

**GOVERNMENT OF INDIA
EARTH SCIENCES
LOK SABHA**

UNSTARRED QUESTION NO:563

ANSWERED ON:19.07.2017

Seismic Zone

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Will the Minister of EARTH SCIENCES be pleased to state:

- (a) the names of cities categorized under seismic zone in the country at present;
- (b) whether houses and building in these cities are not earthquake proof and if so, the details thereof and the reasons therefor;
- (c) the preventive measures taken/being taken by Government in this regard particularly for homes/buildings which are not earthquake proof;
- (d) whether certain norms have been put in place for such areas or whether these have been put in a separate category; and
- (e) if so, the details in this regard?

Answer

THE MINISTER OF STATE FOR MINISTRY OF SCIENCE AND TECHNOLOGY AND MINISTRY OF EARTH SCIENCES
(SHRI Y. S. CHOWDARY)

(a) Earthquake - prone areas of the country have been identified on the basis of scientific inputs relating to seismicity, earthquakes occurred in the past and tectonic setup of the region. Based on these inputs, Bureau of Indian Standards [IS 1893 (Part I):2002], has grouped the country into four seismic zones, viz. Zone II, III, IV and V. Of these, Zone V is seismically the most active region, while zone II is the least. Broadly, Zone - V comprises entire northeastern India, parts of Jammu and Kashmir, Himachal Pradesh, Uttaranchal, Rann of Kutch in Gujarat, part of North Bihar and Andaman & Nicobar Islands. Zone - IV covers remaining parts of Jammu and Kashmir and Himachal Pradesh, National Capital Territory (NCT) 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 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 country.

A list of important cities falling in various seismic zones, has also been prepared by BIS and is given as Annexure-I.

(b) Bureau of Indian Standards (BIS) has published criterion for construction of earthquake resistant structures. Buildings are now being made earthquake resistant.

(c-e) BIS has prepared guidelines for retrofitting in existing structures. A list of code books on construction practices of buildings and structures, to minimize the earthquake losses, is available. In addition to this, Housing and Urban Development Corporation (HUDCO) & Building Materials & Technology Promotion Council (BMTPC) have also published guidelines and brochures for construction and retrofitting of buildings. These guidelines are in wide circulation amongst the public and the administrative authorities responsible for the design and construction of earthquake resistant structures in earthquake prone areas.

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. These studies involving preparation of geological, geomorphologic 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 so as to help the respective town and country planning agencies to formulate perspective planning within the overall earthquake impact minimization efforts. Based on the above steps it is mandatory for all infrastructure/building/ development agencies (Public and Private) to design appropriate earthquake resistant building plans based on the relevant BIS Codes and other guidelines of BMTPC, HUDCO and NDMA for across the country.

National Disaster Management Authority (NDMA), Ministry of Home Affairs (MHA), Ministry of Earth Sciences and other state Disaster Management Authorities, have also taken up various initiatives to educate and enhance awareness amongst general public and school children on the general aspects of earthquakes, their impacts and measures to mitigate losses caused by them. A National Disaster Response Force (NDRF) is also functional under the general superintendence, direction and control of the NDMA for the purpose of specialized response to natural and man-made disasters.