GOVERNMENT OF INDIA
MINISTRY OF HOME AFFAIRS

LOK SABHA
UNSTARRED QUESTION NO. 332

TO BE ANSWERED ON THE 02ND DECEMBER, 2025/ AGRAHAYANA 11, 1947 (SAKA)

AI INTEGRATED EARLY WARNING SYSTEMS

332. SHRI B K PARTHASARATHI:
SHRI BASTIPATI NAGARAJU:

Will the Minister of HOME AFFAIRS be pleased to state:

(a) whether the Government has plans to integrate artificial intelligence with early warning systems under the National Disaster Management Plan (NDMP);

(b) if so, the details thereof including the model being used and agencies involved if not, the reasons therefor;

(c) whether the Government has collaborated with any Indian national/international universities or any tech firm to develop an AI integrated model for early warning systems;

(d) if so, the details thereof including the universities being collaborated with, if not, the reasons therefor;

(e) whether the Government has allocated funds for the development of AI integrated early warning systems for natural disasters; and

(f) if so, the details thereof, especially funds allocated and released for Andhra Pradesh and if not, the reasons therefor?

ANSWER

MINISTER OF STATE IN THE MINISTRY OF HOME AFFAIRS
(SHRI NITYANAND RAI)

(a) to (f): The National Disaster Management Plan (NDMP), 2016 which was subsequently revised and updated in 2019, is aligned with the targets laid

down under the Sendai Framework for Disaster Risk Reduction (SFDRR) and Prime Minister's 10-Point Agenda on Disaster Risk Reduction (DRR).

The broad objectives of NDMP 2019 includes the effective use of science, technology and traditional knowledge in all aspects of DRR. Agenda 5 of the Prime Minister's 10-Point Agenda on DRR provides that efforts must be made to leverage technology to enhance the efficiency of our disaster risk management efforts. As such, the use of latest technologies is an essential facet in our efforts for DRR.

Early warning for severe weather events is supported by a state-of-the-art observation network that includes surface, upper air, remote sensing observations, seamless forecasting systems based on high-resolution dynamical models, and GIS-based tools for generating alerts and warnings. The entire system is integrated with modern telecommunication technologies to ensure the timely and effective dissemination of information.

Technology enabled initiatives such as Mausamgram Platform of Indian Meteorological Department (IMD) (a citizen-centric app providing village-level hourly forecasts in all official languages) and Mission Mausam (2030 initiative to scale AI-driven forecasts to high resolution) are some steps in the direction of harnessing latest technology for early warning.

IMD has informed that to integrate Artificial Intelligence to Weather Forecasting and Early warning systems, IMD, in coordination with various centres of Ministry of Earth Sciences (MoES), has taken following new initiatives during recent years:

- **Implementation of Mausam GPT**
- **AI/ML based Advanced Dvorak Technique (AiDT) technique to estimate the intensity of cyclones.**
- **IMD also utilizes AI/ML based weather forecasting products from European Centre for Medium-Range Weather Forecasts. (ECMWF).**
- **Multilingual weather forecasting using Bhashini app is being used in IMD to disseminate the information in regional languages.**

Details of all the initiatives taken by IMD, in coordination with MoES, to integrate AI/ML in weather, monitoring system and early warning system are given in Annexure 1.

IMD has signed MoU with various Academic Institutions like IITs, IIITs, NITs, ISRO, DRDO, Ministry of Electronics and Information Technology (MeitY), Ashoka university, etc for collaborations and R&D activities, utilizing facets of various AI/ML applications in, weather and climate, real-time weather monitoring, early warning system, etc. Such efforts by IMD have helped it re-engineered its processes for 7-day lead forecasts.

Further, Government of India has launched a scheme namely, Common Alerting Protocol (CAP) based Integrated Alert System (SACHET), in association with Centre for "Development of Telematics" (CDOT) at a total project cost of Rs. 355 crore. It facilitates dissemination of warnings/alerts about impending hazards to geographically referenced population, in vernacular languages.

It is a geo-intelligent platform that uses AI for subscriber prediction, automated alert generation, and message content analysis. C-DOT has consulted IIT Delhi for a Collaborative Research Program on generative AI tool for real-time multilingual support using NLP, speech-to-text, and image processing for early warning.

Further, Central Water Commission (CWC) has informed that development of AI/ML-based systems for flood forecasting has commenced in-house within CWC recently, specifically focusing on Short-range Level Flood Forecasting (Time Series Forecasting) using artificial intelligence models.

Early Warning systems of Alert agencies such as IMD, National Remote Sensing Centre (NRSC), etc. are of pan-India applicability and data about the funds allocated for the development of AI Integrated early warning systems for particular State is not maintained by this Ministry.

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Annexure 1

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The Continuous up gradation taking place in technologies relevant to AI for weather forecasting, early warning system, etc. The details are as follows:

1. **Virtual Centre at IITM, Pune has been established by MoES to develop AI/ML/DL based application tools.**

2. **A dedicated functional group has been established in IMD under MoES to strengthen the R&D activities in AI/ML**

3. **IMD has established specialized GPU and CPU based infrastructure for AI computing**

4. **IMD has signed MoU with various Academic Institutions like IITs, IIITs, NITs, ISRO, DRDO, Ministry of Electronics and Information Technology (MeitY), etc for collaborations and R&D activities, utilizing facets of various AI/ML applications to weather and climate.**

5. **The capacity-building in AI/ML domain with respect to weather and climate are being done by nominating scientist in training sessions and workshops.**

6. **IMD organizes a short-term refresher course on the Fundamentals of Artificial Intelligence and Machine Learning every year in the month of May.**
