in supine position with elevation of legs. They are instructed to remove excess clothing and are moved in cool shaded environment. Oral fluids are recommended for rehydration. Vital signs should be monitored with the transport to emergency department if symptoms don’t improve after 20-30 minutes of onset.
**Heat Cramps:** Exercise associated muscle cramps are more common during hot and humid environment and is characterized by dehydration, depletion of electrolytes, hyponatremia etc. The treatment includes rest, prolonged stretching of affected muscle groups and oral sodium intake. For severe conditions, intravenous Normal Saline may be very useful for more rapid relief for severe cramping.

**Heat Stroke:** Heat Stroke requires immediate diagnosis and early treatment. It is characterized by the elevation of core temperature associated with involvement of central nervous system disturbances. Rectal temperature is recommended to obtain as early as possible. Treatment regime includes stabilizing airway, breathing and circulation. Onsite cooling is preferred generally. Applying ice packs or wet towels to axillary, groin, head, neck region is alternative option. The combination of rapid fan movement and spraying moderate temperature mist of water tends to have effective evaporative and convective cooling. Intravenous hydration needs to be recommended to maintain renal blood flow. In rural areas, community settings, patients should be kept in cool shaded environment without excess clothing till ambulance reach. The curative action taken in this time may decide the degree of cell damage leading to organ failure. Prevention of stroke includes the identification of older population having chronic medical disease or physical disabilities, which lack access to air conditioning and providing them the cooler environment.

The clinical evaluation or differential diagnosis is given in the below chart:
Figure 3 Algorithm for the initial evaluation of a patient with suspected heat related illness

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

- Recorded maximum temperature during the particular time period and place.
- Recording incidents, panchmana or others witnesses, evidence or verbal – autopsy.
- Postmortem/medical checkup report with causes.
- Local authority or Local body enquiry/verification report.

Preparedness at community level -Dos and Don’ts Protocol
To minimize the impact of severe heat wave, certain preventive measures would be useful.

DO’S

1. Listen to radio; watch TV, read newspaper for local weather forecast to know if a heat wave is on a way.
2. Drink sufficient water and as often as possible, even if not thirsty
3. Wear light weight, light colored, loose and porous cotton clothes. Use protective goggles, umbrella/hat, shoes or chappals while going out in sun.
4. While travelling carry water with you
5. If you work outside, use a hat or an umbrella and also use a damp cloth on your head, neck, face and limbs.
6. Use ORS homemade drinks like Lassi, Torani (Rice water), lemon water, buttermilk etc. which help to rehydrate the body.
7. Recognize the signs of heat stroke, heat rash or heat cramps such as weakness, dizziness, headache, nausea, sweating and seizures. If you feel faint or ill, see a doctor immediately.
8. Keep animals in shade and give them plenty of water to drink.
9. Keep your home cool, use curtains, shutters or sunshade and open windows at night
10. Use fans, damp clothing and take bath in cold water frequently.
11. Provide cool drinking water near work place.
12. Caution workers to avoid direct sunlight.
13. Schedule strenuous jobs to cooler times of the day.
14. Increasing the frequency and length of rest breaks for outdoor activities
15. Pregnant workers and workers with medical condition should be given additional attention.

DON’T’S

1. Do not leave children or pets in parked vehicle
2. Avoid getting out in the sun, especially between 12.00 pm to 3.00 pm.
3. Avoid wearing dark, heavy or tight clothing
4. Avoid strenuous activities when the outside temperature is high
5. Avoid cooking during peak hours. Open doors and windows to ventilate cooking area adequately.
6. Avoid alcohol, tea, coffee and carbonated soft drinks, which dehydrates the body.

Reasons for inadequate coping by community:

- Not knowing the issue of heat alerts
- Lack of awareness of precautionary measures (Dos and Don’ts)
- Not knowing symptoms of heat related illness and immediate treatment
- Lack of proper connectivity to primary health centers/Community health centers
- Lack of access to urgent medical attention at local levels (in villages)
- No access to shaded areas and cooling places
- Non-availability of adequate water
- Lack of knowledge of services available
The checklists for various coordinating agencies are given ahead to make them alert for heat wave preparedness and suggesting them actions need to be performed.

