



Earthquake Disaster Preparedness Excercise in Delhi

The first of its kind in India





उपराज्यपाल
दिल्ली
LIEUTENANT GOVERNOR
DELHI



राज निवास
दिल्ली-११००५४
RAJ NIWAS
DELHI-110054

MESSAGE

The United Nations Office for Disaster Risk Reduction (UNIDRR) defined disasters as “a serious disruption of the functioning of the community or a society.” It involves widespread human, material, economic or environmental impacts, which exceed the ability of the affected community or society to cope using its own resources. No country or state is immune from disaster, though the vulnerability to disaster varies. It is thus important to have disaster management plan including management of resources and responsibilities to deal with at times of emergencies.

A disaster can disrupt essential services such as health care, transport and communications, sewage, water, electricity, etc. It is essential to plan disaster prevention activities and disaster preparedness in all district levels. We all are aware that disasters have long-lasting impact on people even after the immediate effect has been mitigated, poorly planned relief activities can have a negative impact not only on disaster victims but also on donors and relief agencies. Thus, the first objective of preparedness is to reduce the disaster impact through appropriate actions and improve the capacity of those who are likely to be affected most – marginalized, poor and handicapped.

In the event of an occurrence of a disaster, it is essential to have mitigation measures and strategies for hazard loss reduction. This report aims to suggest few steps and measures to be initiated by each state to have effective disaster management plan at every level.


(NAJEEB JUNG)



D.M. SPOLIA, IAS



सत्यमेव जयते

मुख्य सचिव
राष्ट्रीय राजधानी क्षेत्र दिल्ली सरकार
दिल्ली राधियालय, आई.पी.एस्टेट, नई दिल्ली-110002

CHIEF SECRETARY
GOVT. OF NATIONAL CAPITAL TERRITORY OF DELHI
DELHI SECRETARIAT, IP ESTATE, NEW DELHI-110002
Tel.: 2339 2100, 2339 2101 Fax : 011-2339 2102
E-mail : csdelhi@nic.in

October 10, 2014

MESSAGE

It is crucial for both administrators and the public to prepare themselves for any disaster in advance so that during emergencies, it does not result in any extensive damage. It is important to have a well laid out rescue and relief plan with a well defined development approach.

The National Disaster Management Authority (NDMA) in association with the Delhi Disaster Management Authority (DDMA) have come up with different disaster preparedness strategies to generate awareness among people and various agencies on how to work closely with different emergency functionaries set up across Delhi. The first state-wide mega mock drill held in Delhi on February 15, 2012, showcased what kind of contingency measures are needed to be prepared for each district in New Delhi to face disasters in the wake of any emergency. I hope this report will be effectively used by many organizations and departments to further augment their disaster management plans. The report aims at handling disasters professionally with the perspective of a long term development and sustainability.

As a part of the simulation exercises, it is essential to conduct yearly mock drills to generate awareness among people and test reliability of all related agencies. Mock drills also help in evaluating response and improving coordination within various government departments, non-government agencies and communities. This booklet lists measures taken by DDMA in close coordination with NDMA to carry out the first state-wide mega mock drill in Delhi on earthquake disaster preparedness.


(D.M. SPOLIA)



MESSAGE

The National Capital Territory of Delhi (NCT), which has a population of around 16 million (according to 2011 census), is vulnerable to natural disasters such as earthquake and flood as well as man-made disasters such as fires, industrial and chemical hazard, collapse of buildings and infrastructure, terrorist attack, bomb blast, road accident, water logging, etc. The region being designated under Seismic Zone IV indicates fairly high seismicity and thus, falls under high-risk areas. Delhi, being the capital of India and hub of the Central government and businesses, it is imperative to set up disaster preparedness and mitigation measures in place so that, when disasters happen at any time and anywhere, all stakeholders will be fully prepared to protect the lives, live-stocks, properties and other valuable assets of the masses.

Delhi Disaster Management Authority (DDMA) in collaboration with National Disaster Management Authority (NDMA) conducted a major earthquake preparedness exercise in Delhi from December, 2011 to mid-February, 2012, which is first such state-wide programme in India. The exercise comprised of activities like workshops, awareness programmes, public lectures, mock drills and media campaign on various platforms having participation of various stakeholders – Government Sector, Private Sector, Resident Welfare Associations (RWAs), Schools, Colleges, Universities, Market Associations, Courts and Judiciary and Public Representatives. On 15 February, 2012, the exercise culminated with the first ever state-wide mega mock on earthquake preparedness in all the districts of Delhi. The basic purpose of the mock drill was to create awareness among people and to ensure close coordination amongst various emergency support functionaries and stakeholders located across all the districts of Delhi.

The event highlighted that since disasters affect economic and social processes, it is imperative to have preparedness and mitigation plan to minimize losses. The mega mock drill was audited by independent team of Indian Army from Headquarter Delhi Area. The mega exercise on earthquake safety was appreciated at various levels. People of Delhi and various media organizations have also appreciated the efforts made. The exercise was a remarkable step towards preparing Delhi for any probable appalling situation arising aftermath of a severe earthquake. This document is an attempt to develop a standard template for conduct of state-wide disaster preparedness exercises.



I take this opportunity to express my deep appreciation for the contributions of all the stakeholders involved in preparation of this report.

DHARAM PAL

PRINCIPAL SECRETARY (REVENUE) CUM DIVISIONAL COMMISSIONER, DELHI



ACKNOWLEDGEMENT

The Delhi Disaster Management Authority (DDMA) would like to thank Pinkerton's Gulpawan Singh, Vice-President - Asia, and Singam Rebika Devi, Sr Risk Analyst, for compiling this report on mega mock drill as a part of Pinkerton's Corporate Social Responsibility. DDMA would also like to thank the National Disaster Management Authority (NDMA) for sharing their feedback on this report. Last but not the least, special thanks are due to Sh Kuldeep Singh Gangar, Ms Kiran Kaul, Sh Ansuman Satapathy, Ms Shivani Jain and Ms Shikha Sharma for sharing their immense knowledge and experience on each of the steps involved in preparing mega mock drill held on February, 2012.



