

Development of Hypothetical Mw=8.0 Sunder Nagar Earthquake Disaster Scenario for Disaster Risk Management-AN NDMA led Multi-State Earthquake Preparedness Campaign

Minutes of the meeting held on 21.08.2012 at HP Secretariat , Shimla

Project Launch Meeting on Multi –State Earthquake Scenario exercise was held on 21st August 2012 at 10.30 AM at HP Secretariat, Shimla. The meeting included presentation and discussion on the Overview of NDMA Multi-State Earthquake Scenario Project, Incident Response System and Table top exercise.

List of Participants is at Annexure – A.

WELCOME ADDRESS

At the outset, Sh. Deepak Sanan, Additional Chief Secretary (Revenue) to the Government of HP welcomed NDMA team led by Hon'ble Members of NDMA and appreciated the efforts of NDMA, Govt. of India to conceive this project. Mentioning the 6th June, 2012 meeting between the delegation from NDMA headed by Hon'ble Vice Chairman and Prof. Prem Kumar Dhumal, Hon'ble Chief Minister Himachal Pradesh and team, he added that this Project is a hypothetical earthquake scenario preparedness exercise which projects a Magnitude 8.0 earthquake for earthquake disaster preparedness in the State. He expressed his concern over the likely loss and damage due to any future earthquake in the State. He stressed upon the need to make the community well aware of mitigation measures and to identify the gaps in our response system. Recalling the 1905 Kangra Earthquake he said that 20,000 people died when the population of the area was very less but now the population of the area has increased multi-fold and built up environment has also increased many times. He assured that the Government of Himachal Pradesh is firmly committed to the cause of disaster management and all the departments will participate in the multi-state exercise. He emphasized the need of educating people about disasters and need to prepare for them. Referring to recent initiatives taken by the State Government he mentioned that HRVA and KAP studies have already been commissioned and their outcome will be very useful to prepare DM Plans, chalk out awareness generation strategies and conducting focused training programmes.

2. He requested all the departments to nominate nodal officer for disaster management which have not done it so far so that the proposed activities under this project can be carried out effectively.

REMARKS BY HON'BLE MEMBERS NDMA

3. Professor Harsh K Gupta, Hon'ble Member NDMA discussed the vulnerability of the State to earthquakes and their impact. He further described that for the purpose of study a hypothetical earthquake of magnitude 8 has been created with its epicenter in Sundernagar,

Mandi, Himachal Pradesh, and this project involves Himachal Pradesh, Haryana, Punjab and Chandigarh UT and will culminate with a Mega Mock drill on 15 February 2013. Since no major earthquake has shaken this part of Himalayas for the last few years and it has created a false sense of safety from earthquake hazard. He emphasized that State government needs to at least identify and secure major lifeline buildings and try to find out which buildings are the most vulnerable. He also said that Technological, Scientific and administrative interventions will help reduce possible impact of earthquake. He thanked the State Government for allocation of 22 acres of land at Nurpur (Kangra) for NDRF.

4. Prof Harsh Kumar Gupta replied to one of the question about the rationale behind shifting the epicenter from Hamirpur to Sundernagar, Mandi after giving the basics of zoning and magnitude he informed that as a case study this hypothetical situation has been created. He further informed that earlier epicenter was proposed in Zone IV which normally may not have an earthquake of Magnitude 8 which is the basis of this study so the epicenter has been moved to Zone V at Sundernagar. Replying to another question on reservoir induced seismic event he said that since seismicity of States is very high, we don't expect at least a major seismic event induced by reservoirs in the State. He further informed that Himachal Pradesh falls in Zone IV and V and thus is vulnerable to earthquakes more in magnitude compared to the triggered earthquake. In a region with very high seismicity we need to worry more on the earthquakes induced by such movements rather than by trigger events. He added that the preparedness level has to be for higher magnitude earthquakes in the State. Citing the examples of Japan and Mexico he said that these countries have installed earthquake sensors at suitable locations for early warning in case of earthquake events.