Agency action checklists

<table>
<thead>
<tr>
<th>Checklist for Block</th>
<th>Nodal Officer/SDM/BDO</th>
</tr>
</thead>
</table>

**Pre-summer:**
- Designate heat health point of contact for each department.
- Re-engage the key agencies to facilitate and schedule monthly meetings.
- Educate the school children and capacitate teachers along with disseminating pamphlets about heat awareness.
- Create a village wise list of high risk areas for heat in the block.
- Establish heat mortality tracking system and update datasets.
- Establish heat action web page on health department, Rajasthan website and update the action plan regularly.

**During heat Season:**
- Contact designated person of contact in each department announcing heat event at least five days in advance.
- Maintain communication with department designated person of contact for heat related updates.
- Ensure the availability of staff and supplies with each department including medical supplies, fresh drinking water etc.
- Communicate the locations of emergency health facilities and cooling centers/shaded areas/shelters with each department.
- Monitor heat alert and increase level when severe forecast occurs.

**Post summer Evaluation:**
- Participate in annual evaluation of heat action plan
- Review heat action plan and share the updated revised version.

**Checklist for Public Health Managers**

<table>
<thead>
<tr>
<th>Pre-summer</th>
</tr>
</thead>
</table>
- Identify high risk areas having vulnerable population
- Check inventories of medical and drug supplies in CHC/PHC
- Identify cooling centers/shaded locations and barriers for getting access to it.
- Ensure community involvement during awareness, capacity building and education.

<table>
<thead>
<tr>
<th>During heat Season:</th>
</tr>
</thead>
</table>
- Prepare Rapid Response Team (RRT) with the help of disaster management and relief department, Rajasthan officials.
- Distribute Dos and Don’ts protocol to the community.
- Ensure access to Medical Mobile Van in Red Zone and also ensure the availability of additional vans if required.
- Support and request to the people to not get panic effectively.

<table>
<thead>
<tr>
<th>Post summer Evaluation:</th>
</tr>
</thead>
</table>
- Review qualitative and quantitative data for process evaluations and updating of action plan.
- Conduct annual meeting of key agencies leaders and community partners.
- Update revised heat action plan online for stakeholders.
Checklist for Community health centers (CHCs)/Primary health centers (PHCs) - Medical Officers and health workers:

Pre-summer:
- Distribute the pamphlets and other awareness material to the community.
- Sensitize the health workers as well as community leaders.
- Develop and execute the school health programmes at grass root level.
- Dissemination of awareness material among vulnerable communities in high focused villages.
- Coordinate the outreach efforts with other community groups, nonprofit organizations and higher education institutes.

During heat Season:
- Recheck the medicine and drug stocks and project extra indent to compensate the short fall timely.
- Modify the working hours of workers to avoid the heat stress.
- Ensure the visits to the pockets of vulnerable population for monitoring and active surveillance in villages.
- Communicate the information at tertiary level and 108 ambulance services regarding the grass root issues to reduce the gap.

Post summer Evaluation:
- Participate in annual evaluation of heat action plan.
- Review the heat action plan and update the revised plan.

Checklist for 108 Emergency Services:

Pre- summer:
- Prepare handouts about heat illnesses for paramedics.
- Create displays on ambulances to build public awareness during major heat events.
- Establish dynamic strategic deployment plan for ambulances.
- Ensure adequate supply of IV fluids.
- Identify high risk areas for heat.
- Prepare SMS messages to disseminate during emergencies.
- Identify media point of contact.

During heat Season:
- Recheck the medicine and drug stocks and make it ready for use.
- Keep accurate records of pre- hospital care.
- Send messages to all employees alerting them and inform them about heat action plan.
- Activate dynamic strategic deployment plan.
- Staff surplus employees and restrict leave.

Post summer Evaluation:
- Provide data to key agencies leaders.
- Participate in annual evaluation of heat action plan.
- Review the heat action plan and update the revised plan.
Checklist for Press Officer at Block:

Pre-summer:
- Secure commercial airtime slots for public service announcements
- Identify areas to post warnings and information during heat season
- Organize trainings for health workers and medical professionals
- Activate telephone heat hotline
- Begin placing temperature forecasts in newspapers
- Put banners and posters in public crowded areas of block.

During heat Season:
- Issue heat warnings in heat and electronic media
- Contact local Radio and TV stations for announcements
- Use SMS, texts and WhatsApp mobile messaging and centralized mobile databases to send alerts
- Contact Transport department to put hoardings and banners on public bus stops as well as on buses.

