

**GOVERNMENT OF INDIA
MINISTRY OF EARTH SCIENCES
LOK SABHA
UNSTARRED QUESTION No. 872
TO BE ANSWERED ON WEDNESDAY, FEBRUARY 7, 2018**

WEATHER FORECAST SYSTEM

872. SHRI SHARAD TRIPATHI:

Will the Minister of EARTH SCIENCES be pleased to state:

- (a) whether scientists of India have successfully developed various models to make exact forecast with regard to the coming of monsoon and changes in the monsoon generally in Asia and especially in India;**
- (b) if so, the details thereof and the extent to which exact forecasting of monsoon has been made;**
- (c) the modality regarding the minimum advance period of forecast, its intensity and expansion, especially to provide information to farmers regarding different agroclimatic areas;**
- (d) the number of research institutes engaged in research activities on monsoon in the country; and**
- (e) the project-wise total allocation of fund made for undertaking research in this field during the last three plan periods?**

ANSWER

**MINISTER OF STATE FOR MINISTRY OF SCIENCE AND TECHNOLOGY AND
MINISTRY OF EARTH SCIENCES
(SHRI Y. S. CHOWDARY)**

- (a) Yes Madam. Scientists of India have successfully developed various models to make reliable forecasts with regards to monsoon onset (the coming of monsoon), its seasonal & extended range prediction and monsoon variability (intra-seasonal & inter-annual changes in the monsoon) for Asian Monsoon system, especially for Indian summer monsoon.**
- (b) The Ministry of Earth Sciences (MoES) has taken lot of important initiatives for considerable progress in the field of Earth Sciences during recent years, especially for prediction of monsoon and its variability in different time scales. One of the most important achievements was the successful implementation of the “Monsoon Mission” (which was earlier launched in 2012), a mission based program of MoES to improve monsoon prediction & weather forecast**

through collaborative research amongst MoES organizations and involving various national and international reputed organizations in this goal through various projects with this objective. The first phase of the Mission was completed successfully in 2017, with lot of achievements, including setting up of very advanced prediction systems for Seasonal prediction (mainly for SW monsoon season of June to September); Extended range prediction (for next 20 days) and Very high resolution Short range prediction (up to 8 days). The seasonal prediction skill of dynamic models has also improved considerably. All the above model developments have been transferred to ESSO-IMD for providing operational forecast of the monsoon system (in different time scales) to the nation. In addition to above IMD uses state of art statistical models developed through IMD's in house research and development work for Long Range Forecast of Monsoon.

- (c) India Meteorological Department (IMD) under Gramin Krishi Mausam Sewa (GKMS) scheme generates district level weather forecast for the next five days exclusively for the farmers in the country. Based on the forecast, district Agromet Advisory Services (AAS) bulletins are prepared by the Agromet Field Units (AMFUs) covering different Agro-climatic zones in the country. These AAS bulletins are prepared twice a week (Tuesday & Friday) and issued to the farmers through multimedia channel and also through SMS using Kisan portal and private companies. At present, 22.7 million farmers receive the weather forecast and agromet advisories directly. Inputs from Extended Range Forecast System (ERFS) for the next two weeks are also incorporated in the preparation of agromet advisories especially during prolonged dry spell conditions and break-in monsoon situation to cope up with moisture stress in the standing crops.
- (d) The names of the research Institutions in the country engaged in forecast/research on monsoon is given below.

SI No.	Institution
1	India Meteorological Department
2.	Indian Institute of Tropical Meteorology, Pune
3	The National Centre for Medium Range Weather Forecasting (NCMRWF), New Delhi
4	Indian Space Research Organization - Space Applications Centre, Ahmedabad
5	Indian Institute of Technology, Bhubaneswar
6	Centre for Disaster Mitigation, Jain University, Bangalore
7	Center for Development of Advanced Computing, Pune

8	Indian Institute of Technology, Delhi
9	Indian Institute of Science, Bangalore
10	Cochin University of Science and Technology (CUSAT), Cochin
11	Andhra University, Vishakapatnam
12	Savitribai Phule Pune University, Pune
13	Nansen Environmental Research Centre- India (NERCI), Cochin

(e) The plan wise expenditure details (for Grants to IITM) are as follows:

10th Five Year Plan : Rs. 47.72 Crores

11th Five Year Plan : Rs. 367.25 Crores

12th Five Year Plan : Rs. 919.79 Crores

The details of allocation (sanctioned amount), grant received (from the Ministry) and the expenditure under Monsoon Mission for 3 financial years (2014-15 to 2016-17) are as follows:

Project (Program) : Monsoon Mission

Year	Allocation (in Crores of Rupees)	Grant received (in Crores of Rupees)	Expenditure (in Crores of Rupees)
2014-15	59.35	23.55	25.69
2015-16	49.35	27.60	22.36
2016-17	49.40	11.66	18.91
