Department of Revenue

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Notification

1/15/2/2018-RD

The Government of Goa is pleased to notify the **Goa Heatwave Action Plan 2024 –Prevention and Mitigation of Impacts** of Heatwave in the State.

1. Introduction:

India has a very diverse climate from continental to coastal, from extremes of heat to extremes of cold, from extreme aridity and negligible rainfall to excessive humidity and torrential rainfall. Nearly two-thirds of the countries annual precipitation is received through the South West Monsoon in the months of June to September in most parts of the country.

Extreme heat can lead to dangerous, even deadly, health consequences, including heat stress and heat stroke. Impact of rising temperatures and increasing frequency, duration and intensity of hot spells poses challenge to human safety and sustainability. This unusual and uncomfortable hot weather can impact human and animal health. Heat wave is also called a "silent disaster" as it develops slowly and kills and injures humans and animals. Higher daily peak temperatures of longer duration and more intense heat waves are becoming increasingly frequent globally due to climate change.

1.1 Paris Climate Conference – 2015 (COP 21) on Climate Change Action and Disaster Risk Reduction:

The COP 21 or the Paris Climate Conference led to a new international climate agreement, applicable to all countries, aiming to keep global warming below 2°C, in accordance with the recommendations of the Intergovernmental Panel on Climate Change (IPCC).

COP 21 aims to build climate resilience on building resilience through risk-sensitive planning and implementation of the Sendai Framework for Disaster Risk Reduction (DRR) 2015-2030, on the need for a more integrated approach to adaptation, sustainable development, environmental management and DRR, and on the need to improve data on disaster losses by building on, expanding, and strengthening existing national disaster loss databases and risk analysis. There is significant convergence between the problems that disaster risk reduction and climate change adaptation seek to address. The regions already exposed to climate related hazards and effects will be at greater risk due to a projected increase in the frequency and or intensity of those hazards and effects because of global climate change.

1.2 Major Goals Adopted in the Climate Agreement:

The major goals adopted in the agreement:

i. A consensus on adopting the long-term goal of keeping the increase in global average temperature to well below 2°C above pre-industrial levels.

ii. Aim to limit the increase to 1.5°C, since this would significantly reduce risks and the impacts of climate change.

iii. Accepting the need for global emissions to peak as soon as possible, recognizing that this will take longer for developing countries and

iv. To undertake rapid reduction of emissions in accordance with the best available science.

1.3 Goa: Geography and Profile:

The State of Goa, located between 140 53'57" N and 150 47'59"N Latitudes and 730 40'54" E and 740 53'11" E Longitudes. It covers an area of 3702 sq. km. and accounts for about one percent of the total geographical area of the country. Goa was elevated to the status of the 25th State of India Union on 30th May, 1987. The boundaries of the State are well defined in the North

by Terekhol River which separates it from the State of Maharashtra. Western Ghats are protecting the State in the East and is bordered with the State of Karnataka and in the West, it is surrounded by the Arabian Sea.

The State consists of 2 Administrative Districts i.e. North Goa and South Goa, which are further divided into 12 Talukas viz. Pernem, Bardez, Bicholim, Sattari, Tiswadi, Ponda, Mormugao, Salcette, Sanguem, Dharbandora, Quepem, and Canacona. After attaining Statehood, the number of towns in the State increased from 15 to 70 and the number of villages has decreased from 407 to 334. The State has 14 Municipalities, 320 inhabited villages. The above is indicative of increasing urbanization in Goa and decreasing rural population. Generally speaking, the rural areas of Goa exhibit semi-urban characteristic.

Goa's mean annual temperature has increased by over 1°C since the beginning of the 20th century till date (1901-2018), much of it during 1990-2018 period. The mean annual rainfall in Goa has increased by 68% over the period 1901-2015. With increasing rainfall, the inter-annual rainfall variability in the State has also increased especially since 1970s. While mean annual rainfall in the State has increased, moderate to light rainfall days (IMD category I) in Goa have declined over 1901-2015 period, whereas very heavy and exceptionally heavy rainfall events (IMD category III) in the state have increased by a dramatic more than 100%.

1.4 Heat Waves in India:

Increased mortality due to increasing heat waves is predicted to be a major burden on health due to climate change. The rising maximum temperature during the pre-monsoon months continues till June. In recent years, morbidity and mortality due to heat wave have increased. Abnormally high temperatures were observed during April–June during 2008 to 2021 across the country. With heat wave conditions affecting regions across India, 6,848 heat-related deaths were reported between 2008 and 2021. The year 2015 reported the most fatalities 2,081. Heat wave also caused death of wildlife, birds, poultry in states and most of the zoos in India.

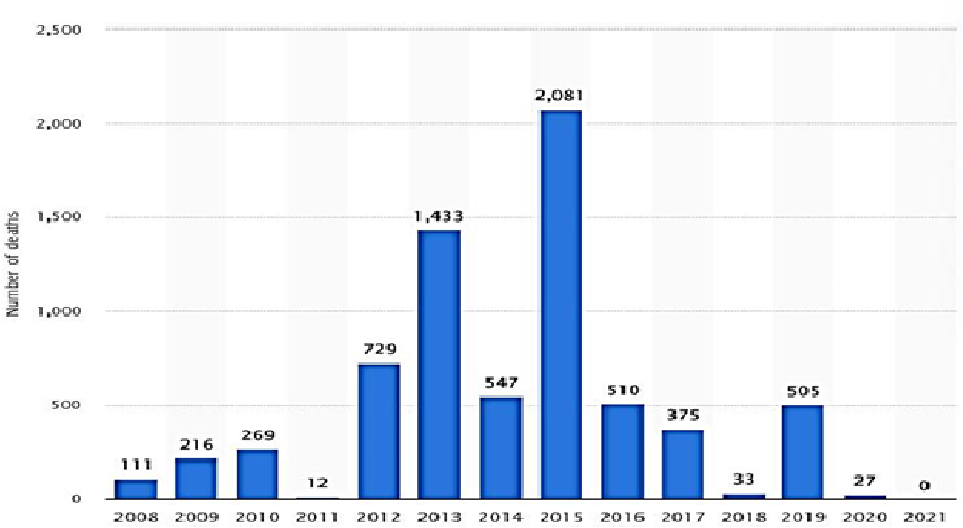


Figure 01: Number of deaths due to heat waves across India from 2008 to 2021

(Source: www.statista.com)

In 2021, no deaths were caused due to heat waves in India[1]. This was a significant decrease from the previous year's number of 27 deaths.

[1] **Number of deaths due to heat waves across India from 2008 to 2021 www.statista.com**

1.5 Heat Waves in Goa:

Mean annual temperatures in Goa may increase by around 2°C in 2030s compared to 1901-1950 period, and further to by around 4°C by 2080s under high emission scenarios. Goa will start experiencing heat waves (>40C) beyond the 2040s', as maximum temperat ure increases by about 5°C towards the century end under high emission scenarios. Minimum temperatures are expected to rise even more by up to 8°C by the century end under the high emission scenarios.

Figure 02 shows the mean annual temperature map of Goa over the long-term period of 1951-2014. Mean temperature in Goa is found to be 26.70°C, which is higher than the national average annual temperature i.e. 23.3°C (Chaturvedi et al 2012). While spatial temperature variability is not high in Goa, hilly areas in the Eastern parts of the State are generally cooler than the coastal areas in the West.

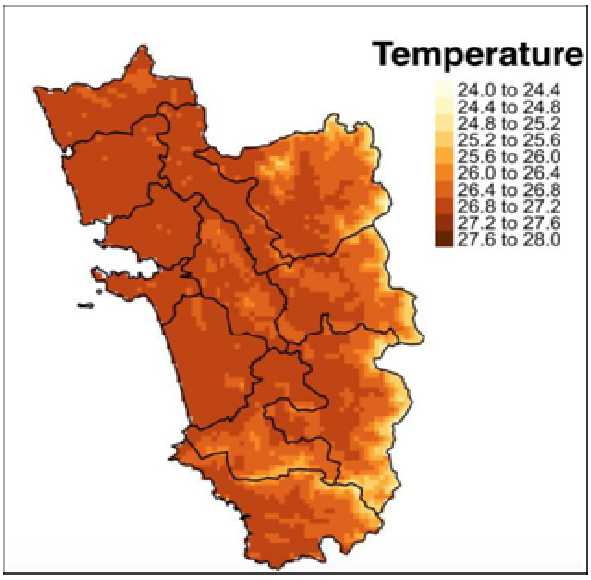


Figure 02: Long period average (1951-2014) spatial distribution of mean temperature (°C) in Goa

Goa experiences a hot summer (April-June) followed by pleasant monsoon (June September) season, temperatures temporarily rise again in the month of October, following pleasant winter months (November to March). Figure 11 shows the mean monthly temperature profile in the Goa, based on the long-period mean temperature average over the period 1951-2014.[2]

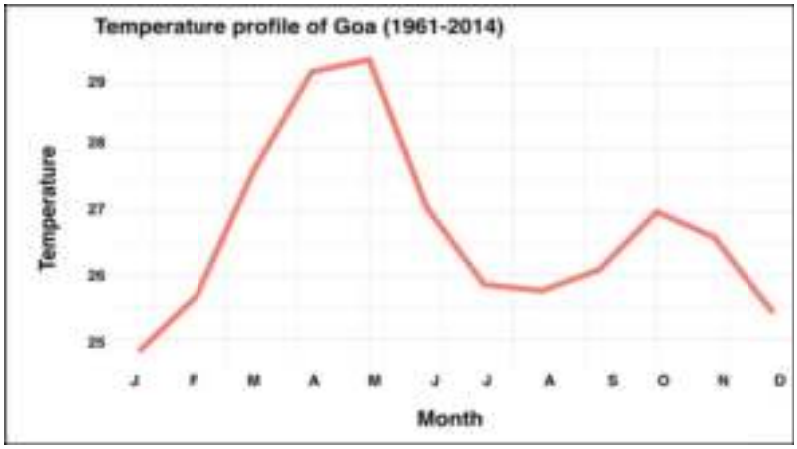


Figure 03: Long-period average (1951-2014) annual temperature profile in Goa

[2] **State Action Plan on Climate Change for The State of Goa for Period of 2020-2030.**

1.6 FINDINGS OF THE REPORT JOINTLY PREPARED BY INDIA METEOROLOGICAL DEPARTMENT AND GOVERNMENT OF GOA:

The Goa State averaged annual mean land surface air temperature (27.130°C) during 2022 was 0.30°C warmer than its Long Period Average (LPA) for the period 1981-2010 thus making it the 15th warmest year on record for the State since 1901. The annual maximum temperature averaged over the State during the year 2022 was 0.40°C above its LPA, while annual minimum temperature was warmer by +0.10°C.