Post summer Evaluation:
- Evaluate the reach of advertising to targeted groups by other means of communication such as social media.
- Participate in annual evaluation of heat action plan.
- Review heat action plan and update the revised plan

Checklist for Education department officials at block (BEO/ABEO):

Pre- summer
- Capacity building of teachers regarding heat wave awareness and education
- Child friendly education trainings among students
- Distribution of heat awareness and protection material in local schools in rural areas
- Education to community members, families
- Encourage children to talk about the signs and symptoms of heat related illness
- Advocacy for holidays to school children during heat wave period

During heat Season:
- Awareness and knowledge dissemination in the schools
- Distribution of ice packs and cool water in schools

Post summer Evaluation:
- Participate in annual evaluation of heat action plan
- Review the plan and update revised plan.
- Strategies such as Behavioral change communication for long term outputs or an outcome is being adopted after heat wave.
Checklist for Disaster Management and Relief Department Officials at Block (BDO):

Pre-summer:

- Collection of data of vulnerable population and areas from various sources
- The mapping exercises of vulnerable population
- The Develop the preparedness and adaptation protocol and disseminate it.

During heat Season:

- Issue of high alerts with the communication with meteorology department and Issue heat warnings in print and electronic media.
- Place the various banners and posters at the public places with the help of department of public health engineering and department of transport.
- Advocate for keeping school closed involving education department
- Develop Rapid Response Team (RRT) with the help of medical and health professionals of Block programme management Unit, Health department.

Post summer Evaluation:

- Participate in annual evaluation of heat action plan
- Review the plan and update revised plan.
- Highlight on block specific interventions
Brief Profile of Stakeholders:

Government of Rajasthan

Government of Rajasthan is one of the premiere state governments taking innovative thinking into practice through various initiatives. The state governments have various departments including health department, Panchayati Raj department, Forest Department, Public Health Engineering Department etc. like other states. The problem statement is different from other state making Rajasthan to focus on some complex problems such as Climate change and health. The government has supported many excellent programmes and schemes.

Disaster Management and Relief Department, Government of Rajasthan

Relief Department came into existence vide state ordinance to establish the office of the Relief Commissioner. Till 1964, Food and Relief department were jointly working. After that, they get separated. Disaster Management and Relief department is the permanent department of the state administration functioning under the commissioner and secretary, Disaster Management and Relief Department. Head office is in Jaipur having no other offices or branches. District Collectors and district level officers of the department act as the technical controlling, coordinating officers in the districts. ‘Rajasthan Rahat Kosh’ is developed to help the poor and vulnerable population affected by disasters.

Rajasthan State Pollution Control Board (RSPCB), Government of Rajasthan

The Rajasthan state Pollution Control board was constituted under the section 4 of Water (Prevention and control of Pollution) Act, 1974, having objectives of prevention and control of water pollution and maintaining or restoring of wholesomeness of water. The prevention, control and abatement of Air pollution under the provisions of Air (Prevention and Control of Pollution) Act, 1981 made it have the objective of prevention of air pollution. Water (Prevention and control of Pollution) CESS Act, 1977 has been enacted to make state board financially independent. Under this act State is made to collect CESS on the basis of water consumed by the industries. Later, State board is engaged in implementation of the rules made under the environment (Protection) Act, 1986. Water pollution control and Air Pollution Control Rules are developed by the board and presented on the RSPCB website. Investors or industrialist need to take permission or clearance from this board to establish the company under all rules and regulations.

UNICEF, Rajasthan:

United Nations Children’s Emergency Fund (UNICEF) is the international bilateral organization headquarterd in ‘New York ’working in the state of Rajasthan providing the technical support to the Government of Rajasthan for various programmes, improving child survival, growth and
development. It focuses on health, nutrition status of newborn, children, adolescents, women, water and sanitation issues, disaster risk reduction etc.

**IIPH Gandhinagar**

Indian Institute of Public health, Gandhinagar has been established as India’s first public health university under Gujarat State Act 2015 with the support of the ‘Prime minister, Shri. Narendra Modi’ The IIPHG is working in the area of Public Health, Health Policy, Environmental Health research and implementation. IIPHG implemented South Asia’s first Heat Action Plan in Ahmadabad. On the basis of that, again IIPHG is designing this block level heat action plan for Rajasthan.

