GOVERNMENT OF INDIA
MINISTRY OF EARTH SCIENCES
LOK SABHA
UNSTARRED QUESTION NO. 5255
TO BE ANSWERED ON WEDNESDAY, 2ND APRIL, 2025

THE HEAT-HEAT MITIGATION STRATEGY

5255. SMT. D K ARUNA:
SHRI EATALA RAJENDER:

Will the Minister of EARTH SCIENCES be pleased to state:

(a) whether various States including Tamil Nadu and Andhra Pradesh would be severely impacted by heat and called for mitigation measures and global reports also indicate that India will lose upto 5% of its Gross Domestic Product by 2030 to rising temperatures and if so, the details thereof;
(b) whether Tamil Nadu as southernmost State in India with its warm tropical weather is projected to be severely impacted by heat and if so, the details thereof;
(c) whether 'Beating The Heat-Heat Mitigation Strategy' has been proposed by some States and in the changing global scenario, heat is emerging as a pre-eminent threat to the health and well-being of humans, biodiversity and agricultural and industrial production and stepped up formal efforts to promote sustainable cooling solutions to build heat resilience since humans can thrive in 25 degree Celsius to 30 degree Celsius, with 60% humidity; and
(d) if so, the details thereof along with the reports prepared by States to address complex nature of heat and its compounding effect in future?

ANSWER
THE MINISTER OF STATE (INDEPENDENT CHARGE) FOR
MINISTRY OF SCIENCE AND TECHNOLOGY
AND EARTH SCIENCES
(DR. JITENDRA SINGH)

(a) Yes. 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.

(b) As per the State-wise statement of Climate Report-2023 published by the India Meteorological Department (IMD) (https://imdpune.gov.in/Reports/Statewise%20annual%20climate/statewise_annualclimate.html), a significant increasing trend of +0.68°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°C/100 years) compared to that in the case of minimum temperature (+0.51°C/100 years). The five warmest years on record for the state of Tamil Nadu are 2019(temperature anomaly of +0.848°C), 2016(+0.837°C), 2017(+0.624°C), 2020(+0.493°C) and 2023(+0.432°C). Under the changing climate, various parts of the country, including Tamil Nadu, are projected to experience increased heatwaves.

(c)-(d) 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.

*****