EARTHQUAKE RISK MANAGEMENT

Bangladesh Perspective

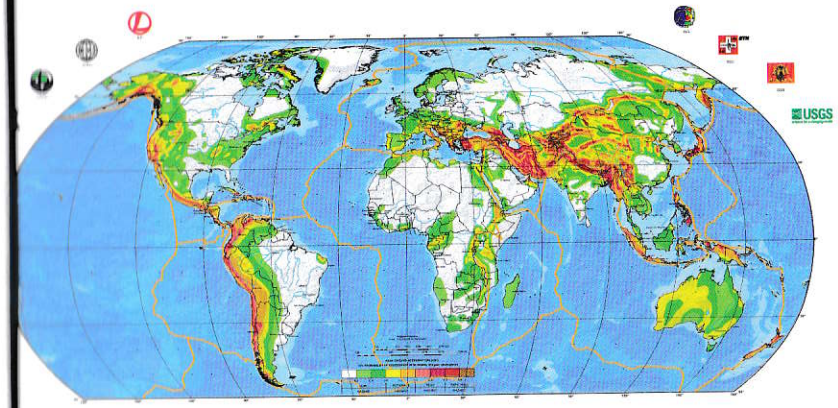


MINISTRY OF DISASTER MANAGEMENT AND RELIEF

Bangladesh, being positioned at the juncture of several tectonic plate boundaries, remains highly susceptible to the earthquake disaster. The seismicity in and around Bangladesh depicts that an earthquake of even medium magnitude can turn the major cities of the country, particularly Dhaka, Sylhet and Chattorgram into a mass graveyard. The earthquake vulnerability in Bangladesh is rooted into two major factors- natural that includes geomorphological settings and human interventions such as unplanned urbanization and rapid population growth. Earthquake preparedness measures, therefore, must entail not only structural adjustments but also enhanced coping strategies of the people specially city dwellers. It is thus necessary to identify the underlying risks, develop spatial susceptibility map, and undertake structural and non-structural measures to strengthen national earthquake preparedness.



Seismic risk zonation of Bangladesh (BNBC, 2015)



Global Seismic Hazard Map (gmo.gfz-potsdam.de)

Earthquake Facts

Earthquakes are always happening somewhere

About 12,000-14,000 earthquakes occur each year

Magnitude 2 and smaller earthquakes occur several hundred times/day world wide

Major earthquakes, greater than magnitude 7- happen more than once per month

'Great earthquakes'- magnitude 8 and higher, occur about once a year



Major Earthquake

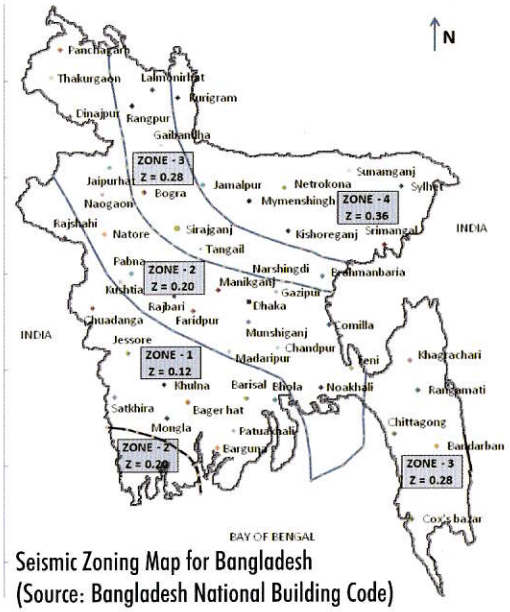
1 869	Cachar Earthquake	M7.5
1885	Bengal EaHhquake	M7.0
1897	Great Indian Earthquake	M8.7
1918	Srimangal Earthquake	M7.6
1930	Dubri Earthquake	M7.1
1934	Bihar-Nepal Earihquake	M 8.3
1950	Assam Earthquake	M8.5
1987	Sylhet Earthquake	M5.6
1997	Bandarban Earthquake	M6.0
1999	Moheshkhali Earthquake	M5.1
2001	Manikganj Earthquakce	M4.2
2004	Indian Ocean Earthquake	M9.1
12005	Barkar Earthquake	M5.5
2008	Haruagahat Earthquake	M4.9
2009	Chandanish Earthquake	M5.2
2 0 11	S ikkim Earthquake	M6.9
2011	Comilla Earthquake	M4.6
20 l5	Nepal Earthquake	M7.9
2015	Manipur Earthquake	M6.7
2016	Myanmar Earthquake	M6.8
2016	Myanmar Earthquake	M6.9

Bangladesh in Earthquake Preparedness

Earthquake related Legal Framework

- Disaster Management Act, 2012
- Bangladesh National Building Code, 2017
- Debris Management Guideline (Drafted)
- Debris Management Plan for Dhaka, Chattogram and Sylhet (Drafted)
- Standing Order on Disaster (SOD) 2019
- Incident Management Guideline (Drafted)

BNBC divided Bangladesh into 4 seismic zones, based on the earthquake risk. Zone 4 stands for highest risk.