ABBREVIATIONS

ADM.....	Additional District Magistrate
AOR.....	Area of Responsibility
BTL.....	Below The Line Media
CATS.....	Centralized Accident and Trauma Services
CBOs.....	Community Building Organizations
CDMO.....	Chief District Medical Officer
CPWD.....	Central Public Works Department
DC.....	Deputy Commissioners
DDA.....	Delhi Development Authority
DDMA.....	Delhi Disaster Management Authority
DEMEx.....	Delhi Emergency Management Exercise
DIP.....	Directorate of Information and Publicity
DJB.....	Delhi Jal Board
DMRC.....	Delhi Metro Rail Corporation
DTC.....	Delhi Transport Corporation
EOC.....	Emergency Operations Center
ESFs.....	Emergency Support Functionaries
IEC.....	Information Education and Communication
JCO.....	Junior Commissioned Officer
MCD.....	Municipal Corporation of Delhi
MES.....	Military Engineer Service
MLAs.....	Member of Legislative Assemblies
MTNL.....	Mahanagar Telephone Nigam Ltd
NCC.....	National Cadet Corps
NCR.....	National Capital Region
NCT.....	National Capital Territory of Delhi
NDMA.....	National Disaster Management Authority
NDMC.....	New Delhi Municipal Council
NDRF.....	National Disaster Response Force
NGOs.....	Non-governmental Organizations
NIC.....	National Informatics Centre
NYKS.....	Nehru Yuva Kendra Sangathan
OIC.....	Officer in Charge
PCRs.....	Police Control Rooms
PWD.....	Public Works Department
RWAs.....	Resident Welfare Associations
SMS.....	Short Messaging Service
SOPs.....	Standard Operating Procedures



TABLE OF CONTENTS

1. EXECUTIVE SUMMARY	10
2. INTRODUCTION	12
3. BACKGROUND OF DISASTER PREPAREDNESS EXERCISE IN DELHI	13
4. OBJECTIVES OF THE EXERCISE	14
5. STAGES OF PREPARATION.....	15
5.1 REVIEW MEETINGS	15
5.1.1 CHAIRED BY THE NATIONAL DISASTER MANAGEMENT AUTHORITY	15
5.1.2 CHAIRED BY THE SECRETARY (REVENUE/DISASTER MANAGEMENT)	15
5.2 ORIENTATION WORKSHOPS.....	16
5.3 AWARENESS PROGRAMMES	16
5.3.1 RESPONDERS:	16
5.3.2 AUTHORITIES:	16
5.3.3 PUBLIC:	17
5.3.4 SCHOOLS AND COLLEGES:.....	17
5.4 DROP, COVER AND HOLD EXERCISE IN ALL SCHOOLS	17
5.4.1 PROCEDURE:	17
5.5 MEDIA CAMPAIGNS	18
5.5.1 OUTDOOR MEDIA PLAN:	18
5.5.2 PRINT MEDIA:	18
5.5.3 RADIO CAMPAIGN:.....	19
5.5.4 BULK MESSAGE CAMPAIGN.....	19
5.5.5 BELOW THE LINE MEDIA (BTL):.....	19
5.6 PREPARATORY MEGA MOCK DRILLS	19
6. STATEWIDE [NATIONAL CAPITAL TERRITORY (NCT) OF DELHI] MEGA MOCK DRILL.....	19
6.1 VARIOUS LOCATIONS FOR MOCK DRILL	20
6.2 CASUALTIES SIMULATED:.....	21
6.3 HIGHLIGHTS OF THE EXERCISE:	22
6.4 SCENARIO OF THE STATEWIDE MEGA MOCK DRILL:	22
6.5 COORDINATION BY THE STATE EMERGENCY OPERATIONS CENTRE (EOC).....	23
7. STATE EMERGENCY OPERATIONS CENTER'S ROLE DURING DISASTER.....	23
7.1 EMERGENCY SUPPORT FUNCTIONARIES (ESFs) FRAMEWORK FOR DELHI	24
8. THIRD PARTY REVIEW	25
8.1 BEST PRACTICES:.....	25
8.2 LACUNAE NOTICED:	26



8.2.1 ACTION AT EMERGENCY OPERATION CENTRE:	26
8.2.2 INCIDENT SITES:	27
8.2.3 HOSPITALS:	27
8.2.4 RELIEF CAMPS:	28
9. LESSONS LEARNT	28
10. STEPS TO BE TAKEN FOR FUTURE	30
11. CONCLUSION	31
ANNEXURE-1: MEGA MOCK DRILL DISCUSSED AND APPRECIATED BY THE UNION	32
HOME MINISTER SHRI. P. CHIDAMBARAM IN THE PARLIAMENT.....	32
ANNEXURE-2: MEGA MOCK DRILL REPORT FOR NORTH-WEST DISTRICT	36
ANNEXURE-3: MEGA MOCK DRILL REPORT FOR SOUTH-WEST DISTRICT.....	67
ANNEXURE-4: MEGA MOCK DRILL REPORT FOR SOUTH DISTRICT	78
ANNEXURE-5: MEGA MOCK DRILL REPORT FOR NEW DELHI DISTRICT.....	82
ANNEXURE-6: MEGA MOCK DRILL REPORT FOR WEST DISTRICT	90
ANNEXURE-7: MEGA MOCK DRILL REPORT FOR EAST DISTRICT	102
ANNEXURE-8: MEGA MOCK DRILL REPORT FOR NORTH DISTRICT	110
ANNEXURE-9: MEGA MOCK DRILL REPORT FOR CENTRAL DISTRICT.....	129
ANNEXURE-10: MEGA MOCK DRILL REPORT FOR NORTH-EAST DISTRICT	137
ANNEXURE -11 CHECK LIST FOR OBSERVERS	142
ANNEXURE-12: DETAIL FINAL MOCK DRILL SCHEDULE OF ACTIVITIES CARRIED OUT IN DELHI'S NINE DISTRICTS.....	145
SNAPSHOTS OF MEGA MOCK DRILL HELD ON 15 FEBRUARY, 2012.....	153



1. EXECUTIVE SUMMARY

The first state-wide mega mock drill on earthquake preparedness was conducted in Delhi in association with Delhi Disaster Management Authority (DDMA) and National Disaster Management Authority (NDMA) on 15 February 2012 simultaneously at around 400 locations. More than 15,000 officials, including 400 observers from the Armed Forces participated in the event.

Delhi Disaster Management Authority (DDMA) tasked Pinkerton to compile a report on the first mega mock drill exercise held in Delhi, as a part of its Corporate Social Responsibility (CSR). The aim of the state-wide mock drill was to assess strengths and weaknesses of the associated stakeholders such as Emergency Support Functionaries (ESFs) and Emergency Operations Centers (EOCs) so that corrective measures can be undertaken for a better disaster response in future. The major highlights were as mentioned below:

- The basic purpose of the mock drill was to generate awareness among residents of Delhi and to evaluate the level of preparedness and coordination among various Emergency Support Functionaries (ESFs) set up across all districts of Delhi.
- In the run up to the mega mock drill exercise, various preparatory mock drills, orientation workshops, awareness programmes and extensive media campaigns were held for mass awareness generation.

Kapil Dev, India's former cricket captain, was the brand ambassador for the media campaign.

