

**GOVERNMENT OF INDIA
EARTH SCIENCES
LOK SABHA**

STARRED QUESTION NO:407

ANSWERED ON:22.04.2015

WEATHER FORECASTING

Mondal Shri Sunil Kumar;Panda Shri Baijayant "Jay"

Will the Minister of EARTH SCIENCES be pleased to state:

- (a) whether India is lagging behind in efficiency parameters when compared to developed countries in making accurate weather forecast;
- (b) if so, the details thereof and the reasons therefor;
- (c) whether the Government is collaborating with or getting assistance from foreign countries/ international organizations to improve weather forecast system;
- (d) if so, the details thereof and the progress made on Indo-US project of setting up Monsoon Desk for working jointly for the purpose; and
- (e) the other steps taken/being taken by the Government for making accurate weather forecasts in the country?

Answer

MINISTER FOR MINISTRY OF SCIENCE AND TECHNOLOGY AND MINISTRY OF EARTH SCIENCES (DR. HARSH VARDHAN)

(a) to (e): A Statement is laid on the Table of the House.

STATEMENT LAID ON THE TABLE OF THE LOK SABHA IN REPLY (a) to (e) TO STARRED QUESTION NO. 407 REGARDING "WEATHER FORECASTING" TO BE ANSWERED ON WEDNESDAY, APRIL 22, 2015

(a-b) No Madam. There is no reason to carry such impression about the performance of the Earth System Science Organization-India Meteorological Department (ESSO-IMD) that operates a dedicated weather and climate monitoring, detection and warning services useful for various sectors of economy. The weather forecasting systems in the country are comparable to most of the countries in the world with respect to rainfall forecasting. Efforts are continuously made to optimize the level of efficiency of the forecasting systems. During the past few years, the ESSO-IMD has been continuously improving weather prediction services in terms of accuracy, lead time and associated impact. Manifestation of such quantitative improvement may be seen with accurate prediction of Very Severe Cyclonic Storms 'Phailin', 'Hudhud' and the heavy rainfall events during monsoon season of 2013 and 2014.

(c-d) Yes, Madam, IMD is a member of World Meteorological Organisation (WMO) which is a specialised agency of United Nation wherein collaborative mechanism with international organisations like U K Meteorological Office (UKMO), National Centre for Environmental prediction (NCEP), USA etc. exists for technological exchange to operational forecasts.

Through Indo-US collaboration, a "Monsoon Desk" has been set up for working jointly for improving seasonal forecast of Indian monsoon rainfall. Through this forum, Indian and US Scientists are exchanging their ideas and sharing their expertise. This effort has led to appreciable improvements in the efficiency of models in making better and better forecasts.

(e) Improvement of weather forecasting services is a continuous process. As part of its XI five year plan, Government has initiated a comprehensive modernization programme for ESSO-IMD covering upgradation of (i) observation systems (ii) advanced data assimilation tools (iii) advanced communication and IT infrastructure (iv) high performance computing systems and (v) intensive/sophisticated training of ESSO- IMD personnel to facilitate the implementation of advanced global/regional/ meso-scale prediction models for improving the accuracy of weather forecasts in all temporal and spatial scales and for quick dissemination of weather forecast assessments/warnings to the users.

Operational implementation of improved forecast suite of models after the commissioning of the High Performance Computing (HPC) systems have enhanced the weather forecasting capacities through assimilating all available global satellite radiance data for the production of forecast products at 22Km grid globally and 9Kms/3Kms grid over India/regional/mega city domains.

The performance evaluation of the updated global/meso-scale forecast systems for the past 5-7 years have demonstrated enhanced forecast skill by about 18% quantitatively as far as the track and landfall forecasts of the tropical cyclones are concerned.

ESSO-IMD has operationalized its location specific nowcasting weather service across the country. This service activity currently covers 147 urban centres on experimental basis under which nowcast of severe weather (Thunderstorms; heavy rainfall from

lows/depressions over the land) in 3-6hrs. range is issued. Origin, development/movement of severe weather phenomena are regularly monitored through Doppler Weather Radars (DWRs) and with all available other observing systems (Automatic Weather Station-AWSs; Automatic Rain Gauge - ARGs; Automatic Weather Observing Systems-AWOS; satellite derived wind vectors, temperature, moisture fields etc.)

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.