Temperature

The monthly, seasonal and annual maximum, minimum and mean temperature anomalies averaged over the State of Goa for the year 2022 is given in the **Fig. 04.** The anomalies were computed based on the LPA for the period 1981-2010. Top 10 warmest/coolest months/seasons are marked on the graph. It may be mentioned that the Pre-monsoon season (March to May) as a whole was relatively warmer for the State. The annual maximum temperature averaged over the State during the year 2022 was warmer than average by 0.4°C, while annual minimum temperature was relatively lesswarm with anomaly 0.1°C. The mean temperature for the State was +0.3°C

warmer than the average (15th warmest year on record since 1901).

Fig. 04: Monthly and Seasonal Maximum, Minimum and Mean Temperature anomalies averaged over Goa during 2022.The anomalies were computed from the LPA base period of 1981-2010.

The numbers above/below the bar indicate top 10 warmest/coolest ranking since 1901.

The Spatial pattern of Annual Maximum, Minimum and Mean Temperature anomalies over Goa during 2022 is given in **Fig 05.** The temperature anomalies were within 0 to 0.5°C for most parts of the State. However, in respect of maximum temperature, the southern parts of Goa were warmer by 0.5°C to 1°C.

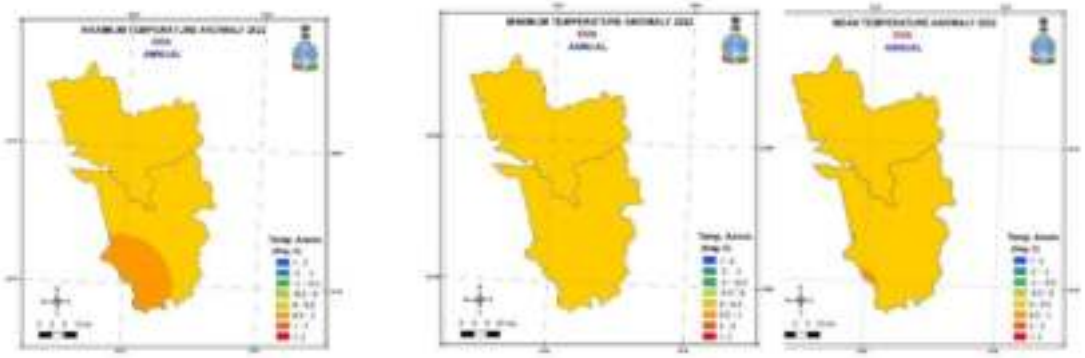


Fig. 05: Spatial pattern of Annual Maximum, Minimum, and Mean Temperature anomalies over Goa during 2022. The anomalies were computed from LPA for the base period of 1981-2010.

The time series of variation of annual maximum, minimum and mean land surface air temperature anomalies averaged over the State for the period 1901-2022 is given in **Fig 06**. A significant increasing trend of 1.44°C/100 years is observed in the State averaged annual mean temperature during 1901-2022. It was more significant in respect of maximum temperature (+2.37°C/100 years) and relatively less significant (+0.51°C/100 years) in respect of minimum temperature. The five warmest years on record in order for Goa are 2015 (+0.815°C), 2017 (+0.614°C), 2021 (+0.571°C), 2020 (+0.565°C) and 2009 (+0.547°C).

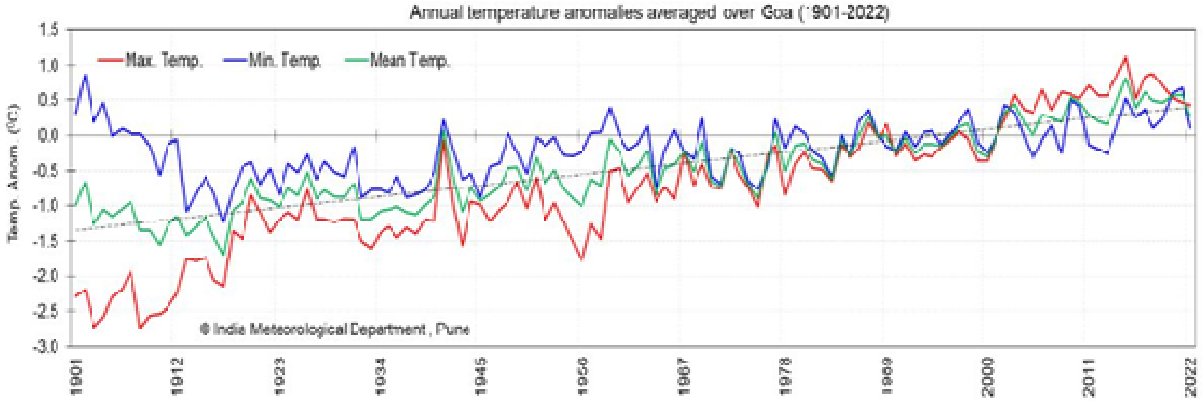


Fig. 06: Annual maximum, minimum and mean land surface air temperature anomalies averaged over the State of Goa for the period 1901-2022.The anomalies were computed with respect to the base period of 1981-2010. The dotted black line indicates the linear trend in the annual mean temperature time series.

Fig.07 (a & b) shows daily variation of minimum and maximum temperature anomaly during the year respectively. The anomalies were computed with respect to the base period of 1981-2010. State was warmer in respect of both maximum and minimum temperature during March and April months.

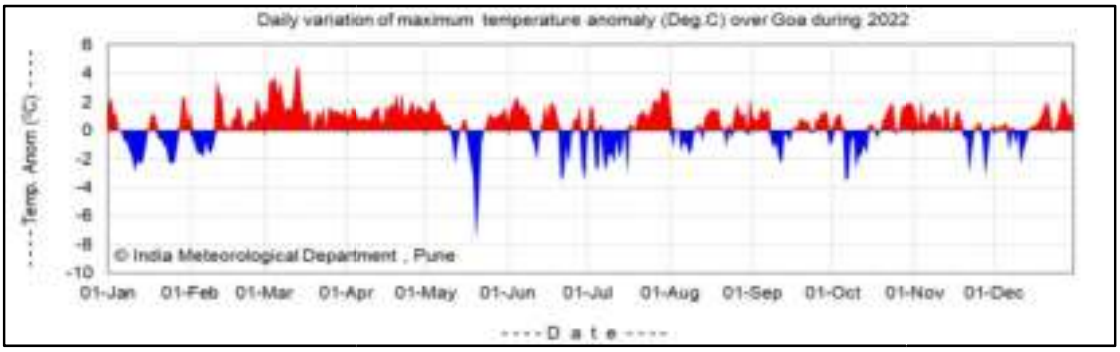


Fig. 07(a): Daily variation of minimum temperature anomaly (0C) over Goa during 2022

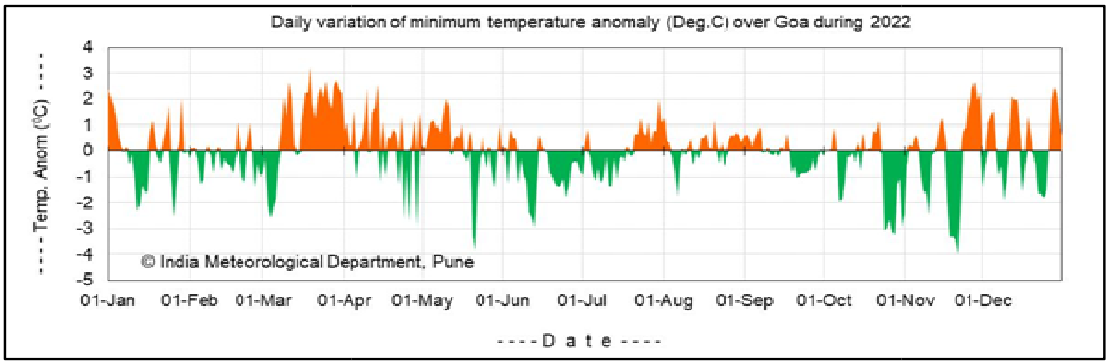


Fig.07(b): Daily variation of maximum temperature anomaly (°C) over Goa during 2022

1.7 Purpose of the Action Plan:

Goa State Action Plan: Prevention and Mitigation of Impacts of Heat Wave 2024 aims to provide a framework for the implementation, coordination and evaluation of extreme heat response activities in Goa State that reduce the negative health impacts of extreme heat. The Plan's primary objective is to alert those populati ons most at risk of heat-related illness that extreme heat conditions either exist or are imminent, and to take appropriate precautions. This plan will also lay down the role and responsibility of various departments in various alert signs. The Standard Operating Procedures have also been laid down by the Goa SDMA for the Heat Wave.

1.8 Objectives of the Action Plan:

Goa State Action Plan on Prevention and Mitigation of Impacts of Heat Wave 2024 aims to reduce extreme heat impacts on vulnerable people like Children, pregnant women and elderly people with early warning system and integrated coordination with concerned agencies.

(i) To incorporate the Prevention and Mitigation measures against Heat Illnesses.

(ii) To map potential heat island area and affected people.

(iii) To establish coordination and integration of all the concerned agencies from early warning to implementation of Action Plan.

(iv) To build a capacity of concerned professional and agencies.

(v) To make more use of adaptation and mitigation tools for reducing heat waves, and

(vi) To make Goa State more resilient against extreme heat wave.

(vii) To help the heat wave affected people in distress through proper medical aid.

(viii) Readily available of safe drinking water at all prominent places.

2. Early Warning and Communication:

Heat Wave: Heat wave is a condition of atmospheric temperature that leads to physiological stress, which sometimes may cause death.

The World Meteorological Organization defines a heat wave as five or more consecutive days during which the daily maximum temperature exceeds the average maximum temperature by five degrees Celsius. Different countries define heat wave differently in contest of their local conditions.

In India, *heat wave conditions are considered of maximum temperature of a station reaches at least 40°C or more for plains, 37°C or more for coastal areas and at least 30°C or more for hilly regions.*

As per India Meteorological Department (IMD) following criteria is used to declare a heat wave conditions in India:

a) Based on Departure from Normal:

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

b) Based on Actual Maximum Temperature:

• **Heat Wave:**	**When actual temperature ≥ 45°C**
• **Severe Heat Wave:**	**Departure from normal is ≤ 47°C.**

c) Warm Night:

It should be considered only when temperature remains **40°C** or more. It may be defined based on departure or actual minimum temperature as follows:

• **Warm Night:**	**Minimum Temperature Departure is 4.5°C to 6.4°C**
• **Very Warm Night:**	**Minimum Temperature Departure is 6.4°C**

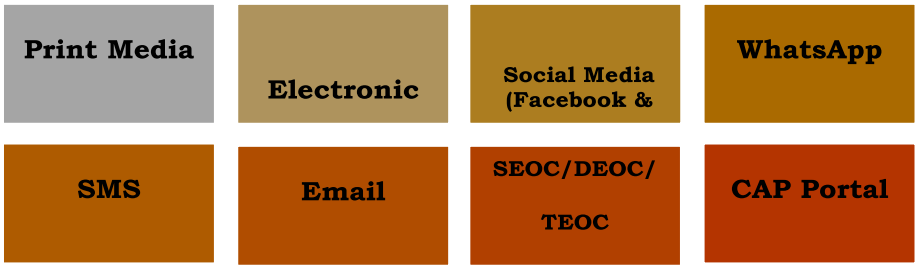


Figure 5: Different modes of dissemination of Heatwave Information

CRITERIA FOR DESCRIBING HEAT WAVE FOR COASTAL STATIONS:

When the maximum temperature departure is 4.5°C or more from normal, Heat Wave may be described provided actual maximum temperature is 37°C or more.