Seismic Zoning Map for Bangladesh
(Source: Bangladesh National Building Code)

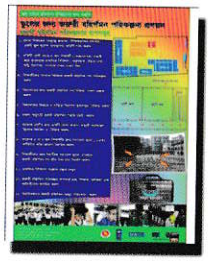
Awareness Raising and Risk Information





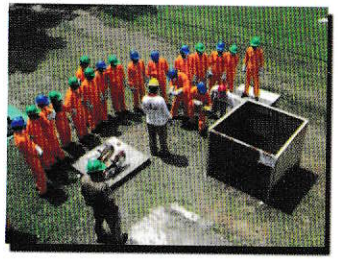






Development of Urban Volunteers





38,500 Urban Volunteers received training on search, rescue and first aids for emergency response

Equipment procured for the volunteers

Earthquake Drill and Simulations

Ministry of Disaster Management and Relief (MoDMR), Armed Forces Division (AFD) & USARPAC have been organizing Disaster Response Exercises and Exchange (DREE) for the last 9 years

Regular drill and simulations are being conducted in educational institutions, secretariat, hospitals and markets/ shopping malls in Dhaka and other major cities.

Awareness Raising and Risk Information





Government procured seard and rescue equipment and hanad over to AFD, FSCD, City Corporation

Government of China provied search and rescue equipment to FSD

Awareness Raising and Risk Information

Establishment of the National & District Disaster Management Fund

National Emergency Operation Center (NEOC) is being established at Tejgaon commercial area

Humanitarian Staging Area in Dhaka is being developed

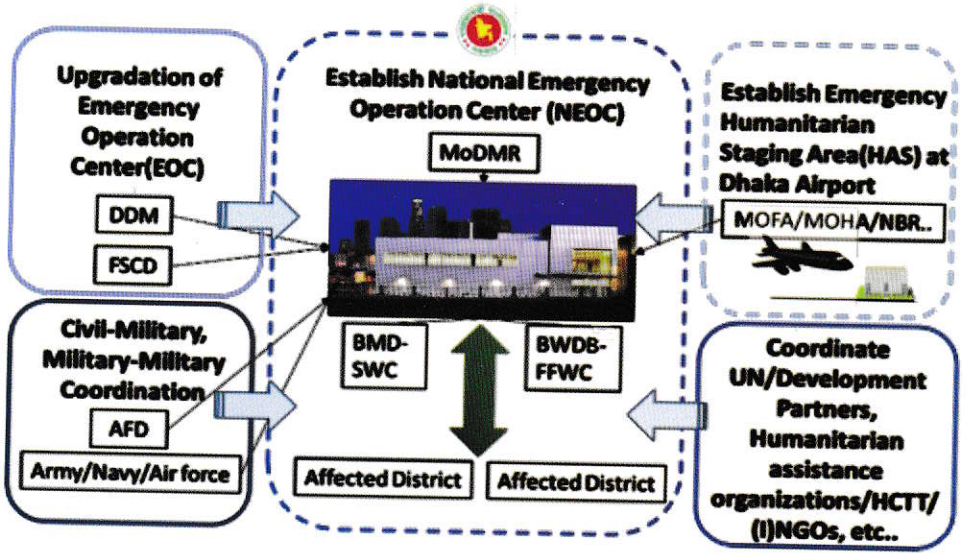
Personnel of AFD, BGB, FSCD are being trained to operate and maintain the rescue equipment



