

**GOVERNMENT OF INDIA  
MINISTRY OF EARTH SCIENCES  
LOK SABHA  
UNSTARRED QUESTION No. 170  
TO BE ANSWERED ON WEDNESDAY, JULY 18, 2018**

**PREDICTION OF CYCLONE, EARTHQUAKE AND TSUNAMI**

**170. SHRI PR. SENTHIL NATHAN:**

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

- (a) whether the Government has initiated any specific project to predict well in advance the cyclones, earthquakes and tsunami occurring in the Indian Ocean and Bay of Bengal;**
- (b) if so, the details thereof and if not, the reasons therefor;**
- (c) the steps taken/proposed to be taken by the Government to facilitate the search operations to find missing persons during the cyclones; and**
- (d) the total amount allocated in the last three years for the same?**

**ANSWER**

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

**(a)-(b) Yes Madam. MoES/IMD has following projects to improve cyclone monitoring and forecasting:**

- Global Ensemble Forecasting System (GEFS) with a resolution of 23 km was adapted from NCEP, NOAA, USA. It has been upgraded to a resolution of 12 km to provide forecast upto 7 days from 1<sup>st</sup> June, 2018.**
- The Unified Model (UM) and Unified Model Ensemble Prediction System (UMEPS) have been adapted from UK Meteorological Office (UKMO), UK to provide forecast upto 7 days with 12 km resolution from 1<sup>st</sup> June, 2018.**
- IMD also runs cyclone specific Hurricane Weather Research & Forecast (HWRf) Model adapted from NCEP, NOAA, USA with a resolution of 18 km, 6 km and 2 km for cyclone track and intensity prediction. A project has been undertaken to implement high resolution Ocean Atmospheric Coupled HWRf Model at IMD for cyclone forecasting.**
- IMD also makes use of NWP products prepared by some other operational NWP Centres like, ECMWF (European Centre for Medium Range Weather Forecasting), GFS (NCEP), UKMO (UK Met), JMA (Japan Meteorological Agency).**
- A project has been undertaken for up-gradation of Decision Support System of Tropical Cyclones Warning Services.**

**Apart from the above, the Early Warning Services for Tsunamis are being provided by Indian Tsunami Early Warning Centre (ITEWC) at Indian National Centre for Ocean Information Sciences (INCOIS), Hyderabad an autonomous body under Ministry of Earth Sciences. ITEWC was established after the deadly Tsunami on 26 December, 2004 and has been operational since its establishment in October 2007.**

**The ITEWC is capable of detecting tsunamigenic earthquakes occurring in the Indian Ocean as well as in the Global Oceans within 10 minutes of the occurrence of the earthquake and disseminates the advisories to the concerned authorities through email, fax, SMS, GTS and website.**

**ITEWC is considered as one of the most modern tsunami warning centre in the world. Considering the performance of ITEWC, in October 2012, Intergovernmental Oceanographic Commission (IOC) of UNESCO has designated ITEWC as the Tsunami Service Provider (TSP) for the entire Indian Ocean Region. Since then, ITEWC is providing tsunami advisories and related services to all countries on the Indian Ocean rim (25) countries.**

- (c) The responsibility of search and rescue operations during such natural calamities lies with the respective state governments.**
- (d) In regard to the amount allocated, this ministry is not maintaining the information centrally.**

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