**References**


Annexures of activities carried out under HAP

- Various IEC material in local language
- Capacity Building and Sensitization of Health Professionals
- Capacity Building of School Teachers and Awareness Activities in Schools
- Heat Awareness Day
- Media and Community Engagement
राजस्थान क्लाइमेट चेंज प्रोजेक्ट
हीट एक्शन प्लान

भारत का प्रथम ग्रामीण स्तरीय क्लाइमेट-हीट एक्शन प्लान बनाना

आपजन में जलवायु परिवर्तन, गर्मी, तापमान से बचाव के लिए जागरूकता फैलाना

मुख्यमंत्री
जल स्वाभाविक
अभियान के अंतर्गत
जल संरक्षण को
बढावा देना

शिक्षकों एवं विद्यार्थियों
को प्रशिक्षित करना

चिकित्सा
अधिकारियों को
तापमान के उपचार
के लिए प्रशिक्षित
करना

विद्यार्थियों की
शक्ति का उपयोग
जन जागरूकता
के लिए करना

India’s First Rural Climate Resilience Heat Action Plan
राजस्थान क्लाइमेट चेंज प्रोजेक्ट
हीट एक्शन फ्लान
हारेगी गर्मी जीतेगा राजस्थान
लू/तापघात जानलेवा हो सकता है, इससे बचाव ही उपचार है

- ध्यान की दुधार न होने पर भी पानी पीये।
- लिमिट अधिक गर्मी से ध्यान ना करें।
- अस्प्रेट से पानी लेने पर बचाव करें।
- अमोनिया ने पानी न पीये।
- शरीर अधिक गर्मी लगने पर स्वास्थ्य करें।
- रेस्ट अधिक परिश्रम के बीच निकल आने के बाद रिस्ट करें।
- साफ नुस्खे करने पर फल खायें।
- सीक शेड ध्यान में रखें।
- द्राहत सेवकों को चेक करें।
- ड्रेस डाउन हल्के/सफेद रंग के तथा हैरले बच पहनें।

A-2: Community Awareness for Do’s and Don’ts for prevention of heat related illnesses
A-3: Community Awareness for traditional, easily accessible methods for prevention of heat related illnesses

India’s First Rural Climate Resilience Heat Action Plan
आर्थिक गर्मी एवं तूफान के कारण होने वाली बीमारियां मुख्य रूप से दो प्रकार की होती हैं।
गर्मी निकलना/ग्रीष्म शून्यीकरण (हीट इनजॉर्सचेंज) एवं तापघात (हीट स्ट्रोक)

**हीट इनजॉर्सचेंज के लक्षण**
- आत्मविश्वास व्याप्त
- शरीर का तापमान बढ़ा हुआ (100.4°F से < 104°F)
- मांसपेशियों में हंगड़ा
- जी निचलाना/उठान होता
- सिर का भारीपन/सिरदर्द
- रक्तचाप का कम होता
- चकर अन्न
- प्रांति/उल्जान में होना
- अन्यमुखता/पेशाव का कम होता
- अधिक पसीना एवं चिपचिपी रक्तचाप

**तापघात (हीट स्ट्रोक) के लक्षण**
- शरीर का तापमान बढ़ा हुआ (> 104°F)
- पसीना आना बंद होना/पसीने की प्रवृत्ति का निक्षिप्त होना
- मांसपेशियों में हंगड़ा, चिपचिपी रक्तचाप
- रक्तचाप एवं शरीर का सांल होना
- जी निचलाना/उठान होना, चकर अन्न
- सिर का भारीपन/सिरदर्द, चकर अन्न
- प्रांति/उल्जान में होना
- अन्यमुखता/पेशाव का कम होना
- मानसिक असंतुलन
- सांस की समस्त प्रवास अस्वास्थ्य का उलझन लेज होना

**प्राथमिक उपचार**
- व्याब्लिट को तुरंत पंखें के निचे तथा छावादार टदेड़ स्थान पर ले जाये।
- कपड़े को हीला करें।
- शरीर को पीले खड़े से स्थान करें।
- अर्क एक्स का पोल पिलायें।
- निम्न का नमक के साथ पिलायें।
- मांसपेशियाँ पर दबाव डालें तथा हल्की मालिग करें।
- शरीर के तापमान को बार बार जाँचें।
- दूसरे कुछ समय में समाजता ना हो तो तुरंत विक्लिता केंद्र से जायें।

