GOVERNMENT OF INDIA
EARTH SCIENCES
LOK SABHA

UNSTARRED QUESTION NO:3202
ANSWERED ON:29.08.2013
DETAILS OF EARTHQUAKES
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Will the Minister of EARTH SCIENCES be pleased to state:

(a) whether the Government is aware of jolts of earthquakes suffered by Bihar over the last several years;

(b) if so, the details of such earthquakes including their number and intensity during the last three years and current year, year-wise;

(c) whether Bihar State comes under the category of Seismic zone;

(d) if so, the details thereof; and

(e) the preventive steps taken by the Government in this regard?

Answer

MINISTER OF THE STATE IN THE MINISTRY OF MINISTRY OF SCIENCE AND TECHNOLOGY AND MINISTRY OF EARTH SCIENCES (SHRI S. JAIPAL REDDY)

(a) Yes Madam.

(b) Details of earthquakes detected and located in Bihar and neighboring areas by the National Seismological Network operated by the Earth System Science Organization − India Meteorological Department (ESSO - IMD) during the years 2008-2012 and so far during current year are given at Annexure 1. Of these, the earthquake of magnitude 4.1, which occurred on 6th June, 2008 in Bihar - Jharkhand border region, was reportedly felt widely in the state. Other significant earthquakes that have occurred in the adjoining states/regions viz. Jharkhand, Sikkim, West Bengal and Nepal, could have also been experienced in parts of Bihar State.

(c) Yes Madam.

(d) As per the Seismic Zonation Map of India [IS 1893 (Part I):2002], prepared by the Bureau of Indian Standards, the country is grouped into four seismic zones viz. Zone -II, -III, -IV and − V. Of these, Zone V is seismically most active region, while zone II is the least. As per this seismic zoning map, parts of Bihar State fall in Seismic zones - V, IV and III. The Modified Mercalli (MM) intensity, which measures the impact of the earthquakes on the surface of the earth, broadly associated with various zones is presented below:
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)
(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 so as to minimize the loss of life and damage to property caused by earthquakes. Loss of life and damage to property due to earthquakes could considerably be reduced only 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 guidelines are in wide circulation amongst the public and the state/local level administrative/regulatory authorities for ensuring their compliance in respect of the structural safety in various earthquake prone areas. Appropriate training programmes are periodically conducted for Architects and Masons regarding structural safety requirements.

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 in various states/UTs to formulate perspective developmental 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. Regular field level drills and emergency response simulation exercises are organized at involving multi-level emergency responder groups and stakeholders so as to assess and augment emergency response systems appropriately.

By imparting professional training to the Engineers of the civic bodies, Government is enhancing the technical capabilities of field engineering wings to be able to survey potentially weak buildings. Guidelines for improving Earthquake Resistance of Low Strength Masonry Buildings (IS 13828:1993) that covers the special features of design and construction for improving earthquake resistance of buildings of low -strength masonry are already in force to supplement these efforts. Government is keen to see atleast from now that all new buildings constructed under various National and State schemes should be made earthquake resistant in the first instance so that no new addition to the stock of existing unsafe buildings takes place.