2.1 Declaration of Heat Wave:

To declare heat wave, the above criteria should be fulfilled for at least two stations in Meteorological sub-divisions for at least two consecutive days.

Heat wave will be declared on the second day.

As per the annual climate summary report of the India Meteorological Department (IMD), the mean temperature over India has increased at a rate of 0.63°C/100 years since the beginning of the 20th century with large positive anomalies in the last couple of decades. The increase of mean temperature during summer season (March-May) in the same period has been at a rate of 0.56°C/100 years. On an average, more than eight heat days and one to three severe heat wave days are experienced during the summer season from March to July over north and central parts of the country. Also, many of the stations in northwest India, Gangetic plains, Central India and east coast of India have experienced continued heat wave spell of more than 10 days, mostly during May and June. There has been an increasing tendency to extreme temperatures is higher along the west coast of India.

2.2 Identification of Colour Signals for Heat Alert :

India Meteorological Department (IMD) issues forecast 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.

Color Code	Alert	Impacts	Suggested activities
Green (Normal)	Normal Day	Comfortable temperature. No cautionary action required.	Normal activity
Yellow Alert (Stay updated)	Hot Day	Moderate temperature. Heat is tolerable for general public but moderate health concern for vulnerable people e.g. infants, elderly, people with chronic diseases.	(a) Avoid heat exposure. (b) Wear lightweight, light-coloured, loose, cotton clothes. (c) Cover your head.
Orange Alert (Moderate Condition)	Severe Heat Alert Day	High temperature. Increased likelihood of heat illness symptoms in people who are exposed to sun for a prolonged period or doing heavy work. High health concern for vulnerable people e.g. infants, elderly, people with chronic diseases.	(a) Avoid heat exposure- keep cool. (b) Wear lightweight, light coloured, loose cotton clothes (c) Cover your head. (d) Drink sufficient water-even if not thirsty. (e) Use ORS, homemade drinks like lassi, buttermilk etc. (f) Avoid alcohol, tea, coffee and carbonated soft drinks. (g) Take bath in normal or lukewarm water. **In case of Heatstroke:** Lay the person in a cool place, under a shade. Wipe her/him with wet cloth/wash the body frequently. Pour normal temperature water on the head. Consult doctor immediately/Call 108 or 112.
Red Alert (Severe Condition-take action)	Extreme Heat Alert for the Day	Very high likelihood of developing heat illness and heat stroke in all ages.	Along with suggested actions in orange alert extreme care needed for vulnerable people.

2.3 Health Impacts of Heat Waves:

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

Heat rash: Diffused red colour skin or vesicular rash, itching of the skin without visible eruption.

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.

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

3. DEALING WITH HEAT WAVE RELATED ILLNESS:

3.1 Prevention of Heat Related Illness:

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

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

Symptoms and First Aid for various Heat Disorders

Heat Disorders	Symptoms	First Aid
Heat Rash	Skin Redness and Pains, 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 or 112 for ambulance.
Heat Stroke (Sun)	High body temperature, dry skin, Rapid & strong pulse. Possible unconsciousness or altered mental status.	Heat stroke is a severe medical emergency. Call 108 and 102 for ambulance for emergency medical immediately. Delay can be fatal. Move victim to a cooler environment. Try spraying water, cold water on body & fan the wet body. If possible sponging or cool bath sponging to reduce body temperature. Use fans and/or air conditioners. **DO NOT GIVE FLUIDS ORALLY If the person is not conscious.**

3.2 Hospital Preparedness Measures for Managing Heat related Illness:

Director/Incharge of hospitals, CHCs, PHCs and UHCs should ensure the following measures:

- A detailed action plan to tackle Heat related illnesses well in advance of hotter months.
- Operational framework-preparing specific health adaptation plan, development of guidelines and response plan for climate sensitive diseases.
- Need for updating Heat Health Action Plan and issuing Advisory for Hospital Preparedness, Surveillance and weekly monitoring including Capacity Building.

- Promoting Strategic media coverage of climate and health, linkages at the state level in regional languages to increase support for climate mitigation and adaptation responses.
- Long term measures such as adopting cool roof, improving green forest coverage and analysing health impacts in urban planning.
- Standard Operating Procedures to tackle all levels of Heat related illnesses. Capacity Building measures for doctors, nurses and other staffs should be undertaken.
- Cases with expected heat stroke should be rapidly assessed using standard treatment protocols.
- Identify search capacities and mark the beds dedicated to heat stroke victims and enhance emergency department preparedness to handle more patients.
- Identify RRT (Rapid Response Team) to respond to any exigency call outside the hospital.
- 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 in campaigns for neighbourhood communities using different means of information dissemination.
- Primary Health Centers must refer the patients to higher facility only after ensuring adequate stabilization and basic definitive care (cooling and hydration).
- Hospitals must ensure proper networking with nearby facilities and medical Centers to share the patient load which exceed their search capacities.
- All cases of heat-related illnesses (suspected or confirmed) should be reported to IDSP (Integrated Disease Surveillance Programme) unit of the district.

3.3 Acclimatization:

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

3.4 Identification for Heat Wave related Illnesses and recordings of causalities:

It is important to undertake and objective identification of heat wave illnesses and systemically record casualties resulting from heat wave. States may form committees at the district level with members not below the rank of Assistant Civil Surgeon, Mamlatdar (Disaster Management) and Inspector of Police to enquire into deaths due to heat strokes/heat waves or correct reporting. In order to do so, the following factors need to be taken into account:

- Record maximum temperature during the particular time period and place.
- Post-mortem/medical check-up reports with causes.
- Local authority or local body enquiry/verification report.
- Cases of heat exhaustion and heat stroke should be reported.

The information regarding Heat strokes cases and deaths will be reported by Mamlatdar (Disaster Management) in format 'C'– Annexure 7.

4. Standards Operating Procedures-Heat Wave:

Sr. No.	Emergence Support Functions/ Task	Aim	Primary Department/ Agency	Secondary Department/Agency	Responsibility of
1	2	3	4	5	6
1	Formulation of Policy, Plan and Guidelines	Preparation of Heat Wave Action Plan with all the key stakeholders according to NDMA Guidelines (October'19).	• DDMAs • IMD • Health • Revenue	• Directorate of Health Services	• Officials of the respective department
2	Early Warning and Dissemination	• Establish Early Warning Systems Strengthening of Early Warning System with accurate & timely alerts. • Issue Heat Wave warnings & weather forecasts of Short/Medium/Long Range duration. • Disseminate the heat health warning, determine the threshold for action & communicate the risk. • Provide colour coded threshold values.	• IMD • GOA SDMA	• Department of Urban Development & Directorate of Municipal Administration	• Collector • Municipal Commissioner/Chief Officer • Director of Panchayats
3	Response and Relief	• Issue directives for hospital preparedness & mitigation.	• Health Department	• Department of Urban Development	• Municipal Commissioner/Chief Officer

1	2	3	4	5	6
		• Formulation of Schemes and programmes for heat health safety. • Ensuring 24x7 heat health facilities with adequate provision of basic medicines like ORS, Glucose etc. • Safety and security of public.		• Directorate of Health Services • Directorate of Panchayats	• Superintendent Medical Colleges. • Medical Officer of Health • CDHO • PHC's • CHC's • UHC's
4	Prevention and Mitigation of Health Illnesses	• Prepare Heat Wave Action Plan of Municipal Corporation and Municipalities. • Directorate of Panchayats-DoP. • AEs and JEs of Water Resources Department.	• Department of Urban Development	• Officials of Urban Health Center's (UHC's)	• Municipal Commissioner • Collector • Superintendent Medical Colleges • Medical Officer of Health • UHC's • NGO's and other voluntary organizations.
5	Public Awareness	• To broadcast relevant information regarding heat wave to public at large. • Display of Do's and Donts in public areas, hospitals, parks etc.	• Department of Information and Publicity	• IMD • Health • UDD • GOA SDMA	• Collector • Municipal Commissioner/Chief Officer

1	2	3	4	5	6
		• Display board with colour coding for heat wave alert.		• DoP	• Superintendent of Health.
6	Public Transport	• To ensure adequate supply of drinking water at bus depot and prominent places. • To ensure shelter/sheds at bus stops. • Appropriate bus timings for commuting of citizens. • Enable better emergency transport system for affected people to health care facilities with adequate equipment. • Protection of roads from melting and take precautionary measures.	• Transport Department • Department of Urban Development • Directorate of Panchayats	• Department of Water Resources • Municipalities/ Panchayats	• Directorate of Transport • Municipal Commissioner/Chief Officer • Director/BDO
7	Supply of Safe Drinking Water	• To ensure the availability of drinking water. • To ensure water supply in the State, Municipal Corporations, Districts, Taluka and villages.	• Water Resources Department	• Chief Engineer/ Superintending Engineer of the District • AEs and JEs of Water Resources Department.	• Collector • Municipal Commissioner/Chief Officer • Director of Panchayats • BDO