**उपचार**
- मरीज को तुरंत नजदीक के व्यापार केंद्र में ले जाये।
- कपड़े को हीला करें।
- तुरंत पंखें के निचे तथा छावादार ट्ड़े स्थान पर ले जाये।
- मरीज को कपड़े से स्थान करें।
- अगर मरीज कुछ पीने की अवस्था में हो तो पानी या चीलों पेय पिलायें।
- अर्क एक्स का पोल पिलायें।
- निम्न का नमक के साथ पिलायें।
- मांसपेशियाँ पर दबाव डालें तथा हल्की मालिग करें.
Rajasthan Climate Change Project

Heat Action Plan

TYPES OF HEAT RELATED ILLNESSES

Heat Rash: Heat rash is a skin irritation caused by excessive sweating during hot, humid weather. Diffuse, pruritic, maculopapular or vesicular rash in the setting of heat exposure, often with insulating clothing or swaddling.

Heat Cramps: Heat cramps are the mildest form of heat illness and consist of painful muscle cramps and spasms that occur during or after intense exercise and sweating in high heat.

Heat Exhaustion: Heat exhaustion is more severe than heat cramps and results from a loss of water and salt in the body. It occurs in conditions of extreme heat and excessive sweating without adequate fluid and salt replacement. Heat exhaustion occurs when the body is unable to cool itself properly and, if untreated, can progress to heat stroke.

Heat Syncope: Heat syncope is a fainting (syncope) episode or dizziness that usually occurs with prolonged standing or sudden rising from a sitting or lying position. Factors that may contribute to heat syncope include dehydration and lack of acclimatization.

Heat Stroke: Heat stroke, the most severe form of heat illness, occurs when the body's heat-regulating system is overwhelmed by excessive heat. It is a life-threatening emergency and requires immediate medical attention.

SYMPTOMS AND TREATMENT OF HEAT-RELATED ILLNESSES:

<table>
<thead>
<tr>
<th>Type of Heat-related Illness</th>
<th>Symptoms</th>
<th>First Aid and Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heat Rash</td>
<td>• Clusters of red bumps on skin</td>
<td>When possible, a cooler, less humid work environment is heat treatment. Keep rash area dry. Powder may be applied to increase comfort. Ointments and creams should not be used.</td>
</tr>
<tr>
<td></td>
<td>• Often appears on neck, upper chest, folds of skin</td>
<td></td>
</tr>
<tr>
<td>Heat Cramps</td>
<td>• Painful cramps, especially in the legs</td>
<td>Move to a cool place and rest, remove excess clothing</td>
</tr>
<tr>
<td></td>
<td>• Flushed</td>
<td>Place cool cloths on skin and fan skin.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Give cool drinks containing salt and sugar.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Swoosh crampet muscles slowly and gently.</td>
</tr>
<tr>
<td>Heat Exhaustion</td>
<td>• Muscle cramps, Thirst, Pale, Most skin</td>
<td>Move to a cool place and rest, remove excess clothing</td>
</tr>
<tr>
<td></td>
<td>• Usually fever over 102°F, Nausea, Vomiting, Diarrhea</td>
<td>Place cool cloths on skin and fan skin.</td>
</tr>
<tr>
<td></td>
<td>• Headache, Fatigue, Weakness, Anxiety, Delirium</td>
<td>Give cool drinks containing salt and sugar.</td>
</tr>
<tr>
<td></td>
<td>• Light-headedness and faint feeling</td>
<td>If no improvement or unable to take fluids, take person to an emergency health department immediately. If (anterior) fluids may be needed.</td>
</tr>
<tr>
<td>Heat Syncope</td>
<td>• Fainting (Short duration)</td>
<td>Slop lie down in a cool place.</td>
</tr>
<tr>
<td></td>
<td>• Dizziness, Light-headedness</td>
<td>Slowly drink water, clear juice, or a cool drinks.</td>
</tr>
<tr>
<td>Heat Stroke</td>
<td>• High body temperature (above 104°F)</td>
<td>Move to a cool place and rest.</td>
</tr>
<tr>
<td></td>
<td>• Hot, red, dry or moist skin</td>
<td>Heat stroke is a life threatening medical emergency and needs to be treated by a doctor.</td>
</tr>
<tr>
<td></td>
<td>• Rapid and weak pulse</td>
<td>Remove excess clothing and drench skin with cool water</td>
</tr>
<tr>
<td></td>
<td>• Possible unconsciousness</td>
<td>Place ice bags on the head, armpits and groin areas.</td>
</tr>
<tr>
<td></td>
<td>• Loss of appetite</td>
<td>Offer cool fluids if alert and able to drink.</td>
</tr>
<tr>
<td></td>
<td>• Nausea, Vomiting</td>
<td>In Emergency Health Department: Evaporative cooling</td>
</tr>
<tr>
<td></td>
<td>• Headache, Fatigue, Confusion</td>
<td>Monitor temperature and blood chemistries</td>
</tr>
<tr>
<td></td>
<td>• Agitation, Delirium</td>
<td>Neurotics for seizures</td>
</tr>
<tr>
<td></td>
<td>• Coma, and death are possible</td>
<td>Sivoo thermometer if needed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Stay cooled at rectal temperature at 100.4°F</td>
</tr>
</tbody>
</table>
राजस्थान क्लाइमेट चेंज प्रोजेक्ट
हीट एक्शन डायलॉग

