GOVERNMENT OF INDIA
EARTH SCIENCES
LOK SABHA

UNSTARRED QUESTION NO:633
ANSWERED ON:26.11.2014
FORECASTING OF NATURAL CALAMITIES
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Will the Minister of EARTH SCIENCES be pleased to state:

(a) whether the Government has latest scientific techniques to forecast the natural calamities in the country;-

(b) if so, the details thereof;

(c) whether the technique is of international Standards;

(d) if so, the details thereof and if not, the reasons therefor; and

(e) the steps taken/being taken by the Government to evolve scientific techniques to forecast natural calamities.

Answer

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

(a) Yes Madam as far as the Hydro-meteorological hazards (Cyclones; heat wave/cold wave; Heavy rainfall events; Thunderstorms) and Tsunami are concerned.

(b) Improvement of weather forecasting services is a continuous process. As part of its XI five year plan, Government had implemented a comprehensive modernization programme for Earth System Science Organization-India Meteorological Department (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 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.

As and when the cyclone systems move in to the 500Km surveillance range of DWRs, identification of strong wind zones and pockets of heavy rainfall within the core cyclone area is carried out and their rapid changes are monitored on continuous basis. IMD currently operates 5- Doppler Weather Radars (DWR) at Chennai, Machilipatnam, Visakhapatnam, Kolkata, Sriharikota on the east coast along with a network of Automatic Weather Stations (AWS) and Automatic Rain Gauges (ARG) for continuous weather surveillance over the Bay of Bengal and Arabian Sea.

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 3-6h range is issued. Origin, development/movement of severe weather phenomena are regularly monitored through DWRs and with all available other observing systems (AWSs; ARGs; Automatic Weather Observing Systems-AWOS; satellite derived wind vectors, temperature, moisture fields etc.)

Integrated Agro-meteorological Advisory Service (AAS) is rendered now on twice-weekly basis in collaboration with State Agricultural Universities (SAUs), institutions of Indian Council of Agricultural Research (ICAR) etc. Realized weather of the previous week and quantitative district level weather forecast for next 5-days in respect of rainfall, maximum temperature, minimum temperature, wind speed, wind direction, relative humidity and clouds as well as weekly cumulative rainfall forecast are provided. Further, crop specific advisories, generated in partnership with SAUs and ICAR, to help the farmers are issued and widely disseminated. The AAS of ESSO-IMD has been successful in providing the crop specific advisories to the farmers at the district/agro-climatic zone level twice weekly through different print/visual/Radio/ IT based wider dissemination media including short message service (SMS) and

Interactive Voice Response Service (IVRS) facilitating for appropriate field level actions.

(c-e) Yes Madam. Government feels that the upgradation of the observing system, high performance computing, communication, forecast/warning systems, product dissemination systems etc. should become a part of continuing process by which state-of-the art science and technology tools shall be made accessible to the scientists engaged in weather research and forecasting towards enhancing the service quality.