

PARLIAMENT QUESTION; THE HEAT MITIGATION STRATEGY

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Several parts of the country, including States like Tamil Nadu and Andhra Pradesh, are likely to be severely impacted by heat, and as per the recent report by the World Bank, the rising temperatures are expected to cause India to lose up to 5% of its Gross Domestic Product by 2030. Heat is recognized as a severe threat, and the State Disaster Management Agencies of Andhra Pradesh and Tamil Nadu have prepared State heat action plans in 2016 and 2019, respectively, to manage the heat stress. Also, the State Planning Commission has set up the heat action network to advance efforts for inter-departmental and intersectoral engagement toward heat mitigation.

As per the State-wise statement of Climate Report-2023 published by, (https://imd pune.gov.in/Reports/Statewise%20annual%20climate/statewise_annualclimate.html) the India Meteorological Department (IMD) a significant increasing trend of $+0.68^{\circ}\text{C}/100$ years is observed in the Tamil Nadu State averaged annual mean temperature series for the period 1901-2023. The increasing trend is relatively higher in the case of maximum temperature ($+0.84^{\circ}\text{C}/100$ years) compared to that in the case of minimum temperature ($+0.51^{\circ}\text{C}/100$ years). The five warmest years on record for the state of Tamil Nadu are 2019 (temperature anomaly of $+0.848^{\circ}\text{C}$), 2016($+0.837^{\circ}\text{C}$), 2017($+0.624^{\circ}\text{C}$), 2020($+0.493^{\circ}\text{C}$) and 2023($+0.432^{\circ}\text{C}$). Under the changing climate, various parts of the country, including Tamil Nadu, are projected to experience increased heatwaves.

Due to climate change, annual temperatures are increasing globally and the impact of the same is reflected in the rising frequency and intensity of heatwaves in various parts of the globe, including India. The Sixth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) also reflects the same observations (https://www.ipcc.ch/report/ar6/syr/downloads/report/IPCC_AR6_SYR_SPM.pdf). Addressing the root causes of global climate change is essential to mitigate the impact of heat waves. This involves international cooperation to reduce green house gas emissions, transition to renewable energy sources, and implement sustainable practices across all sectors. Various initiatives have been undertaken by the Government of India with the help of States to reduce the impact of heatwaves in the coming years. The National Action Plan on Climate Change (NAPCC) and State Action Plan on Climate Change (SAPCC) are one of the major initiatives in this direction. Additionally, India has taken a proactive role in fostering international collaborations through initiatives such as the International Solar Alliance and the Coalition for Disaster-Resilient Infrastructure. India is committed to pursuing low-carbon strategies for development and is actively pursuing them, as per national circumstances.

The India Meteorological Department, in coordination with various research centers across the country, has taken multiple steps to improve monitoring and early warning systems, which has helped minimize loss of life and property during extreme weather events, including heat waves. These include:

- Issuing seasonal and monthly outlooks, followed by extended-range forecasts of temperature and heatwave conditions. The early warning and forecast information are disseminated through the website, various social media, etc., for timely public outreach.
- District-wise heatwave vulnerability Atlas over India to help State Government authorities and disaster management agencies for timely planning.
- The hot weather hazard analysis map over India includes daily temperature, winds, and humidity conditions.
- Heat Action Plans (HAPs) in 23 States that are prone to heatwave conditions were jointly

implemented by the National Disaster Management Authority (NDMA) in collaboration with the State Governments.

- A series of National and State-level heatwave preparedness meetings are conducted much before the start of the summer season, with regular review meetings from time to time during the season.

IMD has launched seven of its services (Current Weather, Nowcast, City Forecast, Rainfall Information, Tourism Forecast, Warnings, and Cyclone) with the 'UMANG' Mobile App for use by the Public. Moreover, IMD has developed a mobile App, 'MAUSAM' for weather forecasting, 'Meghdoot' for Agromet advisory dissemination, and 'Damini' for lightning alerts. The common Alert Protocol (CAP) developed by the NDMA is also being implemented to disseminate extreme weather warnings by the IMD.

This information was given by Dr. Jitendra Singh, Minister of State (Independent Charge) of the Ministry of Science & Technology and Earth Sciences, in a written reply in the Lok Sabha today.

NKR/PSM

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