घरों की छत पर सफेद रंग पेंट द्वारा या चूने से करें

ठंडक प्रदान करने वाले पेय पदार्थ का सेवन करें

हल्के/सफेद रंग तथा दौले कपड़े पहनें

प्यास की इच्छा न होने पर भी बार-बार पानी पीना चाहिये

अधिक परिश्रम के बीच में आराम भी करें एवं सिर पर गिला कपड़ा रखें

लू-तापघात से बचाव के उपाय

एकता पर श्रम के बीच में आराम भी करें एवं सिर पर गिला कपड़ा रखें

लू-तापघात से बचाव के उपाय

एकता पर श्रम के बीच में आराम भी करें एवं सिर पर गिला कपड़ा रखें

लू-तापघात से बचाव के उपाय
Annex B: Capacity Building and Sensitization of Health Professionals

India’s First Rural Climate Resilience Heat Action Plan
Annex C: Capacity Building of School Teachers and Awareness Activities in Schools
Annex D: Heat Awareness Day

India’s first Heat Awareness Day, 5th May, 2017: Rishabhdeo block, Udaipur, Rajasthan

India’s First Rural Climate Resilience Heat Action Plan
उदयपुर में बनेगा देश का प्रथम हीट एक्शन प्लान

जलवायु परिवर्तन की नीतियां बनाने उदयपुर और अर्थव्यवस्था क्षेत्र का चयन

मृसमी परिवर्तन से होने वाली बीमारियों पर होगा काम

उदयपुर नहीं की एक उच्च रूप से प्रभावी बीमारियों का प्रबंधन बनाए जाएगा जहाँ प्रोजेक्ट के निरीक्षण के लिए उपयोगिता की गई है। इस प्रोजेक्ट के अन्तर्गत भारत के प्रमुख राज्यों के लिए बीमारियों का प्रबंधन की जाएगी।

जलवायु परिवर्तन की नीतियां बनाने उदयपुर और अर्थव्यवस्था क्षेत्र का चयन

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गर्मी से राहत दिलाने उदयपुर में पहला हीट एक्शन प्लान बनेगा

• जलवायु परिवर्तन की नीतियां बनाने उदयपुर और अर्थव्यवस्था क्षेत्र का चयन

निःशुल्क पत्रिका epaper.patrika.com

Fri, 14 April 2017
सांभार एवं चितलवाना में देश का प्रथम ब्लॉक स्तरीय टीम एक्शन फ्लान

पहले लू-टाप्यात जागरूकता दिवस की तैयारी

उदयपुर: राजस्थान कलाइमेट चेंज प्रोजेक्ट के अन्तर्गत जिले के जलवायु बदलाव ब्लॉक में भारत का प्रथम लू-टाप्यात जागरूकता दिवस मनाया जाएगा। इसके माध्यम से जलवायु बदलाव के स्कूली छात्र आमजन में लू-टाप्यात के बचाव के उम्मीदों, लक्षणों एवं प्राथमिक उपचार के लिए जागरूकता बढ़ाने के लिए रेली निकालेंगे। प्रोजेक्ट के मुख्य अधिकारी व. महावीर गोलिच्छा से बताया कि जलवायु परिवर्तन के कारण तापमान बढ़ने भी है, जिसके फलस्वरूप लू-टाप्यात से संबंधित रोग भी बढ़ रहे हैं। लू-टाप्यात का उपचार समय पर न होता तो यह जलनेला हो सकता है। लोगों में जागरूकता की बढ़ावा होगी राजस्थान कलाइमेट चेंज प्रोजेक्ट का मुख्य उद्देश्य भी है। भारत में पहली बार इस प्रकार का आयोजन होगा। जिसने कलेक्टर ने आमजन से इस आयोजन में अभिभावक धारीयों का आह्वान किया है। आयोजन राजस्थान कलाइमेट चेंज प्रोजेक्ट अपना प्रबंधन एवं सहायता दिभाग, राजस्थान अधिनियम नियमित बोर्ड, यूनिसेफ, राजस्थान एवं भारतीय सदृश रूढ़ि संस्थान गंधनगर की ओर से जिला प्रशासन के सहयोग से किया जा रहा है।

