

**GOVERNMENT OF INDIA
MINISTRY OF EARTH SCIENCES
LOK SABHA
UNSTARRED QUESTION No. 1712
TO BE ANSWERED ON WEDNESDAY, July 27, 2016**

NATIONAL MONSOON MISSION

**1712. SHRI GEORGE BAKER:
SHRI DEVJI M. PATEL:**

Will the Minister of EARTH SCIENCES be pleased to state:

- (a) the salient features of the National Monsoon Mission;**
- (b) the details of funds allocated for this Mission during the last three years and the current year, State/UT-wise;**
- (c) the targets fixed and achievements made under this mission in the country during the last three years and the current year, State/UT-wise;**
- (d) whether the Government has received any special proposal from National as well as International institutes in this regard and if so, the details thereof and the reaction of the Government thereto; and**
- (e) the outcome of the performance evaluation of the new ocean-atmospheric model framework being adopted to overcome the existing model for better monsoon forecast?**

ANSWER

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

- (a) Under the National Monsoon Mission initiative, the Indian Institute of Tropical Meteorology (IITM), Pune, Indian National Centre for Ocean Information Services (INCOIS), Hyderabad and National Centre for Medium Range Weather Forecasting (NCMRWF), NOIDA have embarked upon to build a state-of-the-art coupled ocean atmospheric model for a) improved prediction of monsoon rainfall on extended range to seasonal time scale (16 days to one season) and b) improved prediction of temperature, rainfall and extreme weather events on short to medium range time scale (up to 15 days) so that forecast skill gets quantitatively improved further for operational services of India Meteorological Department (IMD).**
- (b) Details of funds allocated for the Mission during the last three years and the current year is as under:**

S.No.	Financial Year	Rupees in Crore
1.	2013-14	185.05
2.	2014-15	78.99
3.	2015-16	63.43
4.	2016-17	62.12

- (c) Targets were to develop a state of the art dynamical prediction system for monsoon rainfall (over Indian region) on different time scales (e.g., short range, medium range, extended range and seasonal time scales) with reasonably good prediction skill.**

Year wise achievements are placed in Annexure-1.

- (d) Government has received 75 project proposals from National as well as International institutes in this regard. These project proposals have been reviewed on the basis of their scientific merit and suitable projects were recommended for funding through Monsoon Mission. On recommendation of the Scientific Review & Monitoring Committee (SRMC) and other related Committees, the Scientific Steering Committee (SSC) of Monsoon Mission approved 40 projects.**
- (e) The present long range forecast system based on the statistical models has shown some useful skill in predicting all India seasonal rainfall including the deficient monsoon season rainfall during 2015. However, in order to overcome the limitations of the statistical models used so far, dynamical coupled ocean-atmospheric model framework is put under exhaustive performance evaluation under the National Monsoon Mission.**

Annexure-1

S. No.	Achievements made under this mission in the country during each of the last four years (2012-2016)	
1.	2012-2013	Experimental real-time seasonal prediction of Indian Summer Monsoon, using ocean –atmosphere coupled dynamical model CFSv2, was initiated at IITM and the predictions were provided to IMD. Short range forecasts were provided by IMD and medium range by NCMRWF (using UM of UKMO), with reasonably good skill.
	2013-14	In addition to above activities, experimental real-time Extended Range Prediction of active and break spells (ERPAS) of Indian Summer Monsoon Rainfall, up to 4 pentad lead (i.e., 20 days in advance) was initiated at IITM, using an indigenously developed Ensemble Prediction system (EPS), based on the state-of-the-art CFSv2.
	2014-2015	“Extended Range Prediction of active and break spells” was certified with ISO 9001:2008 standards in 2015, as it was one of the best prediction systems in the world, for predicting the active/break cycle of Monsoon with moderate prediction skill. IITM initiated to provide Outlook of major climate phenomena (e.g. El-Nino & IOD). Lot of model development works were carried out for improving the physics (land surface, convection, sea-ice, microphysics, etc.) of the model and model resolution was increased.
	2015-2016	In addition to above activities, an In – house Ocean Data Assimilation system was set up. India could predict 2015 drought with good accuracy when all other world leading Climate centres were suggesting that it will be near normal monsoon year.
	2016-2017	In addition to all above activities, Short-range prediction efforts were recently initiated by IITM. A state of the art Global Ensemble Forecast System (GEFS), based on 21 ensemble member, have been implemented at ESSO-IITM for generating high resolution short range forecast. Hot weather season outlook for 2016 summer (April-June) is issued for the country.