GOVERNMENT OF INDIA
MINISTRY OF EARTH SCIENCES
RAJYA SABHA
UNSTARRED QUESTION No. **3851**
TO BE ANSWERED ON THURSDAY, AUGUST 14, 2014

ARRANGEMENT FOR TECHNICAL ASSESSMENTS OF MONSOON SITUATION

3851. SHRI DARSHAN SINGH YADAV:

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

(a) whether it is a fact that the monsoon situation has not been consistent for the last few years in the country;
(b) whether Government has any arrangement for latest technical assessments in this regard; and
(c) whether our meteorologists are making effort to discover the options of technical and artificial rain, if so, the details thereof?

ANSWER
MINISTER FOR MINISTRY OF SCIENCE AND TECHNOLOGY AND
MINISTRY OF EARTH SCIENCES (Independent Charge)
(DR. JITENDRA SINGH)

(a) No Sir. The monsoon rainfall for the country as a whole over a long period data set has not shown any significant trend. However, Chhattisgarh, Jharkhand and Kerala have witnessed slight decrease in rainfall, and 8 sub divisions namely Gangetic West Bengal, West Uttar Pradesh, Jammu and Kashmir, Konkan and Goa, Madhya Maharashtra, Rayalaseema, Coastal Andhra Pradesh and North Interior Karnataka show increasing trend.

Although, the long period average rainfall during Monsoon (June to September) for the India as a whole remained more or less at 890 mm, the actual quantum of seasonal rainfall received during last 10 years is presented below to present interannual variability of monsoon:

Year	Monsoon (June to September) rainfall in mm	RAINFALL IN % DEPARTURE
2004	779.6	-13%
2005	874.4	-1%
2006	889.4	0%
2007	944.6	6%
2008	877.4	-2%
2009	698.1	-22%
2010	910.6	2%
2011	901.2	2%
2012	823.6	-7%
2013	937.4	6%

During current monsoon 2014 the deficiency of rainfall is -17% as on 11th August 2014.

(b) Yes Sir. Under the National Monsoon Mission initiative institutions of Earth System Science Organisation (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 Earth System Science Organisation- India Meteorological Department (ESSO-IMD).

One of the Implementation Agreements - Dynamical Seasonal Prediction of Indian Summer Monsoon Rainfall (Establishment of Monsoon desk) was signed during the visit of President Obama in November 2010 under which Indian and US scientists are working jointly on seasonal forecast. ESSO-NCMRWF is putting efforts to improve the adopted unified model in collaboration with UK for seamless prediction of monsoon rainfall forecasts in all temporal ranges (Short-up to 72 hours, Medium-3 to 10 days and extended beyond 10 days) including extreme weather phenomena.

(c) As things stand today, artificial rain making techniques involving cloud seeding cannot be used for bringing rain clouds to rainfall deficit/drought areas. Such efforts can only induce potential preexisting clouds, already passing over a given place, to produce rain only if organized weather modification intervention becomes successful.

Earth System Science Organisation – Indian Institute of Tropical Meteorology (ESSO-IITM) is putting its effort in understanding the rain formation in clouds through studying cloud microphysical characteristics through a research program Cloud Aerosol Interaction and Precipitation Enhancement Experiment (CAIPEEX).

*****