GOVERNMENT OF INDIA
MINISTRY OF EARTH SCIENCES
LOK SABHA
UNSTARRED QUESTION No. **1162**
TO BE ANSWERED ON THURSDAY, DECEMBER 12, 2013

LONG RANGE FORECASTS

1162. SHRI S. PAKKIRAPPA:

Will the Minister of **EARTH SCIENCES** be pleased to state:

(a) whether most of the long range forecasts issued by the India Meteorological Department (IMD) during the just concluded South-West monsoon season went wrong;
(b) if so, whether the Government has conducted any study to ascertain the reasons for making the wrong forecasts by IMD and if so the details thereof; and
(c) the measures taken to improve the working of IMD and to remove the shortcomings in the functioning thereof?

ANSWER
MINISTER FOR MINISTRY OF SCIENCE AND TECHNOLOGY AND
MINISTRY OF EARTH SCIENCES
(SHRI S. JAIPAL REDDY)

(a)-(b) Long range forecast of monsoon rainfall always have certain degree of error as its first assessment is issued in April and update is issued in June. The endeavor of the Earth System Science Organization (ESSO) - IMD has always been to reduce this margin of error through continuous efforts to improve. Quantitatively, monsoon season rainfall for the country as a whole has been to the extent of 106% of its long period average (LPA) as against normal monsoon outlook assessed at 98±4% of LPA issued in June and kept at 98±5% of LPA issued in April.

ESSO-IMDs monsoon forecasts are reasonably accurate as far as the verification of last 10-years long range forecasts of monsoon are concerned. Details of the forecast errors are presented below:

Period	**No. of years during Which Errors were Within ±4%**	**No. of years during Which Errors were Within ±4-8%**	**No. of years during Which Errors were higher than ±8%**
2004-13	5 (2003; 2005; 2008; 2010; 2012)	3(2006; 2011,2013)	3 (2004; 2007; 2009)
1994-04	1 (1995)	4 (1996; 1998; 2000; 2001)	4 (1994; 1997; 1999)

Marginally above normal rainfall realized during Monsoon-2013 to certain extent is attributed to the early advance of monsoon over the entire country (by the middle of June itself as against mid-July otherwise) and above normal frequency of monsoon low pressure systems (cyclonic circulations, lows) across central India & north peninsula.

(c) During the XII Plan, under the National Monsoon Mission initiative other institutions of ESSO, the Indian Institute of Tropical Meteorology (ESSO-IITM), Pune, Indian National Centre for Ocean Information Services (ESSO-INCOIS), Hyderabad and National Centre for Medium Range Weather Forecasting (ESSO-NCMRWF), NOIDA, have embarked upon to build a state-of-the-art coupled ocean-atmospheric climate 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 ESSO-IMD. Experimental forecast of this year based on dynamical model framework was 104-108% as against actual rainfall of 106%.

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