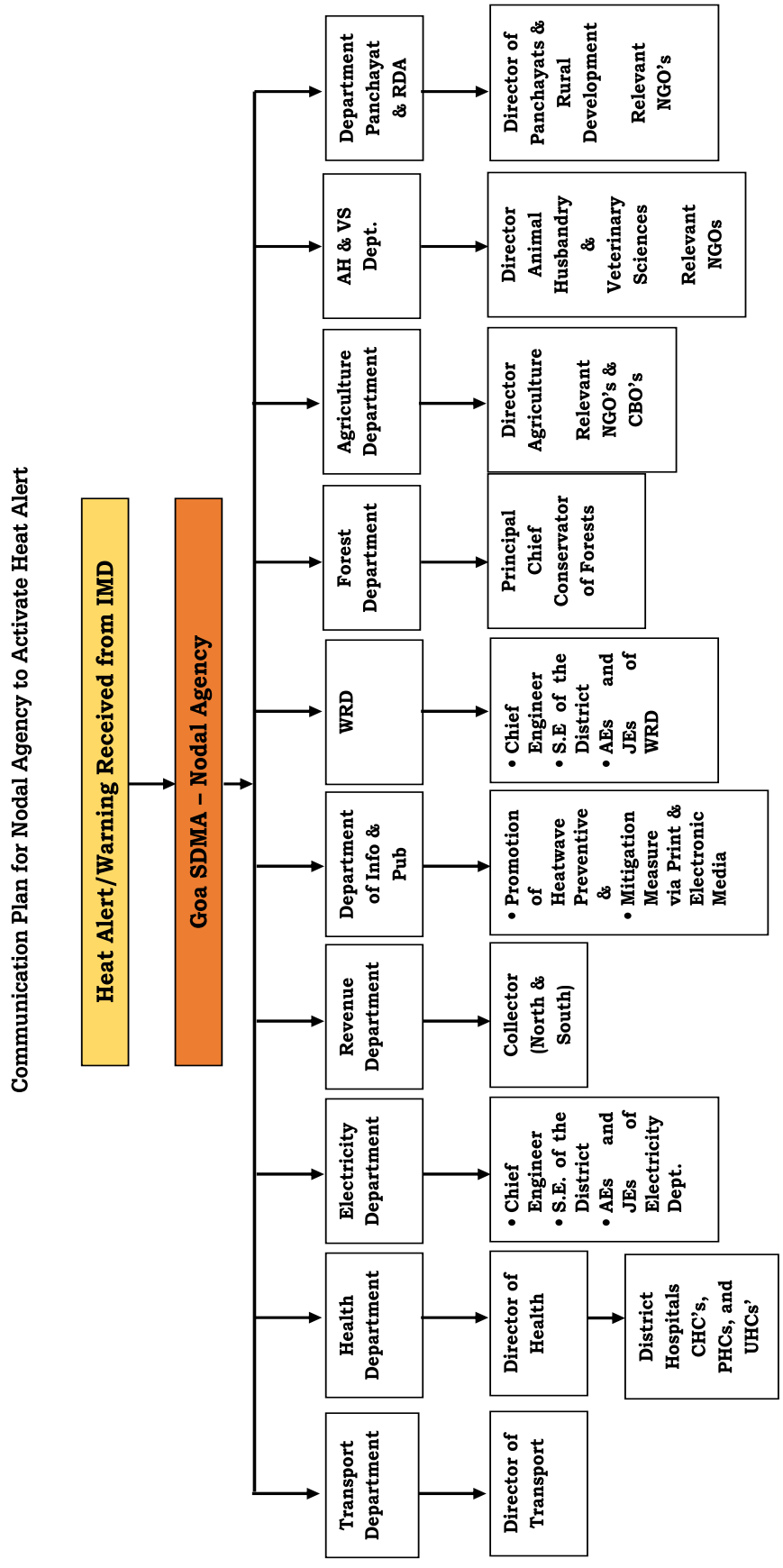
1	2	3	4	5	6
8	To ensure uninterrupted power supply	• To ensure repair and maintenance work for uninterrupted power supply before and during the summer. • Rescheduling of load shedding.	• Electricity Department	• Chief Engineer/ Superintending Engineer of the District • AEs and JEs of Electricity Department	• Collector • Municipal Commissioner/Chief Officer • Director of Panchayats
9	Safety and Security of Women & Children	• To ensure safety and security of children (below 5 years) in Anganwadis. • To ensure safety & security of pregnant women.	• WCD • Health	• Director W & CD • Directorate of Health • Department of Urban Development • Directorate of Panchayats	• Nodal Officer of Municipal Corporation • BDO • Functionaries of WCD/Health Department at District, Taluka and Village including Anganwadis.
10	Safety and Security of Students	• To ensure safety and security of children. • To ensure availability of safe drinking water in schools (Primary, Secondary, Higher Education, Colleges and Universities). • Rescheduling of school timings and vacations as per heat wave situation.	• Education Department	• Higher and Technical Education • Directorate of School Education	• University heads • Principals of Colleges • DEO • Principals of Primary, Secondary & Higher Secondary Education

1	2	3	4	5	6
		• To ensure that students avoid outdoor physical activities during summers in schools.			
11	Protection of Gardens & Zoos	• To ensure animal protection in zoos. • To ensure gardens are safe and secure. • Adequate amount of drinking water in gardens/ parks/zoos.	• Forest Department • Department of Animal Husbandry and Veterinary Services	• Department of Urban Development • Directorate of Panchayats	• Collector • Municipal Commissioner/Chief Officer • Director of Panchayats • BDOs • Range Forest Officers
12	Protection of Animals and Wildlife	• To ensure safe shelter for livestock and animals. • Availability of adequate amount of water and fodder. • To ensure prepositioning of adequate veterinary medicine and supplies.	• Forest Department • Department of Animal Husbandry and Veterinary Services • Revenue Department • Department of Animal Husbandry & Veterinary Sciences	• PCCF (Wildlife) • Director of Agriculture • Director of Animal Husbandry & Veterinary Sciences • Relevant NGOs	• Forest Department • Department of Animal Husbandry and Veterinary Services • District Agricultural Officer • Veterinary Officer & Veterinary Assistant

1	2	3	4	5	6
13	Safety and Security of Labourers	• To ensure safety & security of labour force in the industrial establishment. • Rescheduling of working hours for employees. • To ensure drinking water facilities at work places. • To provide emergency ice packs and heat illness prevention materials to construction workers.	• Labour and Employment Department	• Health Department	• Directorate of Industries
14	Safety and security of labourers at Village level	• To ensure safety and security of all labourers under MGNREGA. • To ensure safety and security of all labourers under schemes of Rural Development and Panchayat Raj.	• Director of Panchayat, Rural Housing and Rural Development Agency	• Director of Panchayat, Rural Housing and Rural Development Agency	• BDO • Sarpanch
15	Safety and security of Old age persons, Orphanages and persons with disability	• To ensure the safety and security of people living in old age home and orphanage homes. • To ensure proper care of person with disability.	• Provedoria	• Director of Social Welfare • Provedoria	• Functionaries at district, taluka and village level.
16	Prevention of Fire	• To ensure prevention and mitigation of Fire.	• Directorate of Fire and	• Director (DFES)	• Municipal Commissioner

1	2	3	4	5	6
		• Availability of adequate amount of water for fire fighting.	Emergency Services	• Chief Fire Officer • Fire services of Municipal Corporations • Department of Urban Development • Directorate of Panchayats	• Collector • Municipal Commissioner/Chief Officer • Director of Panchayats • BDOs
17	Capacity Building, Training and IEC	• Co-ordination with different departments for capacity building activity. • Develop training modules and conduct proper training programme for different stakeholders. • Preparation of Capacity Building Programme & Implementation.	• GOA SDMA • GIPARD	• NDMA • NIDM • IMD • UDD • Dept. of Health • Water Resources Dept. • WCD • Education • Transport • Animal Husbandry & Veterinary Sciences • Agriculture	• Heads of respective departments/ Agencies

Communication Plan for Nodal Agency to Activate Heat Alert



4.1 Roles and Responsibility

Responsibilities of various departments at State, District, Taluka and village level for Goa State Action Plan for Prevention and Mitigation of impacts of Heat Wave are as below.

State Level

1. Revenue Department/GOA SDMA:

- **Constitute a Goa State Action Plan: Prevention and Mitigation of Impacts of Heat Wave Committee**, with Secretary Revenue/Member Secretary SDMA as Chairperson and Nodal Officer as Member Secretary, representatives of all departments to be members of this committee.
- The Committee should meet at-least **3 times** in year, once in **pre-heat**, **during-heat** and **post-heat season**.
- Ensure that Health Department monitors all-causes of death and all hospital admission cases during heat wave season.
- Establish heat mortality tracking system and update datasets.
- Create list of heat vulnerable areas in each district.
- Designate point of contact for each department for heat wave.
- Re-engage key agencies to facilitate communications and schedule monthly meetings.
- Review preparedness instructions given to all concerned departments for the heat wave season.

During Heat Season (April to June)

- To issue necessary instructions regarding strict adherence of the plan.
- To ensure mid-course correction.
- To deploy monitors/supervisors to concurrent monitoring and feedback.
- Activate **Heat alert** and local response in each department by notifying the key leaders in accordance with the communication plan.
- Activate cooling centers/shaded areas with each department such as temples, public buildings, malls during **Heat alert**.
- Hold a frequent conference call to discuss report and breaking development during heat alert and ensure that the communication channels remain operational.
- Instruct water department or local municipal department to ensure availability of staff and clean drinking water during **Heat alert**.
- To monitor the implementation of the Goa State Action Plan: Prevention and mitigation of Impacts of Heat Wave.

Post Heat Season (July to September)

- Review quantitative and qualitative data for process evaluation and improvements.
- Call meeting for annual evaluation of heat plan with key agency leaders and community partners.
- To fine-tune the heat action plan based on the experience of various stake-holders.

2. Meteorological Centre Panaji (IMD):

Pre-Heat Season (January to March)

- Issue prior warnings with details of temperature at State and District level.

During Heat Season (April to June)

- Provide daily/weekly forecasts.
- Communicate Heat wave alerts/warnings promptly.
- Update heat wave details regularly in their website.
- Determine threshold district wise e.g. Percentile method.

Post-Heat Season (July to September)

- Provide season report containing duration of Heat wave and location-wise maximum temperatures.
- Participate in annual evaluation of heat action plan.

3. Health Department:

Pre-Heat Season (January to March)

- Check inventories of medical supplies in health ward.
- Identify areas that are vulnerable.
- Identify cooling ward and barriers to access cooling ward.
- Community involvement for workers and trainers' edu cation.
- Instruct hospitals PHCs, CHCs and UHCs to get additional hospitals and ambulances ready.
- Update surveillance protocols and programs, including to track daily heat-related data (morbidity, mortality, all heat related causes).
- Arrange awareness training workshops for medical officers and paramedics.

During Heat Season (April to June)

- Display heat-related illness prevention tips and how to stay cool around hospitals PHCs and UHCs.
- Distribute "Do's and Don'ts" to equip community hos pitals with additional materials.
- Keep emergency cooling ward ready.
- Keep stock of small reusable ice packs.
- Report heat stroke patients daily.
- Keep adequate stocks and ensure availability of medical supplies like ORS in all hospitals/PHCS/UHCs, hospitals.

Post-Heat Season (July to September)

- Incorporate data and findings into future versions of the Heat Action Plan.
- Participate in annual evaluation of Heat Action Plan.
- Review revised Heat Action Plan.

4. 112 Emergency Service:

Pre-Heat Season (January to March)

- Prepare handouts for paramedics about heat illness.
- Create displays on ambulances to build public awareness during local events.
- Identify at-risk areas of vulnerable population, by utilizing the list of high risk areas.

During Heat Season (April to June)

- Ensure adequate supply of ice packs and IV fluids.
- Disseminate SMS text message to warn local residents during a heat alert.

