

**GOVERNMENT OF INDIA
EARTH SCIENCES
LOK SABHA**

STARRED QUESTION NO:14

ANSWERED ON:05.12.2013

EARTHQUAKE IN DELHI

Patil Shri Sanjay Dina ;Ramasubbu Shri S.

Will the Minister of EARTH SCIENCES be pleased to state:

- (a) whether the Government is aware of the recent jolts of earthquakes suffered by the national capital, Delhi;
- (b) if so, the details of each of the earthquake detected along with their intensity and the losses incurred during the last three years and current year, year-wise;
- (c) whether Delhi and the National Capital Region (NCR) comes under the category of severe seismic zone and the buildings are generally not earthquake proof; and
- (d) if so, the details thereof along with the preventive measures taken/ being taken by the Government in this regard?

Answer

MINISTER FOR MINISTRY OF SCIENCE AND TECHNOLOGY AND MINISTRY OF EARTH SCIENCES (SHRI S. JAIPAL REDDY)

(a) to (d): A Statement is laid on the Table of the House.

STATEMENT LAID ON THE TABLE OF THE LOK SABHA IN REPLY (a) to (d) TO STARRED QUESTION NO. 14 REGARDING "EARTHQUAKE IN DELHI" TO BE ANSWERED ON THURSDAY, DECEMBER 05, 2013

(a) Yes Madam.

(b) Low magnitude tremors (ranging from 2.5-3.3 on Richter's scale) related to 4-earthquakes along with thud like sound have occurred in surrounding regions of NCR of Delhi on 12th November, 2013 during 0040h – 03:41h of IST. The details of earthquake related tremors recorded during last 3-years are given in the Annexure-I.

(c)-(d) Yes Madam. NCR of Delhi falls under the high active (severe) seismic zone-IV region. Bureau of Indian Standards [IS-1893 (Part-1): 2002], based on the past seismic activity history, grouped the country into four seismic zones, viz. Zone-II (least active seismic zone), Zone-III (moderately active seismic zone), Zone-IV (high active (severe) seismic zone) and Zone-V (highest active (most severe) seismic zone).

Further, the Modified Mercalli Intensity (MMI), that measures the impact of the earthquakes on the surface of the earth consisting of 12 increasing levels of intensity that range from imperceptible shaking to catastrophic destruction, is designated by Roman numerals (I-XII), for NCR of Delhi is VIII. While the magnitude for an earthquake remains the same irrespective of where it is measured, the intensity and associated impact of earthquake, however, decreases with the distance from the epicentre. Normally, damages are associated with intensity V or more. Under the MMI-VIII zone, the expected damage is given below:

- # slight for specially designed structures;
- # considerable for ordinary buildings with partial collapse;
- # great for poorly built structures;
- # panel walls thrown out of frame structures;
- # fall of chimneys, factory stacks, columns, monuments and walls;
- # overturning of heavy furniture;
- # small amount ejection of sand/mud;
- # change in ground water levels in wells;
- # disturbed drivers in vehicles

By imparting professional training to the Engineers of the civic bodies, Delhi Government is enhancing the technical capabilities of field engineering wings 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.

Ministry of Home Affairs is keen to see atleast from now that all new buildings constructed under various National and State schemes should be made earthquake resistant (as per the Bureau of Indian Standards detailed at Annexure-II) in the first instant so that no new additions to the stock of existing unsafe buildings are made.

The Delhi Government in coordination with the National Institute of Disaster Management (NIDM) and National Disaster Management Authority (NDMA) had organized 6-training programmes for training 300-Engineers of Municipal Corporation of Delhi and New Delhi Municipal Committee on the "Rapid Visual Screening (RVS)" with particular reference to the evaluation of safety criteria for dangerous buildings in Delhi. Sphere heading the RVS pilot of identifying 10000 buildings in East Delhi, NIDM in its last training programme, that concluded in November, 2012, had deliberated in detail the findings from RVS pilot study and made MCD engineers familiar with the special purpose RVS data management software. The above training programmes have kept a good balance between class room lectures and hands on exercise, along with some nondestructive testing exercises in the field.