Ministry of Earth Sciences

PARLIAMENT QUESTION: MISSION MAUSAM

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Mission Mausam is envisaged to be a multi-faceted and transformative initiative to tremendously boost India's weather and climate-related science, research, and services. It will help better equip stakeholders, including citizens and last-mile users, to tackle extreme weather events and the impacts of climate change. The Mission Mausam is launched to make Bharat a "weather-ready and climate-smart" nation, with the following objectives:

- Strengthening observations (in-situ & remote sensing) and improved model capability to be able to plan and protect life and property from extreme and high-impact weather
- Gaining a better understanding and use of Science, Innovation and Technology, and Data Science for societal benefit
- Improve our Model/Data Assimilation/HPC for giving accurate information to the Public and stakeholders (Numerical+Artificial Intelligence and Machine Learning)
- Trained Manpower in Earth System Science for today and tomorrow
- Forecast dissemination: Effective communication with Society: Early Warning for ALL

The Union Cabinet has approved the central sector scheme 'Mission Mausam' atan outlay of INR 2,000 crores over two years. Mission Mausam is intended to augment the Doppler Weather Radar (DWR) network across the country for complete radar coverage and to enhance the accuracy of the weather forecasting system. The exact locations are being worked out for installing 87 more DWRs, 15 radiometers and 15 wind profilers across the country, to observe not only surface measurements but also upper atmosphere, to improve the weather forecast. It is also envisaged to set up urban testbeds, cloud chamber for weather modification research and installation of atmospheric chemistry instruments for air quality studies.

The newly launched Mission Mausam timeline is two years 2024-2026.

Currently, our observations are relatively sparse both in terms of spatial and temporal coverage. Moreover, the horizontal resolution of the Numerical Weather Prediction (NWP) models is 12 km, making it difficult to forecast weather events in India accurately. Moreover, as climate change progresses, the atmosphere is becoming more chaotic. This leads to phenomena like isolated heavy rainfall events and localized droughts, creating simultaneous challenges of both flooding and drought. Understanding these complex patterns demands an in-depth knowledge of physical processes within clouds, outside clouds, on the surface, in the upper atmosphere, over the oceans, and in the Polar regions.

To address the above issues, Mission Mausam envisages augmenting the entire observational network (surface as well as upper-air), numerical modelling framework, incorporating AI/ML techniques, enhancing the computing power and training and engaging adequate human resources so as to mitigate the impact of climate change-induced extreme weather events and strengthen the resilience of the communities.

Self-reliance of a country in developing accurate weather and climate forecast system is essential for optimizing resource use, improving safety, mitigating disasters and risks across various sectors, and assisting neighbouring countries in need of accurate weather and climate forecasts, thereby enhancing overall societal resilience.

Mission Mausam will develop models with better physics and higher resolutions better capture and predict extreme events and their impacts, providing valuable information for disaster preparedness and risk management. From the mitigation of the disasters point of view, seasonal prediction of cyclonic disturbances during all three seasons monsoon, pre and post-monsoon along with improvement in the seasonal and extended range predictions systems for monsoons is envisaged Also, assesssing the impact of severe weather on different sectors by engaging stakeholders from various sectors such as power, infrastructure, transport etc.

Decision support systems and multi-hazard early warning systems are the key elements of a comprehensive impact-based disaster risk reduction (DRR) strategy, which will be addressed in this mission.

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

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