

**GOVERNMENT OF INDIA
URBAN DEVELOPMENT AND POVERTY ALLEVIATION
LOK SABHA**

UNSTARRED QUESTION NO:130

ANSWERED ON:20.02.2001

IDENTIFICATION OF EARTHQUAKE PRONE AREAS

AJAY SINGH CHAUTALA;DINESH CHANDRA YADAV;NEDURUMALLI JANARDHANA REDDY;PRABHUNATH SINGH;RAM JEEVAN SINGH;RAM SHAKAL;RAMSHETH THAKUR;SANJAY PASWAN;T.M. SELVAGANAPATHI;TRILOCHAN KANUNGO

Will the Minister of URBAN DEVELOPMENT AND POVERTY ALLEVIATION be pleased to state:

- (a) the earthquake prone areas in the country;
- (b) whether the Union Government propose to conduct a survey to identify the buildings in Delhi which are vulnerable to the earthquakes;
- (c) if so, the details thereof;
- (d) the reasons for not enforcing the strict implementation of the seismic buildings codes in Delhi so far;
- (e) whether already constructed buildings can be made earthquake proof;
- (f) if so, the details of technology available for the purpose and the steps taken/being taken to protect the buildings from earthquake;
- (g) whether the Union Government had issued in the past or have issued fresh guidelines to State Governments to change the existing building bye-laws;
- (h) if so, the details thereof and response of the State Governments thereto; and
- (i) the steps taken by the Union Government to make the builders and the concerned quarters accountable for lapses in the construction of buildings and the action taken/being taken against them for the violation of building bye-laws?

Answer

MINISTER OF URBAN DEVELOPMENT & POVERTY ALLEVIATION (SHRI JAGMOHAN)

(a): Earthquake prone areas in the country have been identified and are covered in the National Building Code. A list of State-wise seismic zonation is enclosed at Annexure-I.

(b)to(d): Presently construction of buildings in Delhi is governed by the Building Bye-laws which take care of the structural safety of the buildings constructed/proposed to be constructed. These Building Bye-laws are regulated and implemented through various agencies like the DDA, MCD and NDMC. The Ministry of Urban Development & Poverty Alleviation has also been emphasising the need for strictly curbing any violation of the Building Bye-laws by any person or persons and has been stressing upon the local bodies/authorities to take action as per rules and Acts against unauthorised constructions. However, to give a greater thrust for making buildings quake resistant and structurally more sound prospectively, the Ministry has issued a public notice on February 01, 2001 purporting to amend certain provisions of the Building Bye-laws which would enable greater structural safety of the buildings. A copy of the public notice issued is at Annexure-II. This modification, as evident, makes it mandatory that the structural design of foundation, masonry, timber, plain concrete etc. would be carried out taking into consideration the Indian Standards for earthquake protection of building and that the certificate of doing so would be signed by the owner and the architect.

(e): Yes, Sir. They can be made earthquake resistant.

(f): Details of technology for strengthening the existing buildings against earthquake are available in Indian Standard Specifications published by Bureau of Indian Standards. Based on the recommendation of the Expert Group constituted by Ministry of Urban Development and Poverty Alleviation, all the State Governments and U.T. have been advised to modify their existing building bye-laws to incorporate earthquake safety measures for construction of buildings and houses.

(g)&(h): Yes, Sir. In may 1998 this Ministry addressed all the State Governments and U.Ts. communicating the Executive Summary of the Report of the Expert Group, which inter-alia covers recommendations for modifications to be carried out in physical planning process, development control rules, town and country planning acts, building bye-laws and regulations of local bodies. The State

Governments have been subsequently reminded.

(i): Housing is a State subject and the respective State Governments are responsible for the steps taken/being taken for any violation of their building bye-laws and regulations in the light of advice given by this Ministry.

ANNEXURES REFERRED TO REPLY TO LOK SABHA UNSTARRED QUESTION NO.130 FOR 20.2.2001.