Post-Heat Season (July to September)

- Provide data to key agency leaders.
- Participate in annual evaluation of heat action plan.

5. **Department of Urban Development, Directorate of Municipal Administration & Directorate of Panchayats:**

Pre-Heat Season (January to March)

- Mandating installation of cool roofs in new or modified government buildings, educational/healthcare.
- Allocate funds for implementation (Govt. buildings).
- Conduct Cool roof and cool building awareness and training workshop.
- Create awareness among vulnerable community and residence on cool roof benefits.

During Heat Season (April to June)

- Oversee implementation.

Post-Heat Season (July to September)

- Undertake impact evaluations.

6. **Department of Labour:**

Pre-Heat Season (January to March)

- Arrange training workshop on heat illness diagnosis and management for factory medical officers and general practitioners.
- Awareness activities for construction workers, factory labourers, manual labourers and workers whose occupations require intensive work outdoors during extreme heat about the risks, signs and symptoms of heat stress.
- Generate list of factory medical officers and contractors to include in heat action communications from Nodal Officer.
- Communicate directly about heat season with non-factory workers.
- Utilize maps of construction sites to identify more high-risk outdoor workers.
- Conduct publicity campaigns during high-risk days in identified high-risk areas.

During Heat Season (April to June)

- Guidelines for workers to protect from heat exposure and provision of First Aid, drinking water and cooling space at work site.
- Advisory for a cool room at factory facilities for emergency.
- Issue directives for flexible working hours to restrict heat exposure for e.g. extended afternoon break or alternate working hours for workers.
- Ensure health centers/dispensary are open during peak summer hours.

- Ensure overseeing construction sites, quarries, factories and other vulnerable worksites, particularly during high heat season, to enforce labour laws related to heat safety.

Post-Heat Season (July to September)

- Participate in annual evaluation of heat action plan.

7. Transport Department:

Pre-Heat Season (January to March)

- Explain importance of proper shade, availability of drinking water and other facilities for transport officers.
- Incorporate cool roof (applying reflection paint on roof) in bus stand or public waiting area.
- Distribute pamphlets/posters on heat related illness prevention; Do's and don'ts for display & further distribution to passengers at Bus stations, bus shelters, cab and auto stands etc.
- Ensure availability of ORS and Cool drinking water.

During Heat Season (April to June)

- Display heat warning at bus stations, bus shelters, cab or auto stands.
- Display posters & distribute pamphlets on prevention of heat related illness.
- Ensure availability of shade, drinking water, ORS for passengers.
- Operate more AC buses during peak hours (12 noon-4.00 p.m.) when heat wave is declared.

Post-Heat Season (July to September)

- Review implementation and effectiveness of plan.
- Obtain and give feedback for further improvement of plan.

8. Konkan Railways:

Pre-Heat Season (January to March)

- Display posters & distribute pamphlets on prevention of heat related illness.
- Use white refractory paints or other cool roof techniques on rail/metro roof.
- Explain importance of proper shade, availability of drinking water and other facilities.

During Heat Season (April to June)

- Ensure availability of shade, drinking water, ORS etc. for staff and visitors.
- Display of Heat alert with Do's and Don'ts.

Post-Heat Season (July to September)

- Obtain feedback for further improvement of plan.

9. Education Department:

Pre-Heat Season (January to March)

- Review plan with Education Department officials (School/Colleges, etc.)

- Arrange awareness classes and mock drills on heat wave related illness/sunstrokes for teachers, students and other staff.
- Explain importance of proper shade, cool roof, availability of clean drinking water, ORS and other facilities for students, teachers and other staff.
- Distribute pamphlets/posters on heat related illness prevention; Do's and Don'ts for display & further distribution to students in Schools & Colleges.
- Ensure availability of ceiling fans in class rooms for students and teachers.

During Heat Season (April to June)

- Display posters & distribute pamphlets on prevention of heat related illness in Schools and Colleges.
- No open-air classes to be conducted when heat wave is declared.
- Ensure school buses are parked in sheds, sprinkle water on the roof of the buses, before commuting.
- Restriction of school timing (6.00 a.m. to 11.00 a.m.) during heat season.
- Scheduling of examinations before starting of Heat period normally.

Post-Heat Season (July to September)

- Review implementation and effectiveness of Plan.
- Obtain and give feedback for further improvement of Plan.

10. Women and Child Development Department:

Pre-Heat Season (January to March)

- Setting up of nutritional resource centers at Anganwadi centers to supplement nutritional deficiency in children.
- Pre heat wave season, necessary precautionary methods such as provision of proper stock of ORS, buttermilk and other rehydration methods may be arranged well in advance as the heatwave extends for about 17-45 days.
- To create a surveillance mechanism on tracking children, lactating mothers and women through ICDS and Anganwadi centers in the State.
- Capacity building of Anganwadi workers and ICDS workers to identify symptoms in women and children and to report it when necessary.
- To identify the villages where high child mortality rates are present to take necessary precautionary methods.

During Heat Season (April to June)

- Display IEC materials at Anganwadis and encourage Integrated Child Development Scheme (ICDS) workers to disseminate Heat Wave related information with special focus on infants, children below five years, pregnant and lactating mothers, and geriatric population to protect them from dehydration.
- Provision of drinking water and first aid at all the Anganwadi Centers, old age homes, orphanages.

Post-Heat Season (July to September)

- Participate in annual evaluation of heat action plan.

11. Tourism Department:

Pre-Heat Season (January to March)

- Ensure proper registration of tourists who are visiting the State during heat season.
- 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.
- Provision of funds for Heat Wave management.

During Heat Season (April to June)

- Ensure the availability of drinking water and cool resting sheds.
- Restrict the timing of the visit of tourist places during peak hours in summer days.

Post-Heat Season (July to September)

- Participate in annual evaluation of heat action plan

12. Department of Agriculture:

- Ensure construction of wells/water point for roaming livestock to provide them with drinking water.
- Prepare material like Posters & pamphlets separately for tips to take care during heatwaves.
- Activate field staff to create awareness among the Livestock farmers on the Animal Management during Heat Wave conditions.
- Capacity building of veterinary officials on diagnosis and management heat related illness.
- Maintaining database and surveillance on heat related morbidity and mortality.
- Display posters/distribute pamphlets in villages, and important government offices.
- Check availability of drinking water in the water points kept for roaming livestock's.

Post-Heat Season (July to September)

- Review implementation of Heat Action Plan.
- Revise plan accordingly.

Responsibilities of various departments at State, District, Taluka and village level for Goa State Action Plan for Prevention and Mitigation of impacts of Heat Wave are as below.

District Level

13. District Collector/Municipal Commissioner/Chief Officer/BDO:

- Constitute a District Heat Action Task Force (DHATF), with District Collector as Chairman and Municipal Commissioner as Member Secretary, with representatives of all departments to be member of this committee.
- DHATF should meet at least 3 times in year, once in pre-heat, during-heat and post-heat season.
- Collector should monitor all-cause death and all hospital admission cases during heat season.
- Create list of heat vulnerable areas in respective district.
- To review preparedness for the heat season in rural areas of the district.

- Collector should monitor all-cause death and all hospital admission during heat season.
- To issue necessary instructions to all concerned departments.
- For better inter-sectoral co-ordination.

During Heat Season (April to June)

- General meeting of District Heat Action Task Force (DHATF).
- Collector at district should monitor all-cause death and all hospital admission during heat season.
- To monitor the implementation of the Heat Action Plan.
- To issue necessary instruction regarding strict adherence of the plan.
- To ensure mid-course correction.
- To deploy monitors/supervisors to concurrent monitoring and feedback.

Post Heat Season (July to September)

- To review the implementation of the heat action plan.

Taluka Level

14. Mamlatdar and BDO at Taluka level:

- Supervise preparedness of the Gram Panchayats.
- To issue necessary instruction to all concerned departments.
- For better inter-sectoral co-ordination.
- Mamlatdar should monitor all-cause death and all hospital admission during heat season.
- Arrangements for establishing rehabilitation centers and materials required thereof.
- Arrangements for supply of good quality drinking water/ORS and other items of basic necessities
- Explain importance of proper shade and cool roof to the village level.

During Heat Season (April to June):

- To monitor the implementation of the Heat Action Plan.
- To issue necessary instruction regarding strict adherence of the plan.
- To ensure mid-course correction.
- To deploy monitors/supervisors to concurrent monitoring and feedback.

Post Heat Season (July to September)

- To review the implementation of the heat action plan.

Village Level

15. Panchayat Secretary/Sarpanch Gram Panchayat:

Pre-Heat Season (From January to March)

- Convening meetings of ward members to ensure proper information regarding the warning signals reached the people through all media modes.

- For better inter-sectoral co-ordination.
- Prepare vulnerability map.
- Should monitor all-cause death and all hospital admission during heat season.
- Sensitize vulnerable population on Heat Wave.
- Prepare proper shade, cool roof, availability of drinking water and other facilities for the Public and animal.
- Encourage for alternative livelihood activities like construction of ponds, artificial lakes for cooling the environment by evaporation.
- Arrangements for water kiosks, tube wells, tankers at strategic locations.

During Heat Season (April to June)

- To monitor the implementation of the Heat Action Plan.
- To issue necessary instruction regarding strict adherence of the plan.
- To ensure mid-course correction.
- To deploy monitors/supervisors to concurrent monitoring and feedback.
- Public announcement about the do's and dont's issue d by the Department of Health and Family Welfare

Post Heat Season (July to September)

- To review the implementation of the Heat Action Plan.

NGO's, Community Based Organization (CBO's) and Voluntary Organizations

16. NGOs, Community Groups and Individuals

- Distribute pamphlet and other materials to community.
- Sensitize link workers and community leaders.
- Dissemination of materials in slum communities.
- Coordinate outreach efforts with other community groups, non-profits, and higher education.

During Heat Season (April to June)

- Keep cool and hydrated during the heat season by drinking water, staying out of the sun and wearing light clothing.
- Office and field visit timings to be re-worked.
- Check on vulnerable neighbours, particularly during a heat alert.
- Limit heavy work in direct sun or indoors if poorly ventilated, especially during a heat alert.

Post Heat Season (July to September)

- Inform fellow community members about how to keep cool and protect oneself from heat.
- Participate in annual evaluation of Heat Action Plan.

