

## Heat Waves and its Impacts

### Why in news?

*There is a sharp rise in the urban temperature in India leading to the exposure of strong heat stress during summer season.*

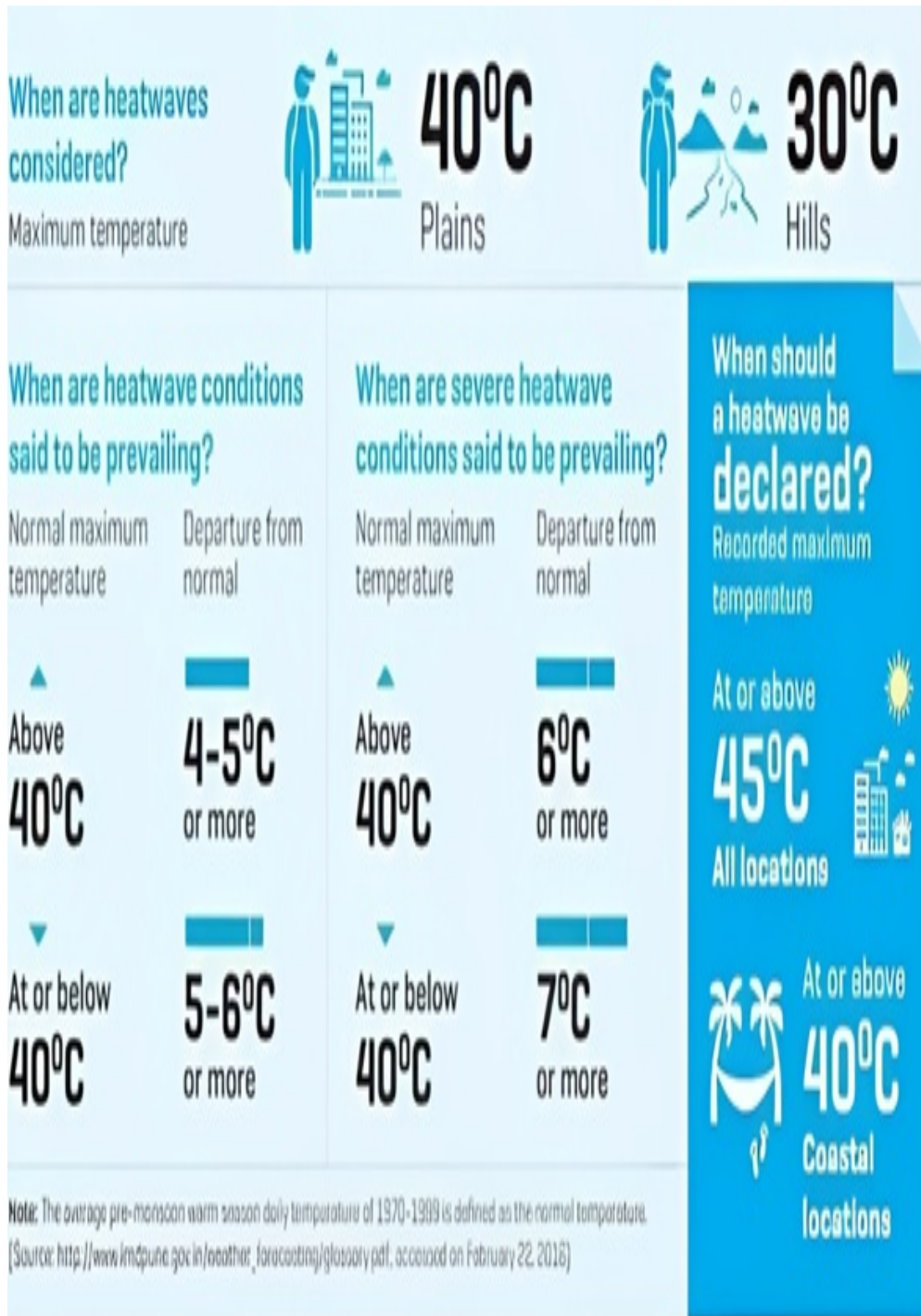
### What is a Heat Wave?

- Heat wave is a condition of air temperature which becomes fatal to human body when exposed.
- Quantitatively, it is defined based on the temperature thresholds over a region in terms of actual temperature or its departure from normal.

### What is the criterion for declaring heat wave?

- Heat wave is considered if maximum temperature of a station reaches at least 40 degree C or more for plains and at least 30 degree C or more for hilly regions.
- **Based on Departure from Normal**
  - **Heat Wave:** Departure from normal is 4.5<sup>0</sup> C to 6.4<sup>0</sup> C
  - **Severe Heat Wave:** Departure from normal is >6.4<sup>0</sup> C
- **Based on Actual Maximum Temperature**
  - **Heat Wave:** When actual maximum temperature  $\geq 45^{\circ}$  C
  - **Severe Heat Wave:** When actual maximum temperature  $\geq 47^{\circ}$  C
- If above criteria met at least in 2 stations in a Meteorological sub-division for at least two consecutive days and it declared on the second day.
- **For coastal areas** - When maximum temperature departure is 4.5 degree C or more from normal, heat wave may be described provided actual maximum temperature is 37 degree C or more.

*Warm night is considered only when maximum temperature remains 40 degree C or more.*



### What are the favorable conditions for Heat wave?

- Transportation / Prevalence of hot dry air over a region (There should be a region of warm dry air and appropriate flow pattern for transporting hot air over the region).
- Absence of moisture in the upper atmosphere (As the presence of moisture restricts the temperature rise).
- The sky should be practically cloudless (To allow maximum insulation over the region).
- Large amplitude anti-cyclonic flow over the area.
- It is occurring mainly during March to June and in some rare cases even in July but peak month of the heat wave over India is May.

## What are the impacts of heat wave?

- Loss of human life
- Decreased work productivity
- Increased out of pocket health expenditure
- Agricultural crop losses
- Prone to heat-related illness such as Heart disease, Mental illness, Poor circulation and Sunburn

## How to mitigate extreme heat wave events?

- **Increasing green cover** - Greening could help mitigate heat waves and urban forest should also need to be increased.
- **Wetlands** - The wetlands needs to expanded and restored.
- **Water bodies** - Restoring dead and decaying ponds/lakes should be given utmost importance.
- **Urban heat effect** - Reducing the Urban heat island effect by reducing the use of preambled materials in the civic infrastructure and residential construction.
- Enhancing natural landscapes in urban areas will also address the effect.
- **Urban building standards** - It should be upgraded to avoid usage of heat absorbent galvanized iron and metal roof sheets.
- **Cleaner cooking fuels** - Use of it will reduce indoor air pollution, which may also help reduce urban heat.
- **Natural vegetation** - Can be increased in the streets with the low ventilation.
- **Public transportation** - This can reduce the pollution and mitigate the extreme heat.
- **Landfill management** - A push for waste segregation, along with solid waste management at source can reduce the [landfills](#) fires which may contain methane.
- **Forecasting ability** - It should be widened to include the impacts of extreme heat in the food production.

## References

1. [The Hindu | Extreme Heat](#)
2. [CDC | Health Impacts](#)