पत्रिका

India's First Rural Climate Resilience Heat Action Plan
लू से बचने के लिए किया जागरूक

सांस्कृतिक राजस्थान बुकम्पा प्रोजेक्ट के महत्त्व के कई वर्ष में शनिवार के बच्चों को हीट एक्शन शैन के बारे में जानकारी दी गई।

इस दौरान अर्थात, मध्य प्रदेश के विभिन्न इलाकों में बुकम्पा प्रोजेक्ट के मुख्य अधिकारी बुकम्पा प्रोजेक्ट चेयरमैन डॉ. महावीर गुरूलैज और उपराष्ट्रपति तालाब से नजरबुझार केसरी ने गम्मा के मौसम में लू-प्रभाव से सावधान करते हैं। उन्होंने यह निर्देश दिया कि गर्मी के मौसम में बच्चों को बच्चों की जानकारी देने के लिए सही शरीर से अलग रखना चाहिए।

जलाल के सांचे-जिला वाला का हीट एक्शन प्लान नहूँ

जिला कॉलेक्टर ने किया बैनर का विमोचन

बाल नजर अधिकार

राजस्थान क्षेत्र के अन्तर्गत जलाल के सांचे-जिला वाला का हीट एक्शन प्लान जीवन के सांचे-जिला वाला का हीट एक्शन प्लान जीवन के सांचे-जिला वाला का हीट एक्शन प्लान जीवन के सांचे-जिला वाला का हीट एक्शन प्लान जीवन के सांचे-जिला वाला का हीट एक्शन प्लान जीवन के सांचे-जिला वाला का हीट एक्शन प्लान जीवन के सांचे-जिला वाला का हीट एक्शन प्लान जीवन के सांचे-जिला वाला का हीट एक्शन प्लान जीवन के सांचे-जिला वाला का हीट एक्शन प्लान जीवन के सांचे-जिला वाला का हीट एक्शन प्लान जीवन के सांचे-जिला वाला का हीट एक्शन प्लान जीवन के सांचे-जिला वाला का हीट एक्शन प्लान जीवन के सांचे-जिला वाला का हीट एक्शन प्लान जीवन के सांचे-जिला वाला का हीट एक्शन प्लान जीवन के सांचे-जिला वाला का हीट एक्शन प्लान जीवन के सांचे-जिला वाला का हीट एक्शन प्लान जीवन के सांचे-जिला वाला का हीट एक्शन प्लान जीवन के सांचे-जिला वाला का हीट एक्शन प्लान जीवन के सांचे-जिला वाला का हीट एक्शन प्लान जीवन के सांचे-जिला वाला का हीट एक्शन प्लान जीवन के सांचे-जिला वाला का हीट एक्शन प्लान जीवन के सांचे-जिला वाला का हीट एक्शन प्लान जीवन के सांचे-जिला वाला का हीट एक्शन प्लान जीवन के सांचे-जिला वाला का हीट एक्शन प्लान जीवन के सांचे-जिला वाला का हीट एक्शन प्लान जीवन के सांचे-जिला वाला का हीट एक्शन प्लान जीवन के सांचे-जिला वाला का हीट एक्शन प्लान जीवन के सांचे-जिला वाला का हीट एक्शन प्लान जीवन के सांचे-जिला वाला का हीट एक्शन प्लान जीवन के सांचे-जिला वाला का हीट एक्शन प्लान जीवन के सांचे-जिला वाला का हीट एक्शन प्लान जीवन के सांचे-जिला वाला का हीट एक्शन प्लान जीवन के सांचे-जिला वाला का हीट एक्शन प्लान जीवन के सांचे-जिला वाला का हीट एक्शन प्लान जीवन के सांचे-जिला वाला का हीट एक्शन प्लान जीवन के सांचे-जिला वाला का हीट एक्शन प्लान
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