

**GOVERNMENT OF INDIA  
MINISTRY OF EARTH SCIENCES  
LOK SABHA  
UNSTARRED QUESTION NO. 6106  
TO BE ANSWERED ON WEDNESDAY, 1<sup>ST</sup> APRIL, 2026**

**DOPPLER WEATHER RADAR**

6106. DR. KADIYAM KAVYA:

Will the Minister of EARTH SCIENCES be pleased to state:

- (a) whether the Government has conducted any recent seismic vulnerability or microzonation studies particularly in Warangal district of Telangana, considering increasing urban expansion and infrastructure growth and if so, the details thereof;
- (b) whether any dedicated Doppler Weather Radar or advanced weather monitoring systems are operational or proposed for installation in Warangal to improve early warning systems for extreme weather events such as heavy rainfall, heatwaves and thunderstorms and if so, the details thereof;
- (c) the steps taken by the Government to strengthen climate resilience and disaster preparedness particularly in Telangana including districts like Warangal that face recurring heatwave and unseasonal rainfall events; and
- (d) whether the Government proposes to collaborate with the Governments of State particularly in Telangana to establish additional earthquake observatories, automatic weather stations or climate research centres?

**ANSWER**

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

- (a) Warangal city in Telangana State falls under Seismic Zone II and is close to Zone III as per the Seismic Zoning Map of India published by the Bureau of Indian Standards (BIS), indicating relatively low seismic hazard. Accordingly, no seismic microzonation studies for Warangal is taken up as yet.
- (b)-(c) Yes. Advanced meteorological infrastructure is operational in the Warangal district of Telangana. Five Automatic Weather Stations/Automatic Rain Gauges (Hanamkonda, Mamnoor-KVK, Siddhapur, PTO Warangal, and Mulugu) are operational in the district. There is no Doppler Weather Radar (DWR) installed in the Warangal district. The nearest operational S-Band DWRs are installed at Hyderabad and Visakhapatnam. Their radial coverage extends up to about 400 km, covering Warangal and the surrounding areas and enabling monitoring of regions without local installations.

Further, Warangal district lies approximately 120–150 km from the DWR in Hyderabad, thereby falling well within its effective coverage range. During extreme weather events, nowcasts and impact-based forecast bulletins are generated and disseminated to stakeholders using DWR inputs. In view of this, there is no requirement/proposal for the installation of a dedicated Doppler Weather Radar for Warangal.

The Government adopts various dissemination mechanisms to ensure timely communication, including alerts and warnings, reaches all concerned, enabling local authorities, State Governments, State Disaster Management Authorities (SDMAs), the National Disaster Management Authority (NDMA), the Ministry of Home Affairs (MHA), and the public to take appropriate mitigation measures. Further, the Ministry of Earth Sciences (MoES) has developed advanced early warning systems for severe weather events, including heavy rainfall, heatwaves, etc. These systems are supported by a state-of-the-art observation network comprising surface and upper-air observations, remote sensing, high-resolution dynamical models, and an end-to-end GIS-based Decision Support System (DSS) developed by MoES institutions, which serves as the front end for early warning systems to enable detection and monitoring of weather hazards across the country, including Warangal district in Telangana. The system is integrated with modern telecommunications technologies to ensure the timely dissemination of information. Effective dissemination methods for weather information and alerts by the MoES are as follows:

- Public alerts and information are disseminated through mobile applications such as MAUSAM, MEGHDOOT, DAMINI, and UMANG.
- Digital dissemination channels include e-mail and SMS-based nowcasting and forecasting alerts to registered users.
- Alerts are issued through the Common Alerting Protocol (CAP) and the SACHET App.
- Information is shared via social media and mass media platforms.
- District Collectors are informed through direct e-mail and WhatsApp group notifications, in coordination with the Telangana Integrated Command and Control Centre (ICCC) of the Police Department.
- Broadcast dissemination is carried out through community radio, public broadcasting systems, and other local communication networks.
- Dissemination is also undertaken through State Government mobile applications.
- Gram Panchayat-level weather forecasting (GPLWF) is facilitated through digital platforms such as e-Gramswaraj, Meri Panchayat App, and e-Manchitra, in collaboration with the Ministry of Panchayati Raj.
- Weather information is disseminated to Pashu Sakhi and Krishi Sakhi at the block and Panchayat levels in collaboration with the Ministry of Rural Development.
- Forecasts are accessible through the Mausamgram portal of the India Meteorological Department (IMD).

- IMD continuously provides Nowcasts (up to 3 hours), Short Range (up to 3 days), Medium Range (4–10 days), Extended Range (up to 1 month), Long Range or Seasonal (monsoon). These forecasts are issued at sub-division, district, and city levels for rainfall, thunderstorms, and heatwaves. These forecasts and warnings are disseminated to SDMAs, user communities (Aviation, Agriculture, Defence, Tourism, Railways, Irrigation, Rural, Urban, Industries, etc.), and the general public.
- A comprehensive Multi-Hazard Early Warning Systems (MHEWS) consisting of observational networks, forecasting models, an indigenously developed GIS-based DSS, and dissemination mechanisms for blocks, districts, including Warangal, and subdivisions, is in place for seamless monitoring and forecasting for severe weather systems such as cyclones, heavy rainfall, hail, heatwaves, cold waves, thunderstorms, lightning, etc.
- With respect to earthquakes, the Government has strengthened disaster preparedness through continuous monitoring of earthquake activity and quick dissemination of earthquake information by the National Centre for Seismology, under the Ministry, to the SDMAs and the public.

Mission Mausam has been launched by the Ministry with the objective of making Bharat a "weather-ready and climate-smart" nation, including the State of Telangana.

IMD has also brought out a web-based "Climate Hazard & Vulnerability Atlas of India" prepared for the thirteen most hazardous meteorological events, which cause extensive damage and economic, human, and animal losses. The same can be accessed at [https://impune.gov.in/hazardatlas/about\\_hazard.html](https://impune.gov.in/hazardatlas/about_hazard.html). The atlas provides information that may assist State Government authorities and disaster management agencies in identifying potential hotspots and in planning appropriate measures to address extreme weather events, including heatwaves and unseasonal rainfall, caused by climate change. The product also serves as a reference for efforts related to climate-resilient infrastructure planning.

- (d) Yes. The India Meteorological Department (IMD), under the Ministry, routinely collaborates with State Governments and TGDPS to expand observation networks, including Automatic Weather Stations (AWS), upper-air stations, lightning detectors, radars, and wind profiler systems. Expansion of such infrastructure depends on vulnerability, technical feasibility, land availability, and funding approvals. The Ministry is in continuous endeavour of augmenting the observational network and R&D infrastructure, towards achieving better accuracy in weather forecasting, as well as to strengthen timely early warning systems.

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