4.2 Department wise activities during Heat Wave Period:

Sr. No.	Department	Roles and Responsibilities
1.	Health Department	**Yellow Alert (Stay Updated)**
		• Enhance targeted training programs, capacity building efforts and communication on heat illness for medical staff at local hospitals and Urban Health Centres (UHCs), based on the Framework of CORPORATION Medical Professionals and Health Workers (see attachment). These efforts should include nursing staff, paramedics, field staff and link workers, and consider the susceptibility of particular wards. • Hospitals should be instructed to update their admissions and emergency case records to track heat-related morbidity and mortality. • Train hospitals to improve expedience of recording of cause of death certificates. • Create simple, user-friendly means to track daily heat-related data and behavioural change impacts. • Organize training on recording information education & communication (IEC) efforts.
		Orange Alert (Moderate Condition)
		• Adopt heat-focused examination procedures at local hospitals and urban health centres. • Purchase and distribute reusable soft plastic ice packs for the citywide UHCs, 108 emergency centres, ambulances and hospitals. • Produce weekly reports of the public health impact for CORPORATION Nodal Officer during a heat alert.
		Red Alert (Severe Condition-Take Action)
		• Keep all UHCs functional till 7 p.m. • Keep sufficient stocks of reusable soft plastic ice packs for the citywide UHCs, 108 emergency centers, ambulances and hospitals. • Explore creation of ice pack dispensaries to increase access to vulnerable communities. • Post heat-related illness prevention tips and how to stay cool around hospitals and UHCs. • Ensure adequate medical supplies available. • Produce weekly reports of the public health impact for CORPORATION Nodal Officer during a heat alert. • Increase staffing at hospitals and UHCs to attend to the influx of patients during a heat alert, if feasible.

Sr. No.	Department	Roles and Responsibilities
		• Increase link worker and community health worker outreach in at-risk neighbourhoods during a heat alert, if feasible. • Have zonal health officer visit UHCs to confirm proper preparation has been made for heat related illness and conduct case audits during heat season. • Provisions should be made to treat heat stroke patient in emergency.
2.	108/112 Emergency Service	**Yellow Alert (Stay Updated)**
		• Create displays on ambulances during local events to build public awareness. • Identify at-risk areas of vulnerable populations, in part by utilizing the list of high-risk areas. • Enhance targeted training programs and communication on heat illness for paramedics and field staff.
		Orange Alert (Moderate Condition)
		• Keep sufficient stocks of reusable soft plastic ice packs for the 108 citywide emergency ambulances. • Organize training on recording information education & communication (IEC) efforts.
		Red Alert (Severe Condition-Take Action)
		• Keep sufficient stocks of reusable soft plastic ice packs for the citywide 108 emergency ambulances. • Ensure adequate supply of ice packs and IV fluids. • Disseminate SMS text messages to warn local residents during a heat alert.
3.	Department of Urban Development and Directorate of Municipal Administration	**Yellow Alert (Stay Updated)**
		• Organize preventive training and outreach efforts for health workers, link workers, school children and the local community with the Health Department. • Distribute multilingual pamphlets and posters with tips to prevent heat stress to hospitals, schools and professional associations. • Create a list of the high-risk areas of the city vulnerable to heat waves for more focused activities on heat prevention. • Regular meetings with NGOs and slum leaders on weekly basis for preparation for next week and review of previous week activities for heat resilience.
		Orange Alert (Moderate Condition)
		• Engage state and local agencies to facilitate internal communications.

Sr. No.	Department	Roles and Responsibilities
		• Follow-up meetings with stakeholders, NGOs and slum leaders regarding activities on heat prevention and heat alerts. • Organize workshop with doctors and health professionals for identification of heat illness. • Organize meeting to take special measures for the elderly and infants. • All cause deaths should be daily reported by SMS to MC/CO and total figures should be declared to press every day.
		Red Alert (Severe Condition-Take Action)
		• Convene key agency leaders to respond to extreme heat events. • Announcement should be made in all areas like slums, semi slum areas about the red alert. • Inform to all ward councillors, NGO and representative of ward. • Publicity using Auto rickshaw should be done for Red alert. • Activate "cooling centres," such as temples, public buildings, malls, during a heat alert. • Expand access to shaded areas for outdoor workers, slum communities, hutments and other vulnerable populations across all the corporations of Goa State. • Hold a frequent, possibly daily, conference call to discuss reports and breaking developments during a heat alert, and ensure that communication channels remain operational. • Identify and set up public displays of temperature and forecasts. • Continue surveillance of temperature data and forecasts.
4.	Water Resource Department	**Yellow Alert (Stay Updated)**
		• Release water in canals during summer. • Promote sprinkler irrigation.
		Orange Alert (Moderate Condition)
		• Ensuring efficient potable water supply.
		Red Alert (Severe Condition-Take Action)
		• Supply drinking water in Urban and Rural areas.
5.	Department of Information and Publicity	**Yellow Alert (Stay Updated)**
		• Media training workshop on heat wave prevention and heat alert. • Provide information and heat communication materials developed by the Corporation to the public.

Sr. No.	Department	Roles and Responsibilities
		• Increase the number of installed LED screens with rolling updated temperature forecasts available to the public.
		Orange Alert (Moderate Condition)
		• Increase public communication including distributing the multilingual pamphlet and advertisements on heat stress prevention and tips for health protection during extreme heat events. • Commence public messaging to the public about the dangers of heat-related illness with the Nodal Officer of Corporation through press conferences, SMS, Radio, TV and use of Print Media.
		Red Alert (Severe Condition-Take Action)
		• Using Electronic and Print Media, publicity should be done on large scale. • Publish heat IEC materials provided by the Corp to the public. • Circulate warnings via text alerts or WhatsApp mobile messages, in collaboration with private sector telecom companies utilizing centralized mobile databases, in addition to traditional media during a heat alert. • Inform all citizens about RED alert by using bulk SMS. • Develop an SMS alert system to send direct messages to private practitioners in addition to the medical professionals at public hospit5r3eqals and UHCs. • Utilize local radio FM broadcasts to disseminate heat protection tips and high temperature warnings to the city's at-risk populations during a heat ale rt. • Explore other means of communications, such as broader use of social media, for example, Twitter, Instagram, Facebook and the WhatsApp mobile application.
6.	Department of Women and Child Development	**Yellow Alert (Stay Updated)**
		• Create awareness and educate young girls and mothers regarding the dangers of Heat Waves, its related health impacts and the precautionary measures to be taken. • Display IEC materials at Anganwadis and encourage Integrated Child Development Scheme (ICDS) workers to disseminate Heat Wave related information with special focus on infants, children below five years, pregnant and lactating mothers, and geriatric population to protect them from dehydration.

Sr. No.	Department	Roles and Responsibilities
		• Ensure provision of drinking water and first aid at all the Anganwadi Centers. • Ensure provision of funds for Heat Wave management.
		Orange Alert (Moderate Condition)
		• Ensure that they receive heat alert daily. • Distribution of ORS at AWC.
		Red Alert (Severe Condition-Take Action)
		• Special cooling measures for old people and infants. • Inform about RED alert to parents of children coming in Anaganwadi.
7.	Department of Primary/Secondary Education	**Yellow Alert (Stay Updated)**
		• Design child-friendly educational preventative trainings and distribute heat protection materials at local schools. • Training of school teachers to equip them with knowledge of heat protection tips and activities which they can disseminate in classrooms. • IEC activities on heat wave prevention and management in schools. • Promote School Safety Plan. • Encourage plantation of trees and promote green campus. • Provision of funds for heat wave management.
		Orange Alert (Moderate Condition)
		• Scheduling of examinations before starting of heat period normally. • Ensure supply of water for students and teachers if school is functioning. • Communicate to keep cool and hydrated during the heat season by drinking water, staying out of the sun and wearing light clothing. • Restrict the school timings, if necessary. • Ensure avoidance of physical activities during school hours.
		Red Alert (Severe Condition-Take Action)
		• Ensure that all school and colleges should be closed during heat wave days. • If school is not functioning, permit use of school premises as shelter during day time. • Corporation schools and Private schools should get alert messages and also send messages to parents through bulk messages. • Sensitize School/College, University teachers/and other faculties about RED alert.

Sr. No.	Department	Roles and Responsibilities
8.	Department of Forest, Ecology and Environment	**Yellow Alert (Stay Updated)**
		• Directive for making water available for animals in reserved/protected forests/parks and sanctuaries 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. • Provision of drinking water like ponds/water bodies for wild life. • Directive for provision of water to human habitations facing water scarcity inside reserved forests.
		Orange Alert (Moderate Condition)
		• Ensure drinking water for wild life.
		Red Alert (Severe Condition-Take Action)
		• Keep gardens and park open during heat alert so that people may take shelters in case of heat wave under tree shades etc. • Provide drinking water, shelters and ORS for public.
9.	Labour Department	**Yellow Alert (Stay Updated)**
		• Sensitization workshop for employers, outdoor labourers and workers regarding health impacts of extreme heat and recommendations to protect themselves during high temperatures. • Utilize maps of construction sites to identify more high-risk outdoor workers. Potentially overlay irradiation map stroke/heat island map from ISRO as per satellite imagery.
		Orange Alert (Moderate Condition)
		• Organize training for employers, outdoor labourers and workers regarding health impacts of extreme heat and recommendations to protect themselves during high temperatures.
		Red Alert (Severe Condition-Take Action)
		• Conduct publicity campaigns during high-risk days to these specific areas. • Provide sufficient potable drinking water. • Change working hours of labourers. • Encourage employers to shift outdoor workers' schedules away from peak afternoon hours (1 p.m. – 5.p.m.) during a heat alert. • Provide emergency ice packs and heat-illness prevention materials to traffic police, staff and construction workers.
10.	Department of Rural Development and Panchayat Raj	**Yellow Alert (Stay Updated)**
		• Sensitization of laborers and contractors working under MGNREGA and other laborers working under

Sr. No.	Department	Roles and Responsibilities
		different schemes of Rural Development Department and Panchayat Raj.
		Orange Alert (Moderate Condition)
		• Sensitization of villagers about the heat wave illness. • Ensure supply of potable drinking water in villages. • Conduct wide publicity campaigns during high-risk days.
		Red Alert (Severe Condition-Take Action)
		• Shift the working times of laborers working under MGNREGA and other laborers working under different schemes of Rural Development Department and Panchayat Raj. • Ensure availability of shade/shelters at all prominent places of public gatherings like bus stops, religious places, railway stations, market places etc.
11.	Directorate of Fire and Emergency Services	**Yellow Alert (Stay Updated)**
		• Train staff regarding health impacts of extreme heat and recommendations to protect themselves during high temperatures.
		Orange Alert (Moderate Condition)
		• Ensure adequate numbers of vehicles and firefighting equipment.
		Red Alert (Severe Condition-Take Action)
		• Ensure presence of staff during heat alert period, if necessary by restricting leaves. • Ensure functioning of communication equipment to receive messages/alerts of occurrence of fire. • Ensure adequate supply of water and foam to fight fire.
12.	Transport Department	**Yellow Alert (Stay Updated)**
		• Obtaining lists of risk areas and review of bus timings and available shelters in the high-risk areas. • Planning for shade/shelter, drinking water and fans in the waiting areas of passengers. • Display of precautionary measures (Do's and don'ts) on buses, autos, in bus stations & auto stands and distribution of pamphlets to passengers.
		Orange Alert (Moderate Condition)
		• Review measures of Heatwave Action Plan-HAP with cab operator/auto/transport associations and also Highway patrol. • Provide ORS, ice packets etc. and medical services in bus stations.