5. Shri. JK Sinha (Hon'ble Member, NDMA) replied to a question asked by ADGP cum Commandant General Home Guards, Civil Defence and Fire Services about financial support for establishment of Control Room. He informed that 13th Finance Commission has allocated funds for capacity building in disaster response which are meant to be utilized for setting up of EOCs/Control Rooms too. 5% of funds available under the SDFR can be used for purchase of equipment for disaster relief.

AN OVERVIEW OF THE PROJECT

6. An Overview' of the project was presented by Prof. CVR Murty, IIT-Madras. He informed that this project has Himachal Pradesh, Haryana, Punjab, Chandigarh UT and NDMA as the partner and technical partners will be IIT Bombay, IIT Madras and Geohazards Society. This project is aimed at improved preparedness, mitigation and response in case any such event occurs in the Himalaya. Emphasizing upon the theory of 'seismic Gap' he mentioned that likelihood of a great earthquake in the Himalayan region is very high as no major earthquake has taken place here for the last 60 years. He added that earthquake disaster problem is basically the structure safety problem. Key factor to the building safety or structural safety is the combined efforts from all the stakeholders and interest groups. They can play very important role in reducing this vulnerability. He further discussed preliminary estimates based on scientific

assessment of areas and population likely to be affected, etc. Issues pertaining to training for VRS, Table Top Exercise; IRS, data collection were also highlighted.

7. He requested districts and departments that ten life line buildings and critical structures will be identified by each district involved in the project. Rapid Visual Screening for the identified buildings will be done by engineers who will be trained by IITs and preparedness can be assessed through Table Top Exercise (TTX) which will be conducted at three levels in the order of: (1) department level, (2) inter-department level and (3) state level. Soft copy of the presentation (Annexure – B) made by Prof Murty was shared with all the participants.

PRESENTATION OF INCIDENT RESPONSE SYSTEM

8. Thereafter, Shri JK Sinha, Hon'ble Member NDMA, gave a detailed presentation on Incident Response System. He said that in view of the paradigm shift towards improved pre-disaster preparedness, there is an urgent need for a proper and a well-coordinated response system which would have well thought out pre-designated roles for each member of the response team, systematic and complete planning process, system of accountability for the IRT members, system for effectively integrating independent agencies into the planning and command structure without infringing on the independence of the concerned agencies, Integration of community resources in the response effort.

9. Hon'ble Member also discussed various Important features of Incident Response System. He said that IRS organization is a need based, flexible organization. All the components need not be activated simultaneously. It would depend upon the nature and requirements of the incident. Each activated Section, Branch or Unit must have a person in charge to perform its role. In some cases, because of lack of personnel, a single supervisor may be made in-charge of more than one Group, Unit or Section. It should be clearly understood that in such cases the Groups, Units, Sections do not get merged/amalgamated. He also discussed about Concept of Area Command, Unified Command, Emergency Operation Centre and Incident Command Post.

ADDRESS BY THE CHIEF SECRETARY

10. Shri Sudripta Roy, Chief Secretary, Himachal Pradesh assured that the State would take active part in the proposed exercise and do everything to reduce disasters and particularly earthquake risk in the state. He acknowledged that disaster management is an important issue now and a lot needs to be done to reduce disaster losses and damages. He emphasized the importance of preparedness. Installation of fail-safe communication network is important for disaster management and the State is in the process of setting-up EOCs. And many initiatives have been taken during the last few months but much more needs to be done. The development technique, increase in population and many other factors have made the situation very complicated. Himachal Pradesh lies in zone IV and V hence preparedness is essential. He also emphasized that community has to be aware and the onus lies on the government to make them more participative. Keeping in view the geography of the area we need to focus on local