ANNEXURE-I

STATEWISE-SEISMIC ZONATION

STATE & U.Ts	INTENSITY MSK	SEISMIC ZONE
A & N ISLANDS	MSK IX Or more	Zone V
ARUNACHAL PRADESH	MSK IX Or more	Zone V
ASSAM	MSK IX Or more	Zone V
BIHAR	MSK V to IX or more	Zone V
GUJARAT	MSK VI to IX or more	Zone II, III & V
HIMACHAL PRADESH	MSK VIII to IX or more	Zone IV & V
JAMMU & KASHMIR	MSK VIII to IX or more	Zone IV & V
MANIPUR	MSK IX or more	Zone V
MEGHALAYA	MSK IX or more	Zone V
MIZORAM	MSK IX or more	Zone V
NAGALAND	MSK IX or more	Zone V
TRIPURA	MSK IX or more	Zone V
UTTAR PRADESH	MSK V to ix or more	Zone II, III, IV & V
WEST BENGAL	MSK VI TO IX or more	Zone II, III, IV & V
CHANDIGARH	MSK VIII	Zone IV
DELHI	MSK VIII	Zone IV
HARYANA	MSK VI TO VIII	Zone II, III & IV
MAHARASHTRA	MSK V TO VIII	Zone II, III & IV
PUNJAB	MSK VI TO VIII	Zone II, III & IV
RAJASTHAN	MSK V TO VIII	Zone II, III & IV
SIKKIM	MSK VIII	Zone IV
ANDHRA PRADESH	MSK V TO VII	Zone II & III
D & N HAVELI	MSK VII	Zone III
DAMAN & DIU	MSK VII	Zone III
GOA	MSK VI TO VII	Zone II & III
KARNATAKA	MSK V TO VII	Zone II & III
KERALA	MSK VI TO VII	Zone II & III
LAKSHADWEEP	MSK VII	Zone III
MADHYA PRADESH	MSK V TO VII	Zone II & III
ORISSA	MSK V TO VII	Zone II & III
PONDICHERY	MSK VI TO VII	Zone II & III
TAMIL NADU	MSK V TO VII	Zone II & III

The Maximum Intensity on Modified Mercalli Scale considered for the Five Zones are

MSK IX or more in Zone V
MSK VIII in Zone IV
MSK VII in Zone III
MSK VI in Zone II

In the revision of the seismic zones in year 2000, the Seismic Zone I has been merged in Zone II by BIS Seismic Zoning Committee, hence there are now four zones only number II, III, IV & V.

ANNEXURE-II

(DELHI DIVISION)

PUBLIC NOTICE

NEW DELHI, THE 01 FEBRUARY, 2001

The matter of making suitable provision in the Building Bye-Laws, 1983 to ensure that the buildings that are erected in Delhi provide for the requisite safety features in respect of natural hazard by way of earthquake has been under the consideration of Government. The following modifications/additions which the Central Government propose to make in the Building Bye-Laws, 1983 in this regard are hereby published for public information. Any person having any objection or suggestion may send the same in writing to the Under Secretary, Delhi Division, Ministry of Urban Development & Poverty Alleviation, Nirman Bhavan, New Delhi-110 011 within a period of 30 days from the date of this notice. The person making the objection or suggestion should also give his name and address.

Modification:

(i) Clause 18 of Part - III (Structural safety and Services) of the Building Bye-laws, 1983 will be modified as

` 18. The structural design of foundation, masonry, timber, plain concrete, reinforced concrete, pre-stressed concrete and structural steel shall be carried out in accordance with Part-VI Structural Design, Section 1 - Loads, Section 2 - Foundation, Section 3 - Wood, Section 4 - Masonry, Section 5 - Concrete, Section 6 - Steel of National Building Code of India, taking into consideration the Indian Standards given in Annexure-A for earthquake protection of buildings.`

(Note: Whenever an Indian Standards or the National Building Code is referred, the latest provision in the Indian Standard should be adhered to.)

(ii) An additional Sub-Clause is proposed to be added under Clause 6.2.9. (Documents to accompany application for building permit) of Building Bye-Laws as follows:

`i) The certificate as indicated at Annexure-B to be signed by the owner and the architect.`

(No.K-12016/5/79/DDIA/VA/IB)
Sd/-
R.C. Nayak, Under Secretary

ANNEXURE-A

LIST OF INDIAN STANDARDS/GUIDELINES FOR HAZARD SAFETY

For Earthquake Protection

1. IS:1893-1984 `Criteria for Earthquake Resistant Design of Structures (Fourth Revision)` June 1986.

2. IS:13920-1993 `Ductile Detailing of Reinforced Concrete Structures subjected to Seismic Forces Code of Practice` November 1993

3. IS:4326-1993 `Earthquake Resistant Design and Construction of Buildings - Code of Practice (Second Revision)` October 1993

4. IS: 13828-1993 `Improving Earthquake Resistance of Low Strength Masonry Buildings - Guidelines` August 1993

5. IS:13827-1993 `Improving Earthquake Resistance of Earthen Buildings - Guidelines`, October 1993

6. IS:13935-1993 `Repair and Seismic Strengthening of Buildings- Guidelines`, November, 1993.

ANNEXURE-B

Certificates: The following certificates are to be submitted along with the building drawings while submitting the plans:

1. Certified that the building plans submitted for approval satisfy the safety requirements as stipulated under para 18 and the information given therein is factually correct to the best of our knowledge and understanding.

2. It is also certified that the structural design including safety from natural hazards has been prepared by duly qualified structural engineer.

Signature of Owner with date _____	Signature of the _____
Name in Block Letters _____	Architect with date _____
Address _____	Name in Block Letters _____
Address _____	