- Orientation workshops for Members of Legislative Assemblies (MLAs) and Councilors at Delhi Vidhan Sabha (Legislative Assembly) on earthquake preparedness were held in December 2011. Half day orientation workshops with judges of the Delhi High Court on earthquake preparedness were held in February 2012.
- As a part of the awareness programmes on earthquake disaster management, various campaigns such as torch rallies, Apaada Mitra programme, flyer's distribution, Resident Welfare Associations (RWAs) programmes, slums and villages' programmes, street plays, first aid, search and rescue training were conducted in nine districts of Delhi. Debates, quiz, drawing competition, sports activities and rallies were organized at various colleges and schools.
- Additionally, mock drill on 'Drop Cover and Hold Exercise' covering all the school (including Government, Municipal Corporation of Delhi (MCD) and Public/ Private Schools) were held simultaneously on 8 December, 2011. The purpose was to reduce earthquake related injuries and deaths among the students.
- Media campaigns involved outdoor media plan, print media, radio campaign, bulk message campaign, Below the Line (BTL) media were



organized to spread awareness on earthquake preparedness exercise in Delhi. Kapil Dev's pictures were used for outdoor print media campaign and voice for radio campaigns and other publicity material.

- Outdoor media campaign was conducted through the display of hoardings, bridge panel, designer bus queue shelter, advertisement panels in colleges, railway stations, hospitals, government buildings, public utility and metro stations.
- Print media campaigns were launched in various newspapers - English, Hindi, Urdu and Punjabi in the city ahead of the mega mock drill and on the same day itself.
- Radio spots and jingles for the public awareness campaign on 'Earthquake Preparedness Exercise in Delhi' were relayed for 45 seconds and 60 seconds on six FM channels including Radio Mirchi, Radio City, Red FM, Oye FM, Radio Fever and AIR FM Gold for 90 days.
- Bulk Short Messaging Service (SMS) were sent four times ahead of the mega event and culminating with a thank you SMS after the event. T-shirts, caps, pens, flyers, mouse pad, bags and notepads displaying earthquake preparedness exercise were procured and distributed.
- On 15 February 2012, the mega mock drill exercise started at 1130 hrs simultaneously in all the nine districts of National Capital Territory of Delhi. Major locations of the mega mock drill include: Schools, Colleges, Government Hospitals, Cinema Halls, Government Office Building, Flyovers, Airport, DC office, CNG/LPG stations, markets, etc. It started by sounding of siren at a number of places in respective districts for one minute.
- A scenario was created for the mega mock drill: An earthquake of magnitude 7.9 on Richter scale occurred on Delhi-Moradabad fault line, at 11:30 hrs on 15 February, 2012. The epicenter of the earthquake was near Moradabad, around 170 km east of Delhi. Tremors lasted for 48 seconds. It resulted in massive collapse of infrastructures and buildings, fire and gas leakages at several places, twisting of railway lines at a number of places making movement of rail unsafe.
- All the 12 Emergency Support Functionaries (ESFs) for Delhi participated in complete coordination with one another. The mock drill was covered live by the electronic media.
- The entire exercise was coordinated by Emergency Operation Centre (EOC) located at Headquarter of Delhi Disaster Management Authority (DDMA). EOC coordinated with the nine District level EOC's for smooth conduct of the exercise.
- Some of the best practices they shared included: Local people faced less inconvenience on the eve of event due to the widespread media



campaign; the response of the Police Control Room (PCR) was prompt and reached within few minutes at the disaster designated sites; Civil Defence workers were very quick in reacting to the scenario; Deputy Commissioners and their staff set the personal examples by trying to control the situation and allocation of effort;

- Lacunae noticed by the Indian Army included: Inadequate Space at Emergency Operations Centre (EOC), Absence of representation by Emergency Support Functionaries (ESFs) in EOC, poor quality equipment, lack of communication within ESFs, non-maintenance of logbook systems at EOC, inadequate resources and poor response time at incident site, poor handling of casualties at the hospitals and lack of basic amenities at the relief camps, etc.
- The Indian Army shared few recommendations as lessons learnt after attending the first mega mock drill: Emergency Operations Center (EOC) should be state of the art, equipped with maps, with mapping of resources/details, Google imagery, Satellite imageries and live feed through CCTVs; there should be small teams of the National Disaster Response Force (NDRF) Battalion located at various parts of Delhi to reach at short notice; there is an urgent requirement of either raising or converting Delhi Armed Police into a Delhi Disaster Response Force.

Based on the experience of Delhi mega mock drill, NDMA conducted a mega mock drill in three states of north India viz. Punjab, Haryana and Himachal Pradesh and the Union Territory of Chandigarh on 13 February, 2013 to test earthquake preparedness of the local agencies as well as their disaster management machinery. This was called as Multi-State Mega Mock Exercise conducted in tri-city of Chandigarh, Mohali and Panchkula and also in Shimla. The officers from DDMA also participated in the Multi-State Mega Mock Exercise, as part of NDMA team.

2. INTRODUCTION

The National Capital, New Delhi being the economic and political hub of India, it is imperative to establish a disaster management plan for the city. It is crucial for both administrators and the public to prepare them for any disaster in advance so that during emergencies, it does not result in any extensive damage. It is important to have a well laid out rescue and relief plan with a well defined development approach as it is the poor and underprivileged that form the most vulnerable groups and are the worst affected by natural disaster. The National Disaster Management Authority (NDMA) in association with Delhi Disaster Management Authority (DDMA) have come up with disaster preparedness strategies to generate awareness among people and different agencies on how to work closely with different emergency functionaries set up across Delhi. For this, series of preparatory mock drills and a statewide mega mock drill were conducted at various prime locations



across National Capital Region (NCR) of Delhi. This report is an attempt to bring out each level of preparedness involved between DDMA and NDMA officials to conduct first statewide mock drill in India and to assess what kind of contingency measures are needed to be prepared for each district in New Delhi to face disasters.

A proactive, comprehensive and sustained approach to disaster management will reduce the detrimental effects of disasters on overall socio-economic development of the State. Equally important is to believe that the quantum of relief required would be reduced drastically if all the departments start preparing plans to handle disasters professionally with the perspective of a long term development and sustainability.

3. BACKGROUND OF DISASTER PREPAREDNESS EXERCISE IN DELHI

The National Capital Delhi, which spreads across 1,483 sq km area on either side of the Yamuna river, has emerged as one of the significant socio-economic hubs in the past few decades. Bounded by the Indo-Gangetic alluvial plains in the north and east, Aravalli hill ranges in the south and the Thar Desert in the west, the capital remains vulnerable from man-made and natural disasters such as fire, earthquake and seasonal flood, gas leaks, riots and clashes, communicable diseases, etc. In terms of seismic zone, the capital falls under Seismic Zone IV which further adds to the vulnerability from earthquakes with high rise buildings and crowded areas. Thus, it is important for the

state to have a preparedness plan and mitigation measures to protect the lives and properties of the people of Delhi from potentially devastating hazards.

