

**GOVERNMENT OF INDIA  
MINISTRY OF EARTH SCIENCES  
LOK SABHA  
UNSTARRED QUESTION No. 3658  
TO BE ANSWERED ON WEDNESDAY, AUGUST 08, 2018**

**TSUNAMI AND EARTHQUAKE WARNING**

**3658. SHRI SUKHBIR SINGH JAUNAPURIA:**

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

- (a) whether the Government has achieved success in the field of early warning systems of Tsunami and Earthquake;**
- (b) if so, the details thereof;**
- (c) the total amount allocated/spent on the research during the last three years and the current year;**
- (d) whether any advance warning system is available in the global market which the Government proposes to acquire; and**
- (e) if so, the details thereof?**

**ANSWER**

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

- (a) Yes Madam.**

**The Indian Tsunami Early Warning Centre (ITEWC) was established after the deadly Tsunami on 26 December, 2004 at Indian National Centre for Ocean Information Sciences (INCOIS), autonomous body under Ministry of Earth Sciences, Hyderabad. The centre has the latest scientific techniques to provide early warnings of an impending tsunami to the entire Indian Ocean region and has functioned flawlessly since its establishment in October 2007.**

**To date, there is no proven scientific technique available, anywhere in the world, to predict the occurrence of earthquakes with reasonable degree of accuracy with regard to space, time and magnitude. However an Earthquake Early Warning (EEW) System was developed in recent times for issue of earthquake alert/warning based on P-wave arrival time after occurrence of an earthquake. The warning time will range from a few seconds to a little more than a minute and will primarily be a function of the distance of the user from the epicenter.**

- (b) **The Indian Tsunami Early Warning System comprises a real-time seismic monitoring network of 17 broadband seismic stations to detect tsunamigenic earthquakes. In addition to that, INCOIS is also receiving data from around 90 national seismic stations which are established by various national local/regional centres. Also, INCOIS has a real-time sea-level network with 7 tsunami buoys in the open ocean and 35 tide gauge stations at different coastal locations to monitor tsunamis, and pre-run scenarios database of tsunami. ITEWC is also receiving data around from 350 seismic stations, 50 tsunami buoys and 300 tide gauges of other international agencies in real time. The centre is capable of detecting tsunamigenic earthquakes occurring in the Indian Ocean as well as in the Global Oceans within 10 minutes of their occurrence and disseminates the advisories to the concerned authorities.**

**The National Centre for Seismology (NCS), maintains a country wide national seismological network, to detect and locate earthquakes occurring in and around the country. The network consists of state-of-art digital broadband seismographs, VSAT based communication systems and latest tools for dissemination of earthquake information to the concern disaster management authorities and other user agencies in least possible time. The network also includes a 17-station real time seismic monitoring system to monitor and report large magnitude earthquakes capable of generating tsunamis on the Indian coastal regions.**

- (c) **R & D projects have been sanctioned to different research organizations, universities to study the paleo-tsunamis and tectonics in the Indian Ocean region. During the XII plan period, 6 projects were funded under the research program "Tsunami & Tectonic Related Studies in the Indian Ocean Region" with a budget outlay of Rs. 550.545 lakhs.**
- (d) **ITEWC is considered as one of the most modern tsunami warning centres of the world. The ITEWC has all necessary infrastructure and capabilities to give tsunami advisories to India as well as to Indian Ocean countries. ITEWC has been designated as one of the Tsunami Service Providers (TSP) for the entire Indian Ocean Region by the Intergovernmental Oceanographic Commission (IOC) of UNESCO on 12 October 2011. Since then, it is providing tsunami advisories and related services to all countries in the Indian Ocean Rim (25 Countries). The major highlight of the warning centre is 100% detection of Tsunamis about threat threshold and no FALSE ALARMS. While acting as one of the TSP for the Indian Ocean region, ITEWC is also developing its ability to provide tsunami advisories for global ocean events. Hence, there is no proposal to acquire such system.**
- (e) **Does not arise**

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