

**GOVERNMENT OF INDIA
MINISTRY OF EARTH SCIENCES
LOK SABHA
UNSTARRED QUESTION No. 3288
TO BE ANSWERED ON FRIDAY, JULY 12, 2019**

EARTHQUAKE PRONE REGIONS

3288. SHRI PANKAJ CHAUDHARY:

Will the Minister of EARTH SCIENCES be pleased to state:

- (a) the details of earthquake prone regions in the country along with the number of earthquakes that occurred in the country during the last three years, State/UT-wise;**
- (b) whether scientists have studied the phenomenon of non-release of earthquake energy during earthquakes, if so, the details thereof;**
- (c) whether scientists have suspected the occurrence of major earthquakes due to the said reason and if so, the details thereof; and**
- (d) whether the Government is likely to make disaster management more effective and strong in earthquake prone areas, if so, the details thereof?**

ANSWER

**MINISTER FOR MINISTRY OF SCIENCE AND TECHNOLOGY AND
MINISTRY OF EARTH SCIENCES
(DR. HARSH VARDHAN)**

- (a) To demarcate the earthquake prone zones, Bureau of Indian Standards [IS-1893 (Part-1): 2002], based on scientific inputs like past intensity records and ground motions from a number of agencies, has grouped the country into four seismic zones viz. Zone-II, III, IV and V. Of these, Zone V is the most seismically active region, while zone II is the least.**

The State-wise details of earthquake prone regions in the country on the basis of seismic zonation map is provided below:

Zone V	Jammu and Kashmir, Himachal Pradesh, Uttarakhand, Rann of Kutch in Gujarat, part of North Bihar and Andaman & Nicobar islands.
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Zone IV remaining parts of Jammu & Kashmir, Himachal Pradesh and Uttarakhand, Union Territory of Delhi, Sikkim, northern part of Uttar Pradesh, Bihar and West Bengal, parts of Gujarat and small portions of Maharashtra near the west coast and Rajasthan.

Zone III 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, Telangana, Tamilnadu and Karnataka.

Zone II Parts of Rajasthan, Madhya Pradesh and Maharashtra, Parts of Odisha, Andhra Pradesh, Telangana, Karnataka and Kerala.

The number of earthquakes that occurred in the country during the last three years (July 16 to June 19), State/UT-wise are given in Annexure I.

(b) & (c) Studies by the scientists show that the main cause of earthquakes in Indian regions are due to Indian plate motion towards northeast direction at a rate of about 52 mm/year and its collision with Eurasian plate in the north and with Sunda plate in the east. The relative convergence of 14-20 mm/year in the Himalaya causes strain accumulation, which is released episodically during the earthquakes. The strain accumulation is faster in the collision plate boundaries as compared to the stable continent regions. Based on the studies related to the strain accumulation and crustal deformation, the occurrences of major earthquakes in Himalayan regions are suspected by scientists.

Ministry of Earth Sciences has given many projects to various institutes in the country to study the earthquake processes.

(d) As a part of its mandate, National Disaster Management Agency (NDMA) laid down the National Policy on Disaster Management (NPDM) in 2009 which is applicable for all disasters including earthquake. It portrays a paradigm shift from erstwhile 'Response-Centric' approach to the holistic management of disasters with emphasis on Prevention, Preparedness and Mitigation. Other details are enclosed at Annexure II.

Annexure I

States	2016	2017	2018	2019
<u>Andaman and Nicobar Islands</u>	23	44	38	58
<u>Andhra Pradesh</u>	0	0	1	0
<u>Arunachal Pradesh</u>	10	18	7	2
<u>Assam</u>	20	26	18	4
<u>Bihar</u>	0	1	0	0
<u>Chandigarh</u>	0	0	0	0
<u>Chhattisgarh</u>	0	0	1	1
<u>Dadra and Nagar Haveli</u>	0	0	0	0
<u>Daman and Diu</u>	0	0	0	0
<u>Goa</u>	0	0	0	0
<u>Gujarat</u>	4	11	5	1
<u>Haryana</u>	6	28	8	3
<u>Himachal Pradesh</u>	18	23	18	10
<u>Jammu and Kashmir</u>	5	15	19	7
<u>Jharkhand</u>	0	1	1	1
<u>Karnataka</u>	0	1	0	0
<u>Kerala</u>	0	0	0	0
<u>Lakshadweep</u> †	0	0	0	0
<u>Madhya Pradesh</u>	1	0	2	0
<u>Maharashtra</u>	3	10	20	31
<u>Manipur</u>	16	22	13	8
<u>Meghalaya</u>	5	9	6	3
<u>Mizoram</u>	1	3	2	1
<u>Nagaland</u>	3	3	1	0
<u>National Capital Territory of Delhi</u>	0	4	1	0
<u>Odisha</u>	0	1	2	2
<u>Puducherry</u>	0	0	0	0
<u>Punjab</u>	1	0	1	0
<u>Rajasthan</u>	3	7	3	2
<u>Sikkim</u>	1	5	1	3
<u>Tamil Nadu</u>	0	1	0	0
<u>Telangana</u>	0	0	0	0
<u>Tripura</u>	0	7	0	0
<u>Uttar Pradesh</u>	2	2	2	1
<u>Uttarakhand</u>	13	17	9	9
<u>West Bengal</u>	2	2	1	1

Annexure II

- 1. National Disaster Management Plan (NDMP) was released in June, 2016 to assist all stakeholders including State Governments in disaster risk management of various hazards including earthquakes. The Plan also provides a framework and direction to the government agencies including State Government agencies for all phases of disaster management i.e. prevention, mitigation, response and recovery.**
- 2. National Disaster Management Authority has also issued the guidelines (i) “National Disaster Management Guidelines – Management of Earthquakes” and (ii) “National Disaster Management Guidelines – Seismic Retrofitting of Deficient Buildings and Structures” for management of disaster risks due to earthquakes and to minimize the damage due to earthquakes of high density.**
- 3. Sustainable Reduction in Disaster Risk (SRDR): NDMA is implementing the project with the aim to strengthen community and local self-government’s preparedness and response in 10 most multi-hazard vulnerable districts, 2 each in 5 identified states i.e. Assam, Bihar, Himachal Pradesh, Jammu and Kashmir and Uttarakhand. Some of outcomes envisaged under the project include Comprehensive Disaster Risk Reduction/Recovery Plan for each district; awareness & publicity campaigns throughout the selected district; preparation of training modules in community based disaster management; formation of disaster management teams at district levels; training of Trainers/Stakeholders on CBDM and conduct of mock drills in these selected districts.**
- 4. National School Safety Programme (NSSP):NDMA implemented the ‘National School Safety Programme (NSSP)’ in 8600 schools in 43 districts spread over 22 States/UTs of the country falling in seismic zone IV & V with the aim to sensitize children and the school community on disaster preparedness and safety measures.**
- 5. NDMA regularly conducts Mock Exercises for various hazards including Earthquake to sensitize all the stakeholders regarding preventive and mitigation measures as well as test the efficacy of disaster management plans. Till date 808 Mock Exercises including Earthquake have been conducted throughout the country including Earthquake prone areas.**
- 6. NDMA also runs a scheme i.e Financial Support to States/ UTs for conducting State/ Distt/ UT Level Mock Exercises under which Rs. One Lakh per Mock Exercise is released to the States.**