preparedness and mitigation and create islands for disaster response. The Public Relation Department and the Education Department will play a major role in this. There is urgent need of creating a culture of safety utilizing science and technology. He also suggested that the next 2-3 months can be utilized for maximum preparation and building up the capability to handle such situation. He Requested NDMA to give priority to the districts along the MBT while strengthening Civil Defence System in the State. The Chief Secretary stressed upon the need for building safe houses, dissemination of information without spreading panic and conduct of more regular meeting. Snowdon Hospital and the Police Headquarter as the two critical structures in Shimla that should undergo the RVS as per the project, he said. There is need to ensure that the connectivity to key facilities such as IGMC remains intact even during earthquake. He also highlighted the need to prepare the hotels and tourism industry vis a vis the earthquake hazard in the State. He hoped that the State's case for strengthening civil defence system would be advocated by the NDMA too with the GOI. At the end he thanked the NDMA for choosing HP for such an important project.

PRESENTATION ON CONDUCT OF TABLE TOP AND MOCK EXERCISES

11. Thereafter, Brigadier (Retd.) Dr. BK Khanna, Senior Specialist, NDMA gave a detailed presentation on the Table Top Exercise and Mock Exercise. Mock Exercises are conducted to evaluate the response plans and to improve them further. The tabletop exercise is essentially a group brainstorming session centered on a scenario narrative and problem statements or messages that are presented to members of the group. The format is informal, and the exercise is self-evaluated by the participants. He informed the district and departments that Capacity Development Program for Himachal Pradesh under this scenario exercise for each district comprising of 3 days will be conducted in Divisional HQs for which the districts and departments will nominate officers and inform the NDMA through Revenue Department within 15 days. The training programme will consist of three days and will cover : Incident Response System; Table Top Exercise; Mock Exercise.

DATA COLLECTION AND TIMELINE OF THE PROJECT

12. Additional Chief Secretary (Revenue) requested the participants, district and all departments to ensure that the timeline for completion of various activities (Annexure – c) has been shared with them and it should be ensured that we adhere to the schedule. All the districts will ensure submission of information with respect to 10 lifeline and critical buildings to this office immediately but not later than a week from today in the prescribed format (Annexure – D) already shared with them. All the districts and departments at district level were further requested to nominate trainers for IRS trainings to be conducted at Divisional/district HQ through NDMA.

VOTE OF THANKS

13. At the end, Shri Gopal Chand, Additional Secretary (Revenue) thanked the Hon'ble Members NDMA, the entire NDMA Team, Officers from the State and Central Government for attending the meeting and hoped that all the districts, departments and agencies will actively participate in the proposed exercise and it will result in better preparedness in the State.

sd/-
Additional Chief Secretary (Revenue) to the
Government of Himachal Pradesh.

Endorsement No. Rev (DMC) (F)11-25/2011-I

Dated: the 31st August, 2012

Copy forwarded for information and necessary action to:-

1. All the Administrative Secretaries to the Government of Himachal Pradesh.
2. All the Heads of Department.
3. All the Deputy Commissioners.
4. All the participants.

sd/-
Additional Secretary (Revenue) to the
Government of Himachal Pradesh,
HP Secretariat, Shimla.

Annexure-A

Attendance of Dignitaries

1. Prof. Harsh K Gupta, Hon'ble Member ,NDMA
2. Sh. JK Sinha, Hon'ble Member, NDMA
3. Sh. Sudripta Roy, Chief Secretary, to the Government of Himachal Pradesh.
4. Sh. Deepak Sanan, Additional Chief Secretary (Revenue), to the Govt. of Himachal Pradesh.
5. Dr. PC Dhiman, Principal Secretary (Home) to the Government of HP.
6. Sh. ID Bhandari, DGP, Himachal Pradesh.
7. Sh. Kamal Kumar, ADGP cum Commandant General Home Guards, Civil Defence and Fire Services, HP.
8. Prof. CVR Murty, IIT Madras.