The strategies required for disaster management include formulation of well-designed plans to structure the entire post-disaster response and to familiarize the key stakeholders, particularly the communities through training and simulation exercises, preparedness supported by necessary legislation, trying to reduce the disaster impact through appropriate actions and addressing the concern of safety of poor and vulnerable sections of society.

Additionally, steps such as establishment of Emergency Operations Centers (EOC), preparation of resource inventory, setting up of reliable communication systems, formulation of response plan, training and capacity building, community awareness and community preparedness planning, capacity building of community task forces, simulation exercises etc are required to enhance state level preparedness.

As a part of the simulation exercises, it is essential to conduct yearly mock drills to generate awareness among people and test reliability of functioning of all concern departments and related agencies. Mock drills also help in evaluating response and improving coordination within various government departments, non-government agencies and communities. Mock drill exercises involving all stakeholders are essential to check response plans at state, district and community level and it is the



responsibility of District Disaster Management Authorities to conduct yearly mock drills and update plans. In order to evaluate earthquake preparedness in Delhi, DDMA in collaboration with NDMA organized various community development and awareness programmes from December 2011 to mid-February 2012 which culminated with the first statewide mock drill on the 15 February 2012.

The mega event witnessed participation from various stakeholders such as the Government and the Private sector, Resident Welfare Associations (RWAs), Schools, Colleges, universities, Market Associations, Judiciary and Public Representatives, etc. This document is to provide guideline to States to know various steps involved in preparing statewide mock drills to generate awareness among people and role of Emergency Operations Centers (EOCs).

4. OBJECTIVES OF THE EXERCISE

- Creating awareness and coordination among various government functionaries, technology personnel, non-governmental organizations (NGOs), community building organizations (CBOs) and communities about earthquake disaster and possible preventive actions.
- Preparing the emergency support functionaries (ESFs) to effectively respond to large scale earthquake disaster at state level.
- Development and strengthening of earthquake preparedness, response and recovery plans and practice these through mock drills.
- Capacity building of ESFs and practice of standard operating procedures.
- Networking knowledge on best practices and tools for effective risk management.
- Damage minimization
- Ensuring safety and security of residents of Delhi
- Developing mitigation strategies for the city by using the outcomes of the program.



5. STAGES OF PREPARATION

5.1 Review Meetings

5.1.1 Chaired by the National Disaster Management Authority

NDMA and DDMA organized various meetings in New Delhi from April 2011-February 2012 to discuss the problems and review status of preparedness of Delhi State Disaster Management Authority with special reference to earthquake risk management. During the meeting, the following salient issues were discussed:-

- Revision of Disaster Management Plans for various districts
- Construction of disaster resistant buildings and amendments to buildings bylaws/regulations and town planning acts
- Strengthening of third party auditing system for structural auditing of private buildings before registration of properties
- Retrofitting of lifeline buildings such as hospitals, electricity substations, water tanks, important government buildings, Emergency Operations Centers (EOCs) or Police Control Rooms (PCRs) in each district
- Timely completion of Seismic microzonation of Delhi
- Effective measures to be taken for capacity building and advanced trauma life support system for medical preparedness and mass casualty management.
- Strengthening of the ambulance services in Delhi
- Need to train a large number of volunteers of Civil Defence, Nehru Yuva Kendra Sangathan (NYKS) and others

- Increase the pace of awareness generation and mass sensitization for earthquake and other disaster preparedness
- Sensitization workshop for legislators and councilors for disaster reduction in the city
- Workshop of stakeholders on preparedness and mitigation of disasters in Delhi
- Debates/Seminars in schools and colleges of Delhi
- Rallies by school children on earthquake safety issues.
- Public lectures at selected places on earthquake safety
- Conducting city-wide mock drill with appropriate level of participation by all special agencies focusing on earthquake risk reduction

5.1.2 Chaired by the Secretary (Revenue/Disaster Management)

The Secretary (Revenue/Disaster Management) of the Delhi Disaster Management Authority chaired various meetings from September-December 2011 to review the joint Delhi Disaster Management Authority and National Disaster Management Authority Earthquake preparedness exercise in Delhi. These meetings were attended by the Deputy Commissioners (DCs) and Additional District Magistrates (ADMs) of Delhi, Director, Education of National Capital Territory of Delhi and Joint Secretary, National Disaster Management Authority.

Following important points were discussed in various meetings:-



- Respective Deputy Commissioner to send a list of equipment to the Headquarter to be placed in their Emergency Operations Centers (EOCs)
- To identify a piece of land to set up Disaster Relief Warehouse
- Requirement of structural engineers to be sent from the Institute of Engineers and then posting it on the Delhi Disaster Management Authority website
- Each Deputy Commissioner to inform dates of the mock drill to school, colleges, Resident Welfare Associations (RWAs) and market associations in their district and to the Headquarter.
- Finalization of date by Headquarter so that District Disaster Management Authorities can have different dates for mock drill
- Each Deputy Commissioner to plan public lectures and workshops on structural safety with Engineers, Architects, etc
- To organize Drop, Cover and Hold, Exercise in all schools of National Capital Territory of Delhi

5.2 Orientation Workshops

Orientation workshops on earthquake preparedness were organized by the Delhi Disaster Management Authority Headquarter in the last week of December 2011 with Member of Legislative Assemblies (MLAs) and Councilors at Delhi Vidhan Sabha (Legislative Assembly). Orientation workshops with selected government departments were also organized. A half day orientation workshop on earthquake safety was organized for the Judges of the Delhi High Court on 8 February, 2012. Additionally, each district organized orientation workshop

with respective Judges and Bar Associations at their District Courts.

5.3 Awareness Programmes

To generate awareness on disaster management across Delhi, nine districts of Delhi organized various awareness campaigns such as torch rallies, Apaada Mitra programme, flyer's distribution, Resident Welfare Associations (RWAs) programmes, slums and villages programmes, street plays, first aid, search and rescue training, etc. In addition, debates and painting competitions in schools and colleges, public lectures on disaster management, training to private security guards and lift operators, traders' associations were organized. These have been classified below sub-headings:-

5.3.1 Responders: For responders such as private security guards, lift operators, resident welfare associations (RWAs) and traders associations, training programmes were held on disaster preparedness. NGOs and hotels were also given training. In addition, at least three hospitals in each district were selected for awareness generation and mock drills.

5.3.2 Authorities: Awareness programmes on disaster management were organized for authorities at central and Delhi government. Some of the topics discussed include identification of key first aid responders, standard operating procedures (SOPs) for communication and coordination with key first responders, plans for provision of relief to communities, identification and year marking of contingency financial resources,



plan of action in case of disruption of services (electricity, water, communications), etc.

