GOVERNMENT OF INDIA
EARTH SCIENCES
LOK SABHA

STARRED QUESTION NO:166
ANSWERED ON:09.03.2007
EARTHQUAKE RESISTANT TECHNOLOGY
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Will the Minister of EARTH SCIENCES be pleased to state:

(a) whether the government is aware that continuous earthquakes are occurring in certain areas of the country recently;

(b) if so, the details thereof;

(c) whether areas have been identified as earthquake-prone areas in the country ;

(d) if so, the details thereof, State-wise ;

(e) the details of the earthquakes resistance technology adopted for construction in earthquake prone area ;

(f) whether any regulation is being formulated to make use of earthquake resistant technology mandatory in construction sector in the country; and

(g) if so, the details thereof ?

Answer

MINISTER OF SCIENCE AND TECHNOLOGY AND MINISTER OF EARTH SCIENCES(SHRI KAPIL SIBAL)

(a) to (g): A statement is laid on the Table of the House.

STATEMENT REFFERED TO IN REPLY TO PARTS (a) TO (g) OF LOK SABHA STARRED QUESTION NO. 166 FOR 9TH MARCH, 2007

(a) Yes, Sir.

(b) Consequent to the occurrence of the great earthquake in Sumatra region on 26th December, 2004 of magnitude 9.3 and the 8th October, 2005 earthquake in Muzzafarabad of magnitude 7.6, these regions had witnessed aftershock activity of lesser intensity on more or less continuous basis. The Sumatra and nearby regions had witnessed about 95 aftershocks of magnitude 5.0 and above since January, 2006 till date, some of which have been reported felt in Andaman and Nicobar island region. Also, 12 aftershocks of magnitude 5 and above had been recorded in the Muzzafrabad area since January, 2006 till date, some of which were felt in the Indian region. The Bhuj region of Gujarat, where an earthquake of magnitude 77 occurred on 26th January, 2001, had also exhibited aftershock activity of lower intensities. In this region, there had been 18 aftershocks of magnitude 3.5 and above since January, 2006 till date.

(c) Yes, Sir.

(d)Bureau of Indian Standards [IS-1893 (Part-1): 2002], based on various scientific inputs from a number of agencies, has grouped the country into four seismic zones viz. Zone-II, -III, -IV and −V (Enclosure-1). Of these, Zone V is the most seismically active region, while zone II is the least. The Modified Mercalli (MM) intensity (Enclosure-2), 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 the 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, Chhatisgarh, Maharashtra, Orissa, Andhra Pradesh, Tamilnadu and Karnataka. Zone-II covers remaining parts of the country.

(e) The Bureau of Indian Standards (BIS) has brought out several publications useful for construction practices in the country, which are required to be adopted for construction in earthquake prone areas. In addition, National Building Code of India (2005) has also been brought out by BIS, which incorporates latest provision of relevant codes related to design and construction of earthquake resistant buildings. The above-referred standards cover different types of construction and cater to the requirements of various parts of the country.

(f) The construction of buildings is governed and regulated by Building Bye-laws/ Regulations framed by respective States. However, the Ministry of Housing and Urban Poverty Alleviation has been advising State Governments for adopting disaster resistant construction technologies in the housing projects. Byelaws/regulations on earthquake resistant building design have been adopted for construction in the cities of Guwahati, Chennai and Dhanbad.

(g)To ensure construction of earthquake resistant houses by strengthening techno-legal regime of respective States and UTs, a Model Town and Country Planning Legislation, Zoning Regulation Development Control and Building Regulation/Bye-laws for Safety against Natural Hazards have been prepared by an Expert Committee constituted by the Ministry of Home Affairs.To help State Governments in amending their Acts/Byelaws/ Regulation, Building Materials and Technology Promotion Council (BMTPC) has been organising one-day Technical Workshops on Model Amendments in Town and Country Planning Act, Zoning Regulation, Development and Control Regulation and Building Regulation for safety against natural hazards in States/UTs to disseminate the recommendations of the Committee. Already in all 8 North-eastern States, Technical Workshops have been organised. In addition, Technical Workshops have also been organised in Tamil Nadu, Chhatisgarh, Bihar, Uttar Pradesh, Himachal Pradesh, Pondicherry and Andaman and Nicobar.