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Annexure-C

TIMELINES FOR COMPLETION OF ACTIVITIES

ACTIVITIES FOR DISTRICTS

Sr. No.	Activity	Timeline	Remarks
1.	Finalisation of District Disaster Management Plans	Immediate	Extended deadline expired on 15 th August, 2012
2.	Nomination of Trainers for Vulnerability Assessment (RVS) – Engineers	Immediate	PWD, HPSEB, I & PH, HIMUDA, Education and RD. The identified Engineers will under training in RVS and carry out RVS of identified lifeline buildings Nomination from all districts is required.
3.	Nomination of Trainers for Incident Response System (IRS)	Immediate	Administrative Officers from District Administration
4.	Nomination of Officers for Table top Exercise, Mock Exercise	Immediate	Administrative Officers from District Administration
5.	Appointment of Nodal Officers (NOs) for DM at district level by all the departments	Immediate	Complete particulars of the NOs – cell no., email, tel. no. should be put in database.
6.	Identification of Life-line buildings (Total 10 in Number) such as:- <ul style="list-style-type: none"> • Hospital • School • Police Station • Fire station • Key office building (s) • Critical Bridge (s) • Power Station • Water tank, etc. 	Within a week	Buildings such as Hospitals, Schools, Key Offices, Police Stations, Fire station, Power & Drinking Water installations etc. should be considered while finalising the list. Information to be compiled in prescribed format.
7.	Information about Health Infrastructure	Immediately on supply of format	Department of Health – CMO of the district
8.	Information about Key Bridges	Immediately after RVS Training	Department of PWD – SE of the respective district. In the prescribed format.
9.	Preparation of DMPs by District Departments, and Major Hospitals and Medical Colleges & Submission to the DDMA.	October, 15, 2012	Provision - Section 32 of the DM Act, 2005

ACTIVITIES FOR DEPARTMENTS

Sr. No.	Activity	Timeline	Departments/Agencies
1.	Nomination of Trainers for Vulnerability Assessment (RVS) – Engineers	Immediate	PWD, HPSEB, I & PH, HIMUDA, Education and RD. Nomination from all districts is required.
2.	Nomination of Trainers for Incident Response System (IRS)	Immediate	All Departments
3.	Nomination of Officers for Table top Exercise, Mock Exercise	Immediate	All Departments
4.	Finalisation of DMPs at State Level by all the departments/organisations and Medical Colleges and submission of the same to Department of Revenue/SDMA.	15 th October	Provision - Section 40 of the DM Act, 2005. State DMP is available at www.hpsdma.nic.in
5.	Appointment of Nodal Officers (NOs) for DM at state level by all the departments	Immediate	LAC; HPSEB; HIMUDA; HG, CD and Fire Services; Industries; Finance; E&T; I & PR; Technical Education; Labour and Employment; PCB; Environment, Science and Technology have not done so far.
6.	Information about Health Infrastructure	Immediately on supply of format.	Department of Health.
7.	Information about Key Bridges	Immediately after RVS Training	Department of PWD. In the prescribed format only.

Other Activities

Sr. No.	Activity	Timeline
1.	Training of Trainers : IRS	From September 2012
2.	Training of Trainers : RVS • Lifeline Structures • Bridges	
3.	Training of Trainers : Table Top and Mock Exercises	
4.	Collection of Data : Buildings and Lifeline Structures	
5.	Table Top and Mock Exercises	End of Sep. 2012 – Jan. 2013
6.	Launch of Media & Awareness Campaigns, and Press Meet	End of Sep. 2012

7.	Scenario-specific : Table Top Exercise	From end of Nov. 2012
8.	Review of State/DDMPs and their Gap Analysis on the basis of EQ scenario and Table Top Exercises	From 1 st week of Dec. 2012
9.	Mid-term Review	Mid-Dec. 2012
10.	Finalization of State, District & Agency Disaster Mitigation Plans	End of Dec. 2012

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M_w=8 Multi-State Earthquake Scenario
Mitigation, Preparedness and Mock Drill Initiatives

