

**GOVERNMENT OF INDIA
EARTH SCIENCES
LOK SABHA**

UNSTARRED QUESTION NO:391
ANSWERED ON:25.02.2015
EARTHQUAKE PRONE ZONE
Muddahanumegowda Shri S.P.

Will the Minister of EARTH SCIENCES be pleased to state:

- (a) whether the Indian Meteorological Department has identified and mapped the earthquake prone zones in the country;
- (b) if so, the details thereof;
- (c) the details of seismic tremors reported along with their intensity during the last three years and the current year;
- (d) whether adequate steps have been taken to deal with earthquakes, including creating awareness amongst masses; 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.

(b) Bureau of Indian Standards [IS-1893 (Part- 1): 2002], based on the past seismic history, grouped the country into four seismic zones, viz. Zone-II, -III, -IV and -V. Of these, Zone V is the most seismically active region, while zone II is the least. The Modified Mercalli (MM) intensity, which measures the impact of the earthquakes on the surface of the earth, broadly associated with various zones, is as follows:

Seismic Zone	Intensity on MM scale
II (Low intensity zone)	VI (or less)
III (Moderate intensity zone)	VII
IV (Severe intensity zone)	VIII
V (Very severe intensity zone)	IX (and above)

Broadly, Zone-V comprises of entire northeastern India, parts of Jammu and Kashmir, Himachal Pradesh, Uttaranchal, Rann of Kutch in Gujarat, parts of North Bihar and Andaman & Nicobar Islands. Zone-IV covers remaining parts of Jammu & Kashmir and Himachal Pradesh, Union Territory of Delhi, Sikkim, northern parts of Uttar Pradesh, Bihar and West Bengal, parts of Gujarat and small portions of Maharashtra near the west coast and Rajasthan. Zone-III comprises of Kerala, Goa, Lakshadweep islands, remaining parts of Uttar Pradesh, Gujarat and West Bengal, parts of Punjab, Rajasthan, Madhya Pradesh, Bihar, Jharkhand, Chhattisgarh, Maharashtra, Orissa, Andhra Pradesh, Tamilnadu and Karnataka. Zone-II covers remaining parts of the country.

(c) Details of the seismic tremors reported in the country, for the last 3-years and the current year, are presented in Annexure.

(d) Yes, Madam.

(e) Guidelines have also been published by the Bureau of Indian Standards (BIS), Building Materials & Technology Promotion Council (BMTPC), Housing and Urban Development Corporation (HUDCO) and National Disaster Management Authority (NDMA) for the design and construction of earthquake resistant structures to minimize the loss of life and damage to property caused by earthquakes. Loss of life and damage of property due to earthquakes could be considerably reduced through proper planning and implementation of pre- and post-disaster preparedness and management strategies by respective State and Central Government agencies in a coordinated manner following the above mentioned guidelines. Further, as part of pre- disaster preparedness measure, Government of India has also completed seismic microzonation studies of some of the major cities in the country such as, Jabalpur, Guwahati, Bangalore, greater Bharuch in Gujarat, Jammu in J & K, Shillong in Meghalaya, Chennai in Tamilnadu and sikkim state. These studies involving preparation of geological, geomorphological and land use maps followed by drilling, geological logging, standard penetration test and geophysical studies to demarcate the zones of least to most damage prone areas within the urban areas helps the respective town and country planning agencies to formulate perspective planning within the overall earthquake impact minimization efforts. The Government has implemented various programmes to educate and raise awareness amongst school children and general public on various aspects of earthquakes, their impacts and measures to mitigate losses.