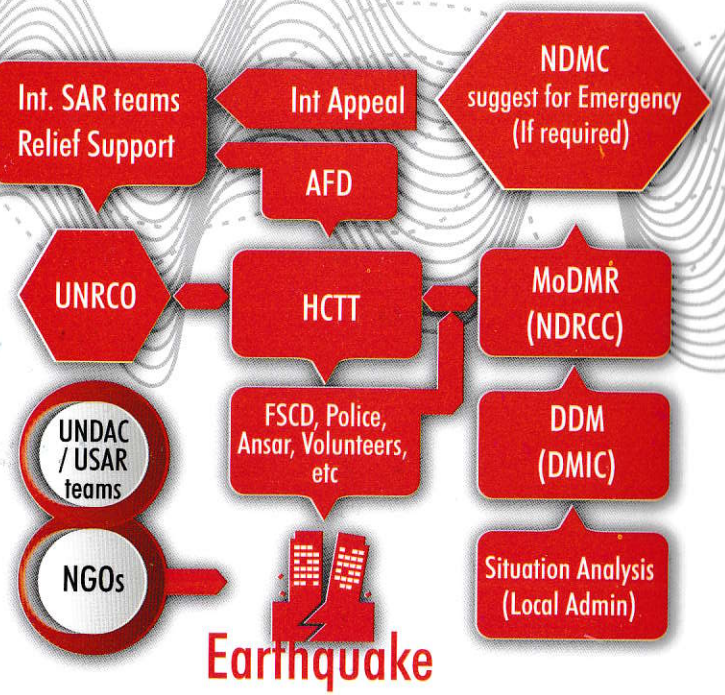


Proposed New Structure of Bangladesh

National Emergency Response System



Proposed Emergency Response Mechanism



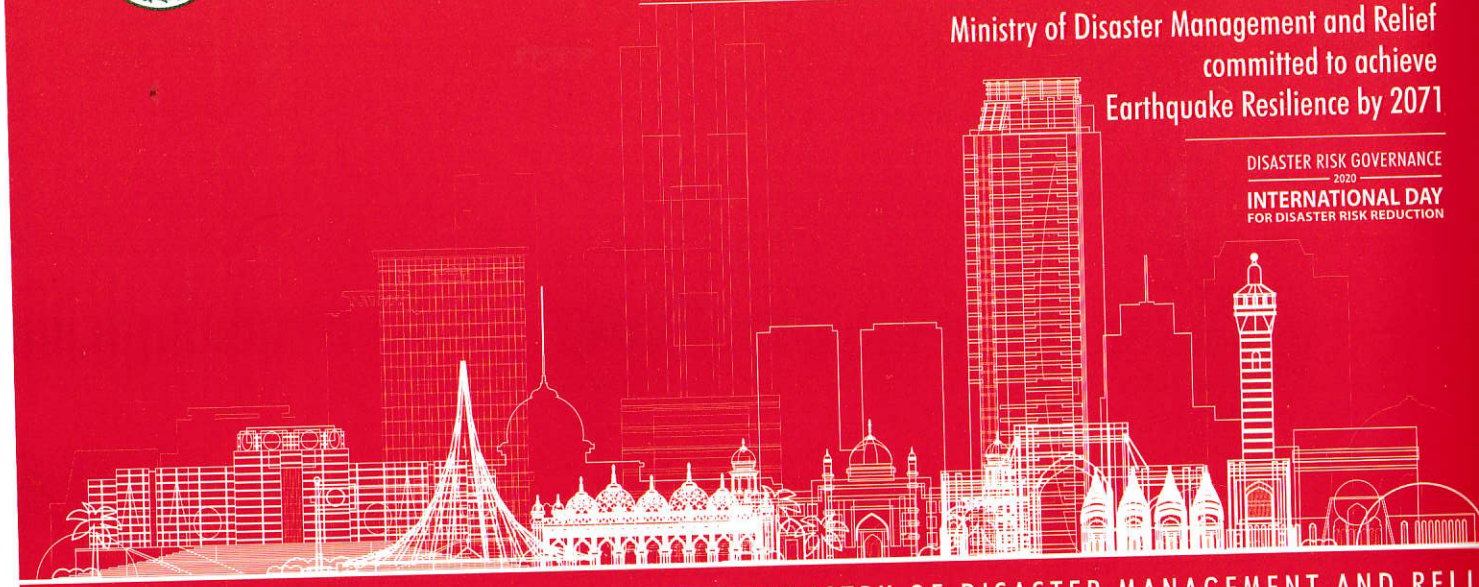
Way Forward

- Prepare/Create active fault maps in Bangladesh and assess the risk
- Prepare risk informed land use plan
- Enforcement of 'Building Code'
- Regular drill/simulation on Search & Rescue and Evacuation
- Earthquake Preparedness at home, market and offices to reduce the risk
- Prepare contingency plan and ensure proper execution
- Identify open space for secure place to stay during and after earthquake
- Preparation on makeshift/temporary shelter
- Strengthen the capacity of emergency utility services
- Initiative has been taken to establish auto-shutdown system of electricity and gas line
- Identify the vulnerable building, infrastructure and retrofit, if necessary
- Interior materials of the building should be fire resistant
- MoDMR and all City Corporations will conduct awareness workshops on Earthquake.

Under the leadership of Honorable Prime Minister SHEIKH HASINA, the Ministry of Disaster Management and Relief is strongly committed to build earthquake tolerant Bangladesh with - WHOLE OF SOCIETY APPROACH.

Ministry of Disaster Management and Relief committed to achieve Earthquake Resilience by 2071

DISASTER RISK GOVERNANCE
2020
INTERNATIONAL DAY
FOR DISASTER RISK REDUCTION



MINISTRY OF DISASTER MANAGEMENT AND RELI