5.3.3 Public: Various public programmes were held to generate awareness on disaster management. These include:-

- Flyers Distribution in bus stops, metro stations, railway stations, shopping malls, mother dairy booths, airports, etc
- Torch rallies in nine districts with participants from school children, college students, resident welfare associations (RWAs), market associations, non-governmental organizations or community building organizations, etc
- Civil Defence and Nehru Yuva Kendra Sangathan volunteers who were named as 'Apada Mitra' organized awareness generation in selected families. The purpose was to visit selected vulnerable colonies in Delhi and educate the residents about family safety plans and distribute Information Education and Communication (IEC material)
- At least three Nukkad Nataks per district were performed at various market
- Disaster plans on pilot basis were initiated in various slums and villages
- Public lectures on disaster management were organized involving senior citizens, academicians and women at crowded places such as malls, markets and gardens

5.3.4 Schools and Colleges: Debates, quiz, drawing competition, sports activities and rallies were organized at various colleges and schools. At least ten schools and five colleges in each district were selected for mandatory mock drill.

5.4 Drop, Cover and Hold Exercise in All Schools

As a part of earthquake preparedness exercise, the DDMA in collaboration with the NDMA carried out a mock drill on 'Drop Cover and Hold Exercise' covering all the school (including Government, Municipal Corporation of Delhi (MCD) and Public/Private Schools) simultaneously on the 8th December, 2011. The purpose was to reduce earthquake related injuries and deaths among the students.

5.4.1 Procedure:

The mock drill started with an emergency siren indicating occurrence of an earthquake. Immediately, staff and students responded by dropping under their desks for cover. They dropped to the ground, took cover under their desks and held on to it until the school siren / alarm bell sounded again (after 2 minutes). All the students started to vacate their class rooms, covering their heads with their hands or school bags and gathered at the school ground where the class teachers took a roll – call to check if all had been safely evacuated.

The drill was conducted twice in the districts at 1100 hrs for morning shift schools and at 1500 hrs for evening shift schools.

Some of the objectives of performing this exercise include carrying out massive awareness activity, promotion of disaster risks management, mass awareness on disaster risk reduction, mass involvement of children and to develop the culture of preparedness and mitigation of disasters among students and teachers. Moreover, the whole purpose of Shake-Out Drill was to help all the schools and their students to prepare for earthquake and to prevent natural



hazards from becoming disasters in term of Dead, suffering and losses.

In order to prepare for this exercise, district disaster management authorities organized training for the teachers and principals of the schools for two days ahead of the exercise. As many as 3992 schools took part in the exercise.

5.5 Media Campaigns

Media campaigns were carried out to generate awareness on disaster management preparedness and mega mock drill campaign with Kapil Dev, India's former cricket captain, as the brand ambassador. His pictures were used for print outdoor and voice for radio campaigns and other publicity materials.



Additionally, widespread media campaigns were organized, starting from 25 January onwards for the mega event of earthquake preparedness exercise in New Delhi on 15 February 2012. However, before launching the campaigns, officials from the DDMA and the NDMA briefed media agencies empanelled with Directorate of Information and Publicity (DIP) to make the campaigns more effective. The aim of the media campaigns was to have a wide coverage, create awareness about the mega event to ensure maximum participation from the

residents. The overall media campaign cost approximately Rs 5 crores and it was shared by both the NDMA and the DDMA.

5.5.1 Outdoor Media Plan: Through hoardings, bridge panel, designer bus queue shelter, advertisement panels in colleges, railway stations, hospitals, government buildings, public utility and Metro stations, advertisements were displayed (below image).



5.5.2 Print Media: Print media campaigns were launched in various newspapers of English, Hindi, Urdu and Punjabi in the city ahead of the mega mock drill and on the day itself. Thank you advertisements were also published in various dailies of the city on 18 March, 2012.





5.5.3 Radio Campaign: Radio spots and jingles for the public awareness campaign on 'Earthquake Preparedness exercise in Delhi' were relayed for 45 seconds and 60 seconds on six FM channels including Radio Mirchi, Radio City, Red FM, Oye FM, Radio Fever and AIR FM Gold for 90 days.

5.5.4 Bulk Message Campaign: Bulk Short Messaging Service (SMS) were sent four times ahead of the mega event and culminating with a thank you SMS after the event.

5.5.5 Below the Line Media (BTL): T-shirts, caps, pens, flyers, mouse pad, bags and notepads displaying earthquake preparedness exercise were procured and distributed.

All the creative designs for the print and outdoor media as well as jingles and radio spots were approved by the Chief Minister of Delhi.

5.6 Preparatory Mega Mock Drills

Preparatory mock drills covering three districts at one time were carried out few days before the mega mock drill. The first drill was conducted on the 31 January, 2012 for the group of New Delhi, South and South West districts; while the second preparatory mock drill was conducted on 2 February 2012 for the group of East and the North-east districts. The last drill was conducted on the 6 February, 2012 for north, north-west and west districts. However, central district could not participate in the drill.

6. Statewide [National Capital Territory (NCT) of Delhi] Mega Mock Drill

The first statewide [actually National Capital Territory (NCT) of Delhi] mega mock drill in India was organized by the DDMA in collaboration with the NDMA across Delhi at 1130 hrs on the 15 February 2012, in nearly 400 locations involving various agencies such as government and private sector, resident welfare associations (RWAs), schools, colleges, market associations, slums, DMRC, shopping malls, hospitals, cinema halls, hotels, bus stops, railway stations, petrol pumps, airport, media houses, embassies, important monuments, religious places, central Government Organizations, etc. Before carrying out the event, all the nine Revenue districts under the leadership of the Deputy Commissioner/ Chairman along with the Additional District Magistrate/ Chief Executive Officers of District Management Authorities (DMAs) conducted table top exercise and finalized their district wise plans in coordination with the ESFs i.e. Delhi Police, Fire service,



Health Department, Municipal Corporation of Delhi (MCD), New Delhi Municipal Council (NDMC), Public Works Department (PWD), Mahanagar Telephone Nigam Ltd (MTNL), Power Distribution Companies, National Disaster Response Force (NDRF), Delhi Jal Board (DJB), Delhi Transport Corporation (DTC), Delhi Metro Rail Corporation (DMRC), etc.

Additionally, Additional Secretary (Revenue/Disaster Management) wrote letters to various stakeholders such as Centralized Accident and Trauma Services (CATS) Headquarters, Delhi Health Services, Additional Commissioner of Police (Traffic), Delhi Fire Services, etc to personally be present at the DDMA Control Room in the Office of Secretary DDMA, Sham Nath Marg, Civil Lines at 1100 hrs. Additionally, DMRC was informed to conduct the mock drill at various metro stations and

to make necessary arrangements and announcements on Metro stations for public awareness about the event which would require stopping of movement of metro trains for 25 minutes from 1130 hrs onwards. Moreover, many locations such as schools (government and private), high-rise buildings, petrol pumps, hospitals, cinema halls, Metro stations, industrial areas, slums, airports, etc across Delhi were chosen for mock drill exercise (listed in Annexure 12).

