

Initiatives undertaken for Earthquake Preparedness and Mitigation

1. National DM Guidelines on Management of Earthquakes formulated and released in April 2007 and National Guidelines on Seismic Retrofitting of deficient building and structure released in June, 2014.
2. NDMA in collaboration with the Delhi Government conducted a **Mega Mock Drill on Earthquake on 15 Feb 2012**. (Scenario: Magnitude- 7.9 (R) earthquake at a distance of 200 km from Delhi). It was conducted simultaneously at 400 places spread over all the nine districts of Delhi. Over 30 million SMS's were sent out along-with video-spots on TV and jingles on Radio.
3. **Delhi Emergency Management Exercise (DEMEx)** was conducted by NDMA in **December 2012** in association with DDMA which trained around more than 1000 Stakeholders in different domains of disaster management (earthquake centric – focused on health sector preparedness). The main activities included organizing 16 training tracks on various thematic dimensions of DM at various locations in Delhi from 29th November 2012 to 3rd December 2012 followed by Table top Exercise on 3rd December 2012 and field drill on 4th December 2012 at 32 locations in all the 11 Revenue Districts of Delhi. Guwahati Emergency Management Exercise (GEMEx) was executed on similar lines in Nov 2012.
4. The Mw - Mandi Earthquake Scenario – Multi State Exercise and Awareness Campaign 'conducted by NDMA (was a one year capacity building project) aimed at preparing the region to synergize their resources for better disaster preparedness to face a high magnitude earthquake. A major activity undertaken in the Project was the conduct of **Multi-State Mega Mock Exercise** in the tri-cities of Chandigarh, Panchkula and Mohali and in Shimla on 13th February 2013 where in the response mechanism and their interdepartmental coordination of these states and Chandigarh UT were evaluated. The effort included creation of a pool of engineers and generating awareness amongst them on the use of RVS techniques and its application for vulnerability assessment of the built environment. It also included sensitization of different stakeholders on earthquake preparedness including Govt. officials and Community.

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5. NE Shillong Earthquake Scenario – Multi- State Exercise and Awareness Campaign, on the similar lines of Mandi Exercise, was undertaken for the 8 North East States in India (Capacity Building project for 1 year). **The Mega Mock drill at designated locations in each of the states took place in March 2014.**

6. The “**National School Safety Programme (NSSP)-A Demonstration Project**” is being implemented by National Disaster Management Authority (NDMA) in partnership with the State/UT Governments. The project is covering 200 schools in each of the selected 43 districts spread over 22 States/UTs of the country falling in **seismic zone IV & V (prone to earthquakes)** with the aim to sensitize children and the school community on disaster preparedness and safety measures. Under the project, development and circulation of Information Education Communication (IEC) material has been undertaken to make the school children, parents, teachers, school administrators and larger community aware of school safety and disaster risk reduction mechanisms, Mock Drills have been conducted (200 schools per district), Non structural measures in all 8600 schools including Rapid Visual Screening Demonstrative Structural Retrofitting in one model secondary school with strength of at least 1500 students in each district (22 schools covering project states /UTs) have been undertaken.

7. NDMA and Indira Gandhi National Open University (IGNOU) jointly executed a **Pilot Project on Capacity building in Disaster Management for Government Officials and Representatives of Panchayati Raj Institutions (PRI) and Urban Local Bodies (ULB) at District level** between February 2010 and June 2013. The project aimed to build and strengthen the capacity of the target groups (Government officials, PRI representatives and ULB representatives) in the areas of disaster prevention, preparedness, mitigation, response and recovery at the grass-root level. It was undertaken in selected 11 states, identified on the basis of their vulnerability to various natural and man-made hazards (multi hazard prone – includes earthquake prone states as well). In all, 16479 participants, against the targeted number of 16200 participants received trainings in the project.

8. NDMA undertook a study on **Development of Probabilistic Seismic Hazard Map of India (PSHA)** for creation of a national database of earthquakes for seismic hazard analysis which included development of national PSHA Map.

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9. **Technical Document (Study) with respect to Geo-technical Investigation for Seismic Micro-zonation of Indian land Mass** has been submitted by IIS, Bangalore.
10. The work is in progress with respect to **preparation of catalogue of different building types** in various parts of India by IIT Mumbai.(study).
11. The work on **up-gradation of earthquake hazard maps** in various parts of the country is being undertaken by Building Material Technology Promotion Council (BMPTC)
12. For strengthening Techno-legal regime with respect to approval for construction activities, the urban local bodies (ULBs) and Town and Country Planning Acts in various State Governments and UTs, model building bye law was formulated by Expert Committee constituted by MHA and circulated by MHA in December 2006 (Do Letter No: 31-1/2004). Thereafter further reinforcements from Dr. A S Arya, National Seismic Advisor as well as Secretary, NDMA continued at regular intervals to all stakeholders for its implementation.
13. Mock exercises especially on earthquake preparedness and response are being conducted at various vulnerable locations of the country on an annual basis.
14. Up-dation and formulation of BIS Codes for Earthquake resilient design & construction as well as retrofitting has been undertaken.

Annexure - 2

Efforts that need to be strengthened with respect to Earthquake preparedness and mitigation

- i. Safety Audits and Earthquake Resilience Assessment of the lifeline and critical buildings (hospitals, schools, important government buildings, telecom service buildings, power stations/grids, dams, etc). It should be aimed that the audits for such buildings should be completed within one year timeframe. Thereafter, corrective measures such as strengthening, retrofitting and reconstruction of these lifeline buildings must be taken up on priority.
- ii. It would be important to ensure compliance of model building bye laws by ULBs and PRIs to avoid the vulnerable building stock being added in future. It is also desirable to conduct in-house site check or independent third party check to ensure implementation of building bye-laws. It would be vital to focus on strengthening mechanisms for compliance of Building Codes for Multi-Storey buildings in risk prone areas
- iii. Review all ongoing projects and ensure compliance of structural measures for disaster risk reduction by using latest NBC and BIS codes
- iv. To strengthen the knowledge of disaster risk & mitigation especially with respect to earthquake preparedness in the educational curriculum of school, colleges and technical institutions, it would be important to meticulously examine and review the curriculum of technical education at diploma and degree levels, especially civil engineering, architecture and ITI streams (related with building construction and maintenance)
- v. More sensitization, awareness and capacity building of stakeholders especially the community and children for earthquake preparedness and mitigation through messages, print and broadcast media, Radio, social media etc. (In particular - resident welfare societies, group cooperative housing societies -especially of multi-storied houses)
- vi. To introduce system of incentives in loan disbursements for earthquake resilient construction as well as for insurance of property.

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MATE

vii. To introduce compulsory refresher training courses for Civil engineers and architects employed in Government, Semi - Govt. and Public sector undertakings for earthquake resilient construction and link the same with career progression requirement.

RES/SOMA

viii. Mock Drills to be regularly conducted especially in thickly populated urban Tier 1 and Tier II Cities

UAD

ix. Capacity Building (training) for Stakeholders involved in Construction and Building activities (masons)

RES

x. Capacity building of frontline responders (mass casualty management in an earthquake scenario)

SOMA

xi. Preparation of Database/Inventory of Trained Personnel in earthquake safety (structural engineers / architects / doctors / nurses / paramedics / teachers / community, etc).