Information on Basic Data Collection

1. Background

NDMA has initiated a *Multi-State Earthquake Disaster Scenario Project* projecting the occurrence of a *hypothetical* earthquake of *Magnitude 8* with its epicenter located at *Sunder Nagar* (Mandi District), Himachal Pradesh. As part of this hypothetical scenario project, it is intended to assess the possible damage to property and loss of lives after the said large magnitude earthquake. This hypothetical event is projected to cause intensity of earthquake shaking ranging from VII-IX in 4 adjoining States/UT of **Himachal Pradesh**, Punjab, Haryana and Chandigarh UT.

This document lists the basic information to be collected by the State of Himachal Pradesh to be able to undertake the said earthquake safety assessment of the *Critical Infrastructure and Critical Buildings* in Himachal Pradesh State, which fall in Seismic Zone IV and V. On processing this data, it may be possible to understand *direct* and *indirect consequences* of the scenario earthquake. Such an assessment of critical infrastructure is important to

- (1) Assess *earthquake resistance* of these structures,
- (2) Evaluate their *functionality* in the post-disaster scenario,
- (3) Self-assessment of technical capacity of each department/agency of the state, which is the custodian of these *critical and lifeline infrastructure*.

2. Critical Facilities

When a natural or man-made event affects a critical facility, the impacts are dramatically multiplied when compared to the effects that a similar event may have on non-critical systems. The effects of an earthquake on the Critical Infrastructure is dependent on the characteristics of the structures (location, design, materials used, and maintenance) and characteristics of the occupants (density, freedom of movement, and health during the event).

Critical facilities are vital to the community in the aftermath of an earthquake, the destruction of which will have devastating effect on Public Health, Safety or Security of the Community. This will affect the post-earthquake response capabilities of the community, *e.g.*, Hospitals and Emergency Operation Centers. Because of the large number of people occupying these buildings, the destruction of these structures can have the potential to cause bodily harm to a large number of persons, *e.g.*, Schools and Crowded Shopping Centers.

Critical infrastructure and critical buildings to be studied under this project can be identified if it meets one or more of the following criteria:

- (1) The *buildings and structures are expected to be fully functional in the post-earthquake scenario*, to provide significant post-earthquake utility, such as relief shelter. Such infrastructure and buildings include facilities and services like: major school buildings;

generators; transmission lines; petrochemical installations, telecommunication control room; railway control room; building controlling public safety and security, such as Civil Defense Installation; communication centers; Emergency Operation Center; fire stations; hospitals and other medical facilities; mass emergency shelters, and waste water management. Also, this list should include the facility or building hosting *high density occupancy structures*, such as Auditoriums, Theaters, Stadiums, Mosques/Temples, Educational facilities, Hotels and Office Buildings, which can be turned in to shelters post-earthquake.

- (2) The *infrastructure that provides utility services* to buildings and structures that are expected to be *fully functional* in the aftermath of earthquakes. Such utility services include: electricity supply; fuel supply, sewage services and water supply.
- (3) The *critical building that has high demonstrative value*, such as a government school. The collapse of such buildings in an earthquake can weaken the confidence in public in the government's ability to manage the situation.

3. Information Required

A maximum of 10 facilities (including both critical infrastructure and critical buildings) are to be identified in *each district*. The following template may be used for collecting the general information on the critical infrastructure and buildings:

M_w=8 Multi-State Earthquake Scenario
Earthquake Mitigation, Preparedness and Mock Drill Initiative of NDMA

Basic Data to be Collected by State of HP
Critical and Lifeline Buildings and Facilities

In each district of HP, a maximum of 10 *Critical and Lifeline Buildings and Facilities* are to be identified as per the template given below:

No	Building /Facility Type	Name & Address	Day time occupancy & Night time occupancy	Location		Person In-charge with Phone number and Fax
				Latitude	Longitude	
1	Hospital					
2						
3						
4						
5						
6						
7						
8						
9						
10						