The aim of the statewide mock drill was to assess the preparedness levels of Emergency Support Functionaries (ESFs) and to identify lacunae, best practices and bring out the lessons learnt in the eventuality of an unprecedented earthquake scenario. Independent observers from the Armed Forces were also deputed to make assessment of every department on the basis of the strength and the weaknesses.

6.1 Various Locations for Mock Drill

S. No.	Places Affected	S. No	Places Affected
1	School (Government)	13	Metro Stations
2	School (Private)	14	DC Office
3	Colleges	15	Flyovers
4	Hospitals (Government)	16	CNG/LPG Stations
5	Hospitals (Private)	17	Road Accident



6	Cinema Hall	18	Hotel
7	Resident Welfare Association (RWAs)	19	Industry
8	Government Office Building	20	Foot Over Bridge
9	Market Trade Association	21	Slum/ JJ Colony
10	Petrol Pump	22	Petroleum Installation
11	High rise Building	23	Airport
12	Malls		

6.2 Casualties Simulated:

S. No.	District	Killed		Injured	
		Simulated	Actual	Simulated	Actual
(a)	North East	500	25	6000	150
(b)	East	470	20	5500	130
(c)	South East	450	18	4500	120
(d)	South West	485	22	5000	140
(e)	West	500	24	5500	144
(f)	New Delhi	100	10	1500	90
(g)	Central	500	30	5700	155
(h)	North West	350	20	3000	115
(j)	North	400	24	2500	110

Note: In addition, each district was to establish a Relief Camp, where a minimum of 200 people could be accommodated at any time.



6.3 Highlights of the Exercise:

- The exercise started at 1130 hrs on 15th February 2012 simultaneously in all the nine districts of National Capital Territory of Delhi.
- The earthquake was simulated by sounding of siren at a number of places in respective districts for one minute.
- All the Emergency Support Functionaries (ESFs) participated in the exercise.
- The event focused not only on earthquake but also on its resultant disasters, for example, incidence of Fire, Building Collapse, Road Blockage, Pipeline Burst, etc.
- The mock drill conducted in simulated high magnitude earthquake (7.9 Richter scale) and extreme weather condition (Freezing Cold and Rain)
- Divisional Commissioner-cum-Secretary Revenue, National Capital of Territory of Delhi had overall responsibility to conduct the exercise.
- The NDMA provided necessary assistance and support for the planning and conduct of the mock exercise.
- Three preparatory mock drills covering three districts on each day were conducted before the mega mock drill.

6.4 Scenario of the Statewide Mega Mock Drill:

- An earthquake of magnitude 7.9 on Richter scale occurred on Delhi-Moradabad fault line, at 11:30 hrs on 15 February 2012.
- The epicenter of the earthquake was near Moradabad, about 170 km east of Delhi
- Tremors lasted for 48 seconds.
- The potential intensity of the earthquake was between VIII-IX on Medvedev–Sponheuer–Karnik scale (MSK, a macro-seismic intensity scale used to evaluate the severity of ground shaking on the basis of observed effects in an area of the earthquake occurrence).
- Weather was simulated to be freezing cold and it had been raining for the previous two days and it was predicted to remain so for the next 24 hours.



As a result of the above scenario, the entire city had seen the following:-

- Massive collapse of infrastructures and buildings
- A large number of people trapped inside the debris of the fallen buildings
- A large number of flyovers developed cracks and some of them were not fit for vehicular traffic
- The congested areas of the walled city, east, north east and west Delhi suffered the maximum road accident
- Twisting of railway lines at a number of places making movement of rail unsafe
- Fire and gas leaks occurred at several places
- Collapse of Mahanagar Telephone Nigam Limited (MTNL) lines led to disruption of telephone exchanges
- Bridge on the River Yamuna was unsafe for movement of vehicles
- A significant number of medical casualties

6.5 Coordination by the State Emergency Operations Centre (EOC)

The entire exercise was coordinated by the State Emergency Operations Centre (EOC) located at Headquarter of the DDMA and the State Emergency Centre coordinated with all the nine District level Emergency Operations Centre for smooth conduct of the exercise. Vice Chairman NDMA was present at the Emergency Operations Centre for the entire exercise along with the members of NDMA to make the coordination effective. At DDMA, the exercise was coordinated by the Secretary (Revenue/Disaster Management) and Additional Secretary (Revenue/Disaster Management).

All the Emergency Support Functionaries also participated in complete coordination with one another. The mock drill was covered live by the electronic media.

7. State Emergency Operations Center's Role during Disaster

The State Emergency Operations Centre (EOC) plays an important role at the time of disaster. The helpline number is 1077 and once a call is received about any disaster in Delhi, the call is verified and lifelines such as fire (101), police (100), hospitals/ambulance (102) and Centralized Trauma Ambulance Service (CATS/1099) are activated.

Simultaneously, officials of the District Disaster Management Authorities such as Deputy Commissioner cum Chairman, Secretary and Additional Secretary at the Headquarter, Additional District Magistrate cum CEO, the Sub-divisional Magistrate and the DDMA officials are also informed through telephone, Tetra and SMS.



It is the responsibility of Emergency Operations Center to alert the concerned Emergency Support Functionary (ESF) and other disaster management centers about

the incident. After receiving the news, response and rescue teams of ESFs will leave for the spot. Finally, the Chairman of the District Disaster Management Authority takes the final decision regarding the closing of emergency response at the site.

7.1 Emergency Support Functionaries (ESFs) Framework for Delhi

ESF	Function	Coordinator	Members
ESF1	Communication	Mahanagar Telephone Nigam Ltd (MTNL)	National Informatics Centre (NIC), Police, Revenue, Wireless, Private Telecom
ESF2	Evacuation	Police Department	Army, Health dept, Civil Defence, Delhi Fire Service and National Cadet Corps (NCC)
ESF3	Search and Rescue	Secretary Home	Fire Dept, Police, Civil Defence, Army
ESF4	Medical Health/Trauma	Secretary Health	Major Hospitals, CATS, St. John Ambulance, Civil Defence
ESF5	Equipment Support	Secretary Urban Development	MCD, Public Works Dept (PWD), New Delhi Municipal Council (NDMC), Cantt. Board, Delhi Development Authority (DDA) and DJB
ESF6	Helplines, Warning Dissemination and Coordination, Media Coverage	Principal Secretary (Revenue/Disaster Management)	All ESFs, Media Agencies
ESF7	Drinking Water	CEO, Jal Board	Delhi Jal Board (DJB)
ESF8	Electricity	Secretary Power	Transco, Power Companies (BSES/NDPL)
ESF9	Relief (Food and Shelter)	Principal Secretary (Revenue/Disaster Management)	Civil Supplies Corporation, Civil Defence, Volunteer Organizations
ESF10	Debris and Road	Commissioner, MCD	PWD, NDMC, Cantt. Board, DDA, Military Engineer



	Clearance		Service (MES), Central Public Works Dept (CPWD)
ESF11	Law and Order	Commissioner, Police	Civil Defence, Home Guards
ESF12	Transport	Secretary Transport	Delhi Transport Corporation (DTC) and Delhi Metro Rail Corporation (DMRC)

8. THIRD PARTY REVIEW

The Indian Army was invited as an observer team to review the mega mock drill conducted at various locations in New Delhi. The Col General Services (GS), Headquarter Delhi Area was responsible for coordinating the effort. The team shared their feedback including positive practices and lacunae noticed during the event. They also conducted a series of preliminary conferences with the DDMA and the NDMA to decide the modalities of conduct, identification of major institutes/buildings and places where casualties were to be shown.

