

**GOVERNMENT OF INDIA
HOME AFFAIRS
LOK SABHA**

UNSTARRED QUESTION NO:4480
ANSWERED ON:04.08.2009
STUDY ON AFTER EFFECT OF EARTHQUAKE
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Will the Minister of HOME AFFAIRS be pleased to state:

- (a) whether the Geological Survey of India (GSI) or any other scientific institutions/agency have conducted any study on the safety of life and property especially in the aftermath of devastating earthquakes in the country including Gujarat;
- (b) if so, the details thereof;
- (c) the funds provided for the purpose including to the GSI;
- (d) whether the GSI has taken the assistance of experts in this field; and
- (e) if so, the details thereof?

Answer

MINISTER OF THE STATE IN THE MINISTRY OF HOME AFFAIRS SHRI MULLAPPALLY RAMACHANDRAN)

(a) Yes, Madam. Geological Survey of India (GSI) is engaged in earthquake related studies and has done some pioneering geo-seismological work. GSI does not directly provide measures on the safety of life and property but offers significant scientific inputs for seismic hazard mitigation. GSI conduct such studies both in the pre and post earthquake scenarios. Till date GSI has conducted studies of all major earthquakes since the Assam earthquake of 1897 including the Gujarat earthquake of 2001.

(b) In recent years, GSI carried out extensive studies on post earthquake damages and other phenomena related to earthquakes in the sites of devastating tremors, e.g., (i) Bihar-Nepal (21.8.1988) (ii) Uttarkashi (20.10.1991), (iii) Latur/Killari (30.9.1993), (iv) Jabalpur (22.5.1997), (v) Chamoli (29.3.1999), (vi) Bhuj (26.1.2001), (vii) Sumatra-Andaman (26.12.2004) (viii) Kashmir (8.10.2005).

GSI carries out seismic microzonation of urban centres to produce hazard/risk maps and ancillary maps like fundamental frequency, liquefaction susceptibility, shear wave velocity etc.

The GSI reports document post-earthquake damage survey, isoseismal maps, earthquake induced ground changes, seismotectonic analyses etc. are useful for planning by State /Central Govt. agencies.

GSI is also engaged in Seismic Hazard Assessment of earthquake prone areas by identifying the possible source regions of earthquakes (active fault studies) as well as ground deformation study by geodetic DGPS survey, seismological, microseismic/geophysical investigations and observational seismology (broad band observatories at Jabalpur, Nagpur and Agartala) etc.

(c) GSI carries out such work from the funds allotted under Union budget under the sub-head 'special investigation'. No separate funds are provided to GSI for undertaking such studies.

(d)&(e) During May-June 2009, GSI participated in a joint field traverse in parts of Assam and Meghalaya with the scientists of University of Colorado and University of Michigan, USA, with an objective to understand post seismic events and hazard evaluation of North-Eastern India. Besides GSI also participated in collaborative work after the Sumatra-Andaman earthquake of December 2004.