

**GOVERNMENT OF INDIA  
MINISTRY OF EARTH SCIENCES  
LOK SABHA  
UNSTARRED QUESTION NO. 123  
TO BE ANSWERED ON WEDNESDAY, 7<sup>TH</sup> DECEMBER, 2022**

**MAPPING OF THE SEISMIC ZONES**

†123. SHRI CHANDESHWAR PRASAD:

Will the Minister of EARTH SCIENCES be pleased to state:

- (a) the details of the classifications/mapping of the seismic zones/earthquake prone areas, particularly in the Jehanabad and Arwal district in Bihar during the last two years, district-wise; and
- (b) the details of the steps taken for spreading awareness about earthquake resistant buildings in Bihar?

**ANSWER**

THE MINISTER OF STATE (INDEPENDENT CHARGE) FOR  
MINISTRY OF SCIENCE AND TECHNOLOGY  
AND EARTH SCIENCES  
(DR. JITENDRA SINGH)

- (a) As per the seismic zoning map of India, prepared by Bureau of Indian Standards (BIS), the total area of Bihar State falls under three zones, i.e. zone V, IV and III. The corresponding description of these zones with respect to intensity (Modified Mercalli scale) is given as below:

Zone V            Very high-risk zone (Intensity IX or above)  
Zone IV           High risk zone (Intensity VIII)  
Zone III           Moderate risk zone (Intensity VII)

District wise detail of seismic zoning of Bihar State is provided in the following table. Jehanabad district lies in the zone III and IV, while Arwal in zone III.

S.No.	City	Seismic Zone
1	Araria	IV and V
2	Arwal	III
3	Aurangabad	III
4	Banka	III and IV
5	Begusarai	IV
6	Bhagalpur	IV
7	Bhojpur	III and IV
8	Buxar	III
9	Darbhanga	IV and V
10	East Champaran (Motihari)	IV and V
11	Gaya	III
12	Gopalganj	IV
13	Jamui	III and IV
14	Jehanabad	III and IV
15	Kaimur (Bhabua)	III

16	Katihar	IV
17	Khagaria	IV
18	Kishanganj	IV and V
19	Lakhisarai	IV
20	Madhepura	IV and V
21	Madhubani	V
22	Munger (Monghyr)	IV
23	Muzaffarpur	IV
24	Nalanda	III and IV
25	Nawada	III and IV
26	Patna	III and IV
27	Purnia (Purnea)	IV
28	Rohtas	III
29	Saharsa	IV and V
30	Samastipur	IV
31	Saran	IV
32	Sheikhpura	IV
33	Sheohar	IV and V
34	Sitamarhi	IV and V
35	Siwan	III and IV
36	Supaul	V
37	Vaishali	IV
38	West Champaran	IV

Three earthquakes have been reported by National Centre of Seismology, Ministry of Earth Sciences within the territory of Bihar during 01-12-2020 to 30-11-2022 (in last two years) as mentioned in table below, however Bihar state is also affected by the earthquakes occurring in the adjacent central Himalayan region associated with Nepal and Bihar-India Border areas from time to time. Details of earthquakes reported in and around the country by National Centre of Seismology, Ministry of Earth Sciences is available on the website (seismo.gov.in).

Origin Time	Latitude ( <sup>0</sup> N)	Longitude ( <sup>0</sup> E)	Magnitude	Depth (km)	Region
2022-06-22 18:41:59	26.20	87.38	3.8	29	Araria, Bihar
2022-03-15 00:32:07	25.38	85.78	3.2	10	Patna, Bihar
2021-02-15 21:23:47	25.41	85.35	3.5	5	Patna, Bihar

- (b) NDMA conducts regular awareness campaigns every year through print, electronic as well as social media from time to time, on earthquakes that includes precautions for building safety from earthquakes. Also, Guidelines have been published by the Bureau of Indian Standards (BIS), Building Materials & Technology Promotion Council (BMTPC) and Housing and Urban Development Corporation (HUDCO) etc. for design and construction of earthquake resistant structures to minimize the loss of life and damage to property caused by earthquakes. These guidelines are in wide circulation amongst the public through the administrative authorities responsible for the design and construction of earthquake resistant structures in earthquake prone areas. National Centre for Seismology (NCS), Ministry of Earth Sciences is investigating the Capital City of Patna to generate inputs for earthquake risk resilient building codes using seismic microzonation of the city in collaboration with Institute of Seismological Research (ISR), Gujarat.

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