In addition, in the run up to the event, the following procedures were followed by the observer team. They are:-

- Team leaders coordinated with respective Deputy Commissioner and briefing sessions were held ahead of the event.
- A day long workshop was organized on 14 February 2012 for all the umpiring staff including officers, Junior Commissioned Officers (JCOs), Non-Commissioned Officers (NCOs) at Headquarters area and was provided a checklist for location. (Checklist is given in **Annexure-11**).

- Umpire staff assembled at HQ Delhi area at 0730 hrs and moved to different locations and reached the district HQ by 0930 hrs. By 1100 hrs, sub-teams were deployed at eight-ten locations.

8.1 Best Practices:

- The widespread media campaign to generate awareness among Delhites about the mega mock drill was well received and highly appreciated. Local people faced less inconvenience due to the event.
- The response of the Police Control Room (PCR) was prompt and reached within few minutes at the disaster designated sites.
- Civil Defence workers were very quick in reacting to the scenario. Many volunteers wanted to get themselves registered as civil defence workers.
- Deputy Commissioners and their staff set the personal examples by trying to control the situation and allocation of effort. They visited all possible sites in their respective districts and were available on the communication net to respond. The dependability factor in other services should also be of high order.
- Almost all the reputed and big hospitals were prepared to receive casualties; however allocation of



effort in terms of wards, medicines, etc needs to be streamlined.

- The Delhi Government was appreciated for taking a good initiative in making State departments, public, corporate houses, hotels and other institutions in Delhi aware of their responsibilities in case of such a disaster.

8.2 Lacunae Noticed:

The Indian Army's auditing team listed the following lacunae from the mega mock drill under the four headings—Action at Emergency Operations Center (EOC), Incident site, Hospitals and Relief Camps¹.

8.2.1 Action at Emergency Operation Centre:

The following observations were found at the Emergency Operations Center (EOC), the nerve centre of disaster management.

Inadequate Space: Emergency Operation Centers (EOCs) were found to be housed in small room and unable to accommodate all the representatives of emergency support functionaries (ESFs). Ample space is required to accommodate all the representatives of the entire state machinery.

1. **Poor Equipment:** There was inadequate equipment at Emergency Operation Centers (EOCs). Basic tools such as mapping of resources in each district were missing. Basic map of each district is necessary for quick and correct decision-making.

2. **No representation by ESFs:** Representatives from emergency support functionaries (ESFs) were absent in Emergency Operations Center (EOC). As a result, there was lack of coordination in the execution of effort on ground.
3. **Lack of Compatible Communication:** There was complete lack of compatible communication resources with all the ESFs. Although they were able to communicate within the department using radio sets; however, inter-department communication was not possible. This caused a delay in passing important information and subsequent decision making.
4. **No Feedback System:** Resources were employed and diverted in adequacy; however, no feedback was taken in terms of whether the resource reached the desired site or whether the task had been completed or more reinforcements were required.
5. **Non-maintenance of Logbook.** There was no account of events to maintain at the Emergency Operations Centre (EOC). If the logbooks and actions taken were maintained by noting down these events, it would have facilitated the assessment of situation at any point of time by the decision makers.
6. **Housing of Emergency Operations Center (EOC) in Sturdy Places:** Emergency Operations Centers (EOCs) were located in old buildings/multi-storey buildings. These vintage buildings may not withstand the jolts of an earthquake of higher intensity and if the nerve centre collapses, it would be difficult to manage such a crisis. There

¹ Feedback Report on Mega Mock Drill Exercise by Indian Army (Page No 6-11).



is thus a requirement to house Emergency Operations Centers (EOCs) in adequately safe places.

8.2.2 Incident Sites: At the incident sites activated in each district, the following observations were listed.

1. **Poor Response Time:** Some of the ESFs could not respond in time. The delay impacted the relief efforts.
2. **Inaccessibility:** The narrow lanes and congested places in the walled city and east Delhi were inaccessible for fire brigades and ambulances. Thus, there is a need to have area specific resource procurement and allocation for such unforeseen eventualities.
3. **Response of Civil Community:** The response of civil community was very poor at most of the places. They were insensitive to the proceedings, just standing and watching all the actions. Had the people reacted in the 'Golden hour,' lots of lives could have been saved.
4. **Handling and Prioritization of Casualties:** The civil defence workers and civil community should be taught handling of casualties. The casualty evacuation should be as per the prioritization. It was seen on ground that the casualties were evacuated without any prioritization. Evacuation of some dead bodies prior to the serious injury was a case in point.
5. **Deputing a Nodal Officer for Command and Control:** There was no nodal officer deputed at the incident site for co-coordinating and controlling the vast efforts. Command and control structure was missing at several sites. In

order to obtain synergy between various services, presence of a nodal officer is a must.

6. **Lack of Basic Equipment with Rescue Teams:** Rescue teams were ill equipped. They did not have the basic requisites such as hammers, torches, stretchers, etc. Lack of basic equipment with the rescue teams rendered them ineffective.
7. **Inadequate Resources:** The important resources were grossly inadequate i.e., hydraulic fire brigade for high-rise buildings, ambulances, medical equipment, etc.
8. **Crowd Control:** Although in actual situation, there will be a paucity of police resources; however, there is need to control the crowd against loot, arson and agitations. No police effort was earmarked for such contingencies.
9. **Identification of Unsafe Buildings:** Technically qualified engineers should be specified district wise to identify unsafe buildings and carry out the demolition to prevent any further casualties which may be caused due to collapse of vulnerable buildings.

8.2.3 Hospitals: The level of preparation varied within reputed private hospitals/ government hospitals/private clinics in a descending scale. The observations noticed are given as under: -

1. **Lack of Disaster Ward:** It was observed that hospitals had not earmarked any disaster ward. On the other hand, there were just one or two beds to cater for such mass casualties. There is a requirement to increase the capacity of disaster ward / beds in the hospitals.



2. **Poor Handling of Casualties:** The handlings of casualties at the hospitals were improper. Since prioritization of casualties had not been made and there was overcrowding and mismanagement as a result, the overall effect was diluted to some extent. The hospitals should have proper laid down drills and procedures to handle mass casualties.
3. **Display Boards:** Many of the hospitals did not have a display boards which should be made a mandatory requirement.
4. **Details of Dead and Discharged Personals:** Hospitals did not maintain the details of discharged and brought dead persons to the hospitals. There is a requirement to make these details available at the help desk to avoid inconvenience to the public.
5. **Inadequate Resources:** There should be adequate resources i.e., blood, life saving medicines, splints etc. These should be readily stocked in the hospitals as part of the 'Disaster Brick'.
6. **Temporary Structures:** Lot of reputed hospitals are in high-rise buildings which may develop cracks. There would be a requirement to vacate and operate from temporary structures. Hence, it is mandatory to create temporary structures at places where they are unaffected by disasters. This would facilitate the staff in carrying out their tasks without any interruptions.
7. **Bulletin through Media:** To arrest the anxiety levels of relatives of the

casualties, a medical bulletin from hospital administration/district administration giving out details of casualties, assessment of damage and relief measures should be issued.

8. **Improper Distribution of Injured:** The optimum utilization of casualty handling capacity was not exploited. The evacuation of casualties to various hospitals was improper. The density of patients was very high in some hospitals while some hospitals were lying vacant.

8.2.4 Relief Camps:

The following points were noticed at the relief camps:

1. **Lack of Basic Amenities:** There was no electricity, water supply and beddings in some of the relief camps. This needs to be looked into.
2. **Unsafe Structures:** Relief Camps in some districts were housed in unsafe structures. The location of relief camps should be sited in a manner that they withstand the effects of disaster.
3. **Stocking of Resources:** The scenario painted was La-Nina effect thus causing cold waves. However, there were no blankets provided at the relief camps.

9. LESSONS LEARNT

The Indian Army has shared the following recommendations as lessons learnt after attending the first mega mock drill in Delhi.



1. Location of National Disaster Response Force (NDRF):

The National Disaster Response Force (NDRF) Battalion is located at Ghaziabad and the bridges on the Yamuna river may not survive the extensive jolts of an earthquake of such intensity. In such an eventuality, the National Disaster Response Force (NDRF) Battalion will not be able to reach the west of the River Yamuna. There is thus a requirement to place small teams in Delhi at various pockets which are able to reach at short notice.

2. Raising State Disaster Response Force: There is an urgent requirement of either raising or converting Delhi Armed Police into a Delhi Disaster Response Force. The equipping and training can be done on the lines of NDRF Bn.

3. State-of-the-Art Emergency Operations Center (EOC): Emergency Operations Center (EOC) should be state of the art, having been equipped with maps, with mapping of resources/details, Google imagery, Satellite imageries and live feed through CCTVs. This will facilitate better decision making and resource allocation. The details of all nine districts should be available at the DDMA command post. There should be proper representation by each emergency support functionaries.

1. Survey of Vulnerable Buildings:

There is a requirement to engage specialists in the field of survey of buildings. Vulnerable buildings should be identified and a drive to strengthen them as per anti earthquake norms should be undertaken. The placement of resources should also be in

consonance with dangerous pockets in Delhi.

2. Stocking of Disaster Brick:

Stocking of essential items required as disaster bricks should be done district wise and a central pool should also be available. The inventory details of resources should be available at every level so that reinforcements can be planned accordingly.

3. Compatible Communication:

There were multiple Emergency Services operating on ground; however, none of them had common means of communication. There is a requirement to have sturdy, compatible communication with duplicate means, with in-built redundancy.

4. Procurement of Basic Equipment:

The scarcity of resources in National Capital in terms of ambulances, fire tenders, rescue stores, etc was evident. Basic equipments and stores should be procured on priority accordingly.

5. Procurement of State-of-the-Art Equipment:

Along with basic equipment, to keep pace with the latest technology, there is a requirement to procure state of art ambulances, fire tenders, medical equipments, rescue equipment, etc. The equipment for procurement can be identified by each department.

6. Standardization of Standard Operating Procedures (SOPs) of Various Emergency Support Functionaries (ESFs):

Various agencies and departments have their Standard Operating Procedures



(SOPs) for disaster management i.e., Railways, Delhi Metro Rail Corporation (DMRC), Gas Authority of India Limited (GAIL), Petrol Pumps, Delhi Jal Board and Electricity Departments, etc. If these Standard Operating Procedures (SOPs) can be standardized, response and effort would be streamlined.

7. **Earmarking Area of Responsibility (AOR) to NGOs in District:** It has been seen that many NGOs come forward to provide assistance in case of a disaster. Since their locations are known, it would only be prudent that their area of responsibility and operation be divided ab-initio. This would facilitate their employment in conjunction with the civil defence workers.
8. **Training of Stakeholders:** Civil Community, Resident Welfare Associations (RWAs), Office Staff, School Children and College Students must be given basic training for actions to be taken during such an eventuality and provide assistance to injured as they are the Stake Holders and this should also be a continuous process. The good response of stake holders during 'Golden hour' can drastically reduce the number of casualties.
9. **Frequency of Exercises:** There is a requirement to conduct more such exercises with designated aims and agendas in order to validate response of various services, identify gaps and hone their skills in managing such disasters.

10. STEPS TO BE TAKEN FOR FUTURE

The first statewide mega mock drill conducted in Delhi by the DDMA in close coordination with the NDMA was appreciated by the Union Home Minister in Lok Sabha. He further stated that all future mock drills in other parts of India should be conducted and run as per the programme of preparedness followed in Delhi. The programme included various stages of preparation including preparatory mock drills spanning about two months before culminating in the mega mock drill event. The objective of the mega mock drill was to assess strengths and weaknesses of the associated stakeholders such as emergency support functionaries (ESFs) and emergency operations centers (EOCs) so that corrective measures can be undertaken for a better disaster response in future.

Implementing recommendations suggested by the Indian Army including conducting frequent mock drill exercises, better coordination among ESFs, training of stake holders, procurement of state-of-the-art equipment, sensitizing local people about disaster management, etc, would help in preparing better disaster response in case of an intensive earthquake.

The decision of the Union Home Minister was implemented by the NDMA by conducting a similar mock drill in north-west India. Based on the experience of Delhi mega mock drill, NDMA conducted a mega mock drill in three states of north India viz.



Punjab, Haryana and Himachal Pradesh and the Union Territory of Chandigarh on 13 February, 2013 to test earthquake preparedness of the local agencies as well as its disaster management machinery. This was called as Multi-State Mega Mock Exercise in tri-city of Chandigarh, Mohali, Panchkula and in Shimla.

The officers from the DDMA also participated in the Multi-State mega mock drill as resource persons as a part of NDMA team.

11. CONCLUSION

