Research Unit
Press Information Bureau
Government of India

MISSION MAUSAM

Enhancing Weather and Climate Resilience for India

(Ministry of Earth Sciences)

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INTRODUCTION

With its diverse geography and climate, India is heavily influenced by weather and monsoon patterns. Recognizing the critical need for accurate weather forecasting, especially in a country where agriculture is a primary livelihood, on **September 11, 2024**, the **Union Cabinet** under the **Modi Government 3.0** approved **Mission Mausam**, a landmark initiative by the **Ministry of Earth Sciences (MoES),** with a budget of **₹2,000** crores over two years. Designed to position India as a **global leader** in **weather and climate sciences**, the mission aims to make the nation ***'Weather Ready'*** and ***'Climate Smart'***, meeting the global standards.

It aims to improve weather and climate services, ensuring timely and precise observation, modeling, and forecasting information for multiple sectors, including agriculture, disaster management, and rural development. Spearheaded by the Ministry through its premier institutions—**the India Meteorological Department (IMD),** the **National Centre for Medium-Range Weather Forecasting (NCMRWF)**, and the **Indian Institute of Tropical Meteorology (IITM)**—the initiative is further supported by allied MoES bodies such as the **Indian National Centre for Ocean Information Services (INCOIS)** and the **National Institute of Ocean Technology (NIOT).**

Through **collaboration** with national and international research institutions, academia, and industry, Mission Mausam aspires to **revolutionize** India's weather and climate services while **cementing its global leadership** in this critical field. The initiative leverages **cutting-edge technology**, including **high-resolution models and supercomputing systems,** to provide **accurate forecasts on various timescales**—ranging from short-term (hours) to seasonal predictions.

WHY IS MISSION MAUSAM NEEDED?

- **Agrarian Economy:** Climate change has caused erratic rainfall patterns, which have increased farmers' vulnerability. Accurate monsoon forecasts help optimise sowing periods, irrigation planning, and crop yield predictions.
- **Disaster Preparedness:** India faces frequent extreme weather events such as cyclones, floods, and droughts. Enhanced prediction capabilities can save lives and reduce economic losses.

- **Rural Development:** Improved weather services can support rural communities by aiding in water resource management, livestock protection, and infrastructure planning.

OBJECTIVES

The primary objectives of Mission Mausam are:

- To **enhance India's capability** in **weather forecasting** across various scales—short-term, medium-term, extended-range, and seasonal.
- To **develop high-resolution models** for **improved accuracy** in **predicting** monsoon behaviour.
- To **strengthen observational networks** with advanced radars, satellites, and automated weather stations.
- To provide **actionable advisories** for agriculture, water resources, energy, health, and disaster management sectors.
- To **build capacity through research collaborations** with national and international institutions.

IMPLEMENTATION STRATEGY

Mission Mausam adopts a **multi-pronged approach** to achieve its objectives:

- **Infrastructure Development:** Installation of **Doppler Weather Radars (DWRs), Automatic Weather Stations (AWS)**, and **rain gauges** across the country.
- **Supercomputing Power:** Leveraging high-performance computing systems like Pratyush and Mihir for advanced climate modelling.
- **Collaborative Research:** Partnerships with global organizations like the **World Meteorological Organization (WMO)** to enhance forecasting techniques.
- **Public Outreach:** Dissemination of user-friendly advisories through mobile apps **(e.g., *Mausam* app),** SMS services, and media channels.

CURRENT STATUS

- Over **37 Doppler Weather Radars** have been installed across India to strengthen real-time monitoring capabilities.
- The ***Mausam* mobile app** provides location-specific **weather forecasts for 450 cities** in India.
- **Seasonal prediction models** have shown significant improvement under the **National Monsoon Mission framework.**
- The Ministry has initiated **specialised programs on urban flooding prediction** and **cyclone tracking.**

FOCUSING ON THE NORTH-EAST REGION

The North-East region of India faces **unique challenges** due to its **topography** and **climatic conditions**:

- **Frequent floods** during monsoons disrupt livelihoods.
- **Landslides** triggered by heavy rainfall pose significant risks to infrastructure.

Mission Mausam prioritizes this region by:

- ✓ Deploying **additional weather observation systems** tailored to hilly terrains.
- ✓ Providing **localized forecasts** to mitigate the impact of extreme events.
- ✓ Collaborating with state governments to **integrate weather data** into **disaster management plans.**

CHALLENGES

Despite significant progress, Mission Mausam faces several challenges:

1. **Geographical Diversity:** India's varied topography requires complex region-specific models to develop.
2. **Climate Change Uncertainty:** Rapid changes in global climate patterns make long-term predictions more challenging.
3. **Infrastructure Gaps:** Remote areas still need more observational infrastructure like radars or AWS.
4. **Awareness Levels:** Ensuring farmers and rural communities effectively utilise forecast information remains a key hurdle.

CONCLUSION

Mission Mausam marks a **transformative milestone** in India's efforts to **address climate variability** and its far-reaching **socio-economic impacts**. By **enhancing forecasting capabilities** and ensuring the **dissemination of accurate and actionable information** to stakeholders, the mission supports **sustainable development** while **safeguarding lives, livelihoods,** and **critical infrastructure**. Its implementation, particularly in **vulnerable regions** like the **Northeast**, holds the potential to significantly bolster India's resilience against climate-induced challenges such as extreme weather events and resource scarcity.

As the mission progresses, its focus on **integrating cutting-edge technology**, **fostering research collaborations**, and **driving public awareness campaigns** will ensure widespread adoption and impact. Mission Mausam is poised to not only **mitigate risks** but also unlock opportunities for **climate-adaptive economic growth**, playing a pivotal role in shaping a safer, more **resilient**, and prosperous future for India.

References

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