

Earthquake in Bangladesh: How much we are prepared to face it?

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Introduction

An earthquake also known as tremor, trembler is the result of a sudden release of energy in the Earth's crust that creates seismic waves. The strength of the shaking is measured by Richter Scale. The magnitude is labeled as 3 or lower earthquake and crossing 7 high magnitude that can cause serious damage over areas, population, buildings¹.

Bangladesh Situation

The location of Bangladesh in a tectonically active area at the delta basin facing Bay of Bengal is strategic for all types of natural calamities like cyclone, Sunami, Earthquake. The latest threat of earthquake-triggered tsunami has abated, but disaster-prone Bangladesh faces a high risk of moderate to strong quakes. The risk of tsunami as four active sources of earthquake in the Bay of Bengal can generate tremors with a magnitude of over 7 on the Richter scale, affecting the country seriously. The observatory at Bangladesh University of Engineering and Technology (BUET) recorded 86 tremors of over four magnitude during January 2006-May 2009. Another four earthquakes took place with magnitude of over five during the period. The meteorological department detected at least 90 earthquakes taking place in the country between May 2007 and July 2008, nine of them above five on the Richter scale and epicentres of 95 percent being within a 600 km radius of Dhaka city. It is these minor tremors that indicate the possibility of much more powerful earthquakes hitting the country. According to a seismic zoning map prepared by BUET, 43 percent areas in Bangladesh are rated high risk, 41 percent moderate and 16 percent low. High risk group includes zones of Chittagong, Dhaka, Rangpur, Bogra, Mymensing, Comilla, Rajshahi, Sylhet.

Historical Perspectives of earthquakes that hit Bangladesh^{4,5}.

An earthquake of 7.8 magnitude in 1762 which generated waves in rivers and other closed water bodies, and around 100 people were killed in boat capsizes at that time in the Buriganga.

The Srimangal earthquake July 8, 1918 was recorded at 7.6 on the Richter scale and its epicentre was in Balisera valley near Srimangal. Although there was damage, the intensity rapidly decreased due to the shallow focal depth and only minor effects were felt in Dhaka.

1762 earthquake in Chittagong-Arakan coast the magnitude was 7.6 but the exact epicentre remained unclear. The great Indian earthquake of June 12, 1897 that had a magnitude of 8.7 with the epicentre in the central part of the Shillong plateau was recalled as one of the world's worst.

Indian and Eurasian and Myanmar plates, the Bihar-Nepal earthquake took place in 1934 and it was felt as far away as Dinajpur and Rangpur. The Assam earthquake Aug 15, 1950 had a magnitude of 8.6 on the Richter scale. The tremor was felt throughout Bangladesh but miraculously no damage was reported anywhere. But the Mandalay earthquake that struck in 1858 with a magnitude of 7.9 affected Chittagong division.

The Bengal earthquake of July 14, 1885 caused considerable dBogra region and perhaps more severe destruction in Jamalpur-Sherpur-Mymensingh region. The magnitude of the earthquake was more than seven on the Richter scale and the epicentre was at Manikganj.

Why Bangladesh is now prone to see a major earthquake?

Because of location of Bangladesh in a tectonically active area a strong earthquake could occur in the plate boundaries as the 100-year alarm bells have passed. Bangladesh is close to the meeting point of the Indian, Eurasian and Burma (Myanmar) plates^{2,3}. The movement of Indian and Eurasian plates has been locked at the foot of the Himalayas for many years, storing strain energy. When the lock is released, it will let out the strain energy causing major earthquakes that will affect Bangladesh, northeastern India and Myanmar. Three strong earthquakes were recorded from the Indian-Eurasian plate, which jolted Bangladesh within 150 years.

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How much we are prepared to face major earthquakes?

To be honest the preparedness to face a major earthquake in Bangladesh is very poor. This is because of lack of coordination among various agencies like ministry of Finance, health, Food & disaster management, housing and NGO's. More over there is no awareness among the people on how to face such calamities. Lack of support facilities like improved fire brigade & civil defense activities, establishment of multidisciplinary hospital to accommodate large number of earth quake victims, physical and mental support, communication by ambulances, transport vehicle, adequate number of drilling equipment, bulldozers. So it is obvious that if a major earthquake hits Bangladesh it will create havoc and damages in terms of life, properties that is unimaginable.

What steps should be taken to face this natural disaster?

The Government of Bangladesh should set up a special body comprising of representatives from the ministry of health, finances, food and disaster management, housing, Firebrigade and to take lead and coordination role. They will Prepare and disseminate special guidelines and launch extensive mass awareness programs for earthquake; the awareness must include city dwellers, government officials, municipality officials, politicians, engineers, architects, designers, builders, medical people, etc. They will develop appropriate training materials for different groups, such as planners, engineers, contractors, volunteers, fire fighters, doctors, nurses, first aid providers, etc. Take training programmes at the appropriate levels to impart these trainings. Update the Bangladesh Building Code and make the document legal, make it binding for all construction activities. Install and operate seismic instrument at suitable locations in the country. Develop a comprehensive regional catalogue of all recorded historical earthquakes in Bangladesh and adjacent regions that influence the country's seismic hazards. Prepare a regional seismic hazard map of Bangladesh using the existing information and incorporate appropriate building code. Develop Bangladeshi scientists including seismologists, engineers, architects, geologists, and other technicians through training and higher education programs to assume leadership in all aspects of earthquake hazard assessment studies in Bangladesh. Also, conduct studies for the city life lines (gas, water and sewerage, power, road access

for fire fighters, etc.) Conduct special studies on structural soundness of hospitals, fire fighting centers, schools and university buildings.

Demonstrate retrofitting and introduce motivation program of retrofitting through municipality leadership (for Dhaka City this may be RAJUK). Assessment of the fire fighting strengths and take appropriate training, provisioning of appropriate fire fighting equipment, and personnel for individual cities. Assessment of the capacity of hospitals and other medical centers to deal with large casualties. Assessment of the doctors, nurses, and other technical personnel, and the medical and equipment stock. Assessment of the rescue equipment stock and their usability at the time of response. Delineation of an efficient army and civilian combined rescue operation. Capacity of the existing blood banks, and development of a large blood donors' list including database of their contact addresses and blood groups⁶.

Conclusion

It is evident from the above that we are facing a great challenge to adequately manage a major earthquake which may happen anytime in Bangladesh. To minimize suffering of the people, loss of properties and major casualties the government, media, doctors, engineers, lawyers peoples Representatives and mass media and all level of people should come forward with strong voice to formulate a central body to monitor this disaster, buy necessary equipments to cope, arrange establishment of multidisciplinary hospitals in the danger zone immediately. Also mass awareness among the general people regarding earthquake, not to get panic, what to do if an earthquake hits, where to get shelter, where to phone for help etc should be undertaken daily in different Television, radio, newspaper, talkshow. Only then we will be able to face this menace.

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