Sr. No.	Department	Roles and Responsibilities
		• Pilot project to provide emergency ice packs and heat-illness prevention materials to transit staff and all transport departments. • Display posters & distribute pamphlets on prevention of heat related illness in bus stands, auto stands etc.
		Red Alert (Severe Condition-Take Action)
		• Establish health teams at major bus stands/ terminals and other public places. • Ensure availability of shade/shelters, drinking water, ORS packets etc., in bus stands, auto stands etc. • Inform all the contractors and officers to keep road site jobs closed during 12 to 4 p.m. • Make provision of water and buttermilk for all laborer staff. • Display of messages inside the bus on TV screen about RED alert.
13.	Electricity Department	**Yellow Alert (Stay Updated)**
		• Create awareness among people on energy conservation. • Develop a policy for power cuts depending on vulnerable areas and population. Power shedding should be cut down/reduced during severe heat (frequency and timing). • The timing should be announced before one day. • Issue guideline for workers of the department.
		Orange Alert (Moderate Condition)
		• Ensuring efficient electricity supply.
		Red Alert (Severe Condition-Take Action)
		• No power cuts during red alert.
14.	Directorate of Animal Husbandry & Veterinary Sciences	**Yellow Alert (Stay Updated)**
		• Create awareness on effect of heat wave on livestock through Information Education and Communication-IEC activity. • Construct water trough for animals at strategic locations.
		Orange Alert (Moderate Condition)
		• Arrangements of drinking water for animals at strategic locations. • Stock essential medicines to deal with heat related stress in livestock.
		Red Alert (Severe Condition-Take Action)
		• Keep animals in shade and ensure they are not dehydrated.

Sr. No.	Department	Roles and Responsibilities
15.	Department of Tourism	**Yellow Alert (Stay Updated)**
		• Display of Heat Wave precautionary measures for tourists during summer at tourist points specially beaches and related information in website of department of tourism.
		Orange Alert (Moderate Condition)
		• Disseminate heat wave early warning to tourist through Display board, social media, SMS or another media.
		Red Alert (Severe Condition-Take Action)
		• Ensure the availability of drinking water and cooling place if needed.
16.	NGO's/Civil Society Organization/Religious Organization/CSR	**Yellow Alert (Stay Updated)**
		• Training and distribute heat protection materials. • Dissemination of heat wave do's and don'ts. • Increase outreach programmes to different vulnerable groups.
		Orange Alert (Moderate Condition)
		• Conduct training workshops and outreach sessions with community groups and mobilizers such as Self Help Groups, Panchayats, Anganwadi workers and municipal councilors to help inform and get vulnerable communities more actively involved. • Incorporate other sectors and community leaders to increase reach to communities. • Encourage individuals to discuss the early signs of heat exhaustion with their local doctor or Urban Health Centers. • Inform fellow community members about how to keep cool and protect oneself from heat.
		Red Alert (Severe Condition-Take Action)
		• Regular meetings with community groups and inform them about red heat alert. • Limit heavy work in direct sun or indoors if poorly ventilated, especially during a heat alert. • Communicate to keep cool and hydrated during the heat season by drinking water, staying out of the sun and wearing light clothing. • Check on vulnerable neighbours, particularly during a heat alert.

Measures for Prevention and Mitigation of Impacts of Heatwave:

Cool Roofing Material

The choice of an appropriate cool roof material in a particular context depends on a range of factors, from existing roof material, life and maintenance, availability, cost, time needed for installation and availability of skilled labor. To help cater to a range of contexts, cool roofs techniques can be broadly divided into four categories and building owners can choose from these techniques as appropriate for implementing cool roofs.

i. **Coated Cool Roofs:** These roofs involve the coating of a material or paint with high reflectivity on top of a conventional roof material to increase the roof surface's solar reflectance index. These are liquid applied coatings made of simple materials such as lime wash or an acrylic polymer or plastic technology and are usually white in color.

ii. **Membrane Cool Roofs:** These roofs involve using pre-fabricated materials such as membranes or sheeting to cover an existing roof in order to increase the roof surface's Solar Reflectance Index-SRI. These types of roofs can be polyvinyl chloride (PVC) or bitumen-based.

iii. **Tiled Cool Roofs:** These roofs involve the application of high albedo, china mosaic tiles or shingles on top of an existing roof or to a new roof. Roof tiles may help in controlling the temperature inside your house. This makes the house less warm, uses less power and makes it more comfortable. Most of traditional houses in Goa make use of Manglore Tile roofing only as it is resistant to extreme weather conditions, including heat, wind, rain and even fire.

iv. **Green Roofs:** Green roofs make use of vegetation to help the roof absorb less solar energy by providing a thermal mass layer to reduce flow of heat into a building. Vegetation is especially useful in reflecting infrared radiation. Green roofs are also considered cool roofs, but due to higher costs and need for water, they are likely not a cost-effective solution for heat reduction in low-income communities in India.

The cost implications vary by the type of material used for cool roofing. However, most of these materials have been applied locally in India and are available through local vendors.

5.5 Plant trees or erect shade structures in strategic locations.

Trees and vegetation that directly shade your home can lower surrounding temperatures; this can decrease the need for air conditioning, make your home more comfortable, and reduce your energy bill. Trees also protect your family's healt h by improving air quality, providing cooling shade for outdoor activities, and reducing your exposure to the sun.

5.6 Use cool paving materials in your driveway.

If you've ever walked barefoot on hot pavement, you know it can heat up quickly in the sun. Hot pavement also transfers heat to the surrounding air, adding to the urban heat island effect. Cool pavement stays cooler in the sun than traditional pavement by reflecting more solar energy or enhancing water evaporation. Cool pavement can be created from asphalt and concrete, as well as through the use of coatings or grass paving.

5.7 Replace your old cooling devices.

Replace the old or damaged cooling units which are inefficient and more energy consumption devices, meaning you're paying more money for less actual cooling ability. We should purchase energy efficient devices before we need it.

5.8 Contribute to a community-wide heat response plan.

Many state and local governments have already developed plans that identify locations, infrastructure and people that are vulnerable to climate change and extreme heat. These plans also describe actions a community can take to improve resilience. Check online or call your local representatives to see if your community has a plan. If you are interested in heat response planning efforts in your community, your town or city hall is a great place to start. Ask how you can get involved.

5.9 Find out about local heat alert systems and subscribe to them:

Local governments, weather stations, medical providers, or others may have systems for issuing heat alerts through the television, radio, newspapers, phone calls, social media, texts, emails or the internet. Find out what systems are in place for your community and sign up to receive alerts.

5.10 Determine whether there are resources for support in your community:

Community based organizations should come forward to beat the heat wave through supply of drinking water and other community wellbeing activities like putting of shade at prominent places etc.

5.11 Recurring/regular activities:

- Putting up display boards for colour coded heat alerts and Do's and Don'ts in public places such as parks, hospitals, etc.
- Multiple medium of communication (preferably in Konkani language) like TV, Radio and newspaper for awareness.
- Identify and reduce awareness gaps through disseminating of information using pamphlets, hoardings, LED display on advertisement boards.
- Change in timings of schools, colleges, offices, markets etc.

SUGGESTED SHORT-TERM AND LONG-TERM MEASURES TO REDUCE HEAT WAVE IMPACTS

5.12 Short-term activities

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

5.13 Medium–Term activities

- LED display boards installed at District Headquarters displaying the real time weather data pertaining to rainfall, temperature, humidity and wind speed should be incorporated into precautionary measures for Disaster Management.
- Involving Forest Department for collecting local coping and adaptation strategies, indigenous technologies such as vernacular building materials, construction of green building, energy conservation building codes (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 all municipal corporations.
- Identify "Heat Hot Spots" in Goa through appropriate tracking and modelling of meteorological data and promote the timely development and implementation of local Heat Action Plans with strategic inter-agency coordination, and a response which targets the most venerable groups.

5.14 Long term activities

- Installation of Green Roof Tops to minimize the in house temperature.
- Use of white paint (Chinii Mitti)/white glazed tiles on rooftops for reflection of Sun rays and avoiding heat wave.
- Focused capacity building heat wave mitigation management should be added in school curriculum to sanitize school children and local people.
- Training programmes in local level/community level for awareness among people.
- Integrate climate variability of heat wave plan through response and feedback data collection.
- Operational forecast of maximum temperature over India in short, medium and extended range timescale is very useful in giving Heat Wave Outlook.
- Upgradation of forecast system & associated equipment to provide heat wave alerts minimum of 2 to 3 weeks prior to the event.
- Health harming air pollution apportionment studies, emission inventories and health impact assessments of ambient and household air pollution through State wise Clean Air Action Plans, 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 along with collaboration and more participation from higher educational institutes may be developed. The centres for excellence and dedicated research centres may have pivotal role to play.

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4. Be Smart Be Prepared-Disaster-Guide-NDMA
5. State Action Plan on Climate Change for The State of Goa for Period of 2020-2030
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7. The Telangana State Heatwave Action Plan 2021

Annexure I

Heat wave Do's and Don'ts

Heat Wave conditions can result in physiological strain, which could even result in death. To minimize the impact during the heat wave and to prevent serious ailment or death because of heat stroke, the following measures are useful:

Do's

Must for All

- Listen to Radio; watch TV; read Newspaper for local weather news or download weather information related mobile app.
- Drink sufficient water - even if not thirsty. Persons with epilepsy or heart, kidney or liver disease who are on fluid-restricted diets; or have a problem with fluid retention should consult a doctor before increasing liquid intake.
- Use ORS (Oral Rehydration Solution), homemade drinks like lassi, torani (rice water), lemon water, buttermilk, coconut water, etc. to keep yourself hydrated.
- Wear lightweight, light-coloured, loose, cotton clothes. • If outside, cover your head: Use a cloth, hat or umbrella. Use sunglasses to protect your eyes and sunscreen to protect your skin.
- Get trained in first aid.
- Take special care for the elderly, children, sick or overweight as they are more likely to become victims of excessive heat.
- Grow more trees.

Employers and Workers

- Provide cool drinking water at the workplace.
- Provide resting shade clean water, buttermilk, first-aid kits with ice-packs and ORS (Oral Rehydration Solution) for all workers.
- 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.
- Give lighter work and shorter hours to workers new to a high heat area.
- Pregnant women and workers with a medical condition should be given additional attention. Notify workers about heat wave alerts.

Other Precautions

- Stay indoors as much as possible.
- Traditional remedies like onion salad and raw mango with salt and cumin can prevent heat stroke.
- Never leave children or pets alone in a closed vehicle.
- Use fans, damp clothing and take a bath in normal water frequently.
- Offer water to vendors and delivery people who come to your home or office.
- Use public transport and car-pooling. This will help reduce global warming and heat.
- Don't burn dry leaves, agriculture residue and garbage.
- Conserve water bodies. Practice rainwater harvesting.
- Use energy-efficient appliances, clean fuel and alternative sources of energy.
- If you feel dizzy or ill, see a doctor immediately or ask somebody to take you to the doctor immediately.

FOR A COOLER HOME

- Use solar reflective white paint, cool roof technology, air-light and cross ventilation and thermocol insulation for low-cost cooling.
- You can also keep haystacks or grow vegetation on roofs.

- Install temporary window reflectors such as aluminium foil-covered cardboard to reflect heat back outside.
- Keep your home cool, use dark color curtains, tinted glass/shutters or sunshade and open windows at night. Try to remain on the lower floors.
- Green roofs, green walls and indoor plants reduce heat by cooling the building naturally, reducing air-conditioning requirements and release of waste heat.
- Maintain AC temperature at 24 degrees or lower. This will reduce your electricity bill and make your health better.

WHILE CONSTRUCTING A NEW HOME:

- Use cavity wall technology instead of regular walls.
- Construct thick walls. They keep the interiors cool.
- Construct lattice walls and louvered openings. They allow maximum air flow while blocking the heat. Use natural materials like lime or mud to coat walls.
- Avoid glass, if possible.
- Consult a Building Technology expert before construction.

FOR CATTLE

- Keep animals in shade and give them plenty of clean and cold water to drink.
- Do not make them work between 11 a.m. to 4 p.m.
- Cover the shed roof with straw, paint it white or plaster with dung-mud to reduce temperature.
- Use fans, water spray and foggers in the shed.
- During extreme heat, spray water and take cattle to a water body to cool off.
- Give them green grass, protein-fat bypass supplement, mineral mixture and salt. Make them graze during cooler hours.

DON'TS

- Avoid going out in the sun, especially between 12.00 noon and 3.00 p.m.
- Avoid strenuous activities when outside in the afternoon.
- Do not go out barefoot.
- Avoid cooking during peak hours. Open doors and windows to ventilate cooking area adequately.
- Avoid alcohol, tea, coffee and carbonated soft drinks, which dehydrates the body.
- Avoid high-protein, salty, spicy and oily food. Do not eat stale food.
- Do not leave children or pets in parked vehicles.
- Avoid using incandescent light bulbs which may generate unnecessary heat, as can computers or appliances.

TIPS FOR TREATMENT OF A PERSON AFFECTED BY SUNSTROKE:

- Use a wet cloth/pour water on the victim's head.
- 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 centre.
- If consistently experiencing high body temperature, throbbing headache, dizziness, weakness, nausea or disorientation in the summer, call an ambulance.

THE BEST DEFENCE AGAINST EXTREME HEAT IS TO BE PREPARED, AND REMEMBER:

Get ready: Take steps now to prepare your home, workplace and community for preparation and prevention of heat wave.

Get set: Know the symptoms of heat-related illnesses and what to do in an emergency.

Go: Check on those who may need help during an extreme heat event, like children, elderly family members, homebound neighbours, or outdoor workers.

Annexure II

(Refer Para 3.0)

Case Definitions

Range of Heat Illness – Typical Presentations – symptoms, signs and prognosis

Climate Entity	Age Range	Setting	Cardinal Symptoms	Cardinal/ Important Signs	Pertinent Negative finding	Prognosis
Heat rash/ prickly heat/ Malaria	All, but frequently children	Hot environment; +/- insulating clothing or swaddling (Wrap in tight clothes)	Itchy rash with small red bumps at pores in the skin. Seen in setting of heat exposure; bumps can sometimes be filled with clear or white fluid	Diffused red colour skin or vesicular rash, itching of the skin without visible eruption	Not focally distributed like a contact dermatitis	Full recovery with elimination of exposure and supportive care
Heat Exhaustions	All	Hot environment typically with exertion, +/- insulation clothing	Painful spasms of large and frequently used muscle groups	Uncomfortable appearance, may have difficulty fully extending affected limbs/ joints	No contaminated wounds/tetanus exposure; no seizure activity	Full recovery with elimination of exposure and supportive care
Heat Exhaustions	All	Hot environment +/- exertion;+/- insulating clothing or swaddling (Wrap in tight clothes)	Feeling overheated light headedness, exhausted and weak, unsteady, feeling of	Sweaty/ diaphoretic flushed skin; hot skin; normal core temperature; +/- dazed, +/-	No coincident signs and symptoms of infection; no focal weakness; no difficulty in	Full recovery with elimination of exposure and supportive care; progression to heat syncope/

Climate Entity	Age Range	Setting	Cardinal Symptoms	Cardinal/ Important Signs	Pertinent Negative finding	Prognosis
			vomiting, sweaty and thirsty, inability to continue activities	generalized weakness, slight disorientation	swallowing food or speech; no overdose history	stroke if continues exposure
Heat syncope	Typically Adults	Hot environment ; +/- exertion +/- insulating clothing or swaddling (Wrap in tight clothes)	Feeling hot and weak; light-headedness followed by a brief loss of consciousness	Brief generalized loss of consciousness in hot setting, short period of disorientation, if any	No seizure activity no loos of bowel or bladder continence no focal weakness; o difficulties in food swallowing or speech	Full recovery with elimination or exposure and supportive care; progression to heat stroke if continued exposure
Heat Stroke	All	Hot environment +/- exertion; +/- insulating clothing or swaddling (Wrap in tight clothes)	Sever overheating; profound weakness; disorientation, not fully alert, convulsion, or other altered mental status	Flushed, dry skin (Not always) core temp> 40 C or 104 F; altered mental status with disorientation, incoherent behaviour, coma, convulsion, tachycardia; +/- hypotension	No coincidental signs and symptoms of infection, no focal weakness; no difficulties in food swallowing or speech no overdose history	25-50 % mortality even with aggressive care; significant morbidity even if survives

Annexure-III

Heat Illness Treatment Protocol

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

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

2. Consider heat illnesses in differential diagnosis if:

a) Presented with suggestive symptoms and signs

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

i. Extremes of age (infants, elderly)

ii. Debilitation/physical deconditioning, overweight or obese

iii. Lack of acclimatization to environmental heat (recent arrival, early in summer season)

iv. Any significant underlying chronic disease, including psychiatric, cardiovascular, neurologic, hematologic, obesity, pulmonary, renal and respiratory disease.

Taking one or more of the following:

i. Sympathomimetic drugs

ii. Anticholinergic drugs

iii. Barbiturates

iv. Diuretics

v. Alcohol

vi. Beta blockers

3. Remove from environment heat exposure and stop physical activity.

4. Initiate passive cooling procedures:

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

b) Spray cool water or blot cool water onto the skin.

c) Use fan to blow cool air onto moist skin.

5. If body temperature is lower than 40°C repeat assessment every 5 minutes, if patient is fully conscious and improving, attempt to orally hydrate (clear liquids, ORS can be used but not necessary, cool liquids better than cold). If body temperature is 40°C or above, initiate IV rehydration and immediately transport to emergency department for stabilization.

Annexure-IV

List of Departments concerned with Heat Wave Management

S. No.	Name of the Concerned Department
1.	Goa State Disaster Management Authority (GOA SDMA)
2.	Directorate of School Education
3.	Electricity Department
4.	Department of Environment and Climate Change
5.	Department of Forests
6.	Goa Institute Public Administration and Rural Development (GIPARD)
7.	Directorate of Agriculture
8.	Department of Health Services
9.	India Meteorological Department
10.	Department of Information and Publicity
11.	Water Resource Department
12.	Directorate of Panchayats
13.	Department of Tourism
14.	Transport Department
15.	Directorate of Fire and Emergency Services
16.	Revenue Department
17.	Department of Urban Development & Directorate of Municipal Administration
18.	Women & Child Development Department
19.	Directorate of Animal Husbandry & Veterinary Services
20.	Public Works Department

Annexure-V

Format A: Deaths Reported due to Heat Wave

Name of the State: **Year:** **Reporting Period:** **Date of Reporting:**

District		Location						Occupation					Economic		
		Urban		Rural		Total		Farmers	Labours	Hawkers	Others	Total	BPL	APL	Total
	Age Group	M	F	M	F	M	F								
District 1	0-6 Years														
	7-18 Years														
	19-35 Years														
	36-60 Years														
	61 > Years														
	Sub Total														
District 2	0-6 Years														
	7-18 Years														
	19-35 Years														
	36-60 Years														
	61 > Years														
	Sub Total														
Total State															

* If any other information related to Heat Wave, please enclose a separate page.

To be reported to Health Department, GSDMA

Name and Designation of the reporting officer

Annexure-VI

Format B: Details of the death reported due to Heat Wave (Record to be kept with State Government)

Sr. No.	Name & Address	Age	Sex(M/F)	Occupation	Place of Death	Date & Time of Death	Max Temp Recorded (Rectal & Oral)	Deaths Reported due to Heat Wave Period or not	List of Chronic Diseases present (Ask the family members)	Date and Time of Post Mortem (If conducted)	Date & Time of Joint Enquiry conducted with a revenue authority	Remarks	
												to Post Mortem	Related to Joint Enquiry

Name and Designation of the reporting officer. **Signature with Date:**

Annexure: VII

FORMAT C

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

Sr. No.	Village	PHC	Block/ City	Name & Of Son/ Daughter/ Wife of	BPL Y/ N	Age & Sex	Date of Attack Of Heat Stroke	Any Antecedent Illness	Cause of Death	Death Confirmed By MO's and MOR's

To be reported to Health Department, Goa SDMA.

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Annexure: VIII

FORMAT D

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

DEATH DUE TO HEAT RELATED ILLNESS: GOA STATE

Sr. No.	Name of the Districts (Name of All the District)	New cases admitted due to heat related illness since the last reporting period	Cumulative number of cases reported due to heat related illness Since 1st April	Deaths reported due to heat related illness since the last reporting period	Cumulative number of deaths reported due to heat related illness Since 1st April	Remarks (if any shortage of ORS/ IV Fluids/ treatment facilities etc.)

Secretary (Revenue)

Format for important Emergency Numbers:

STATE LEVEL OFFICERS

Sr. No.	Name & Officer's Designation	Office Phone	Residence	Mobile	Fax

NORTH GOA DISTRICT LEVEL AUTHORITIES

Sr. No.	Name & Officer's Designation	Office	Mobile	Fax/Email

SOUTH GOA DISTRICT LEVEL AUTHORITIES

Sr. No.	Name & Officer's Designation	Office	Mobile	Fax/Email

The Notification will come into force with effect from the date of publication in Official Gazette.

By order and in the name of the Governor of Goa.

Raghuraj A Faldesai, Under Secretary (Revenue-II).

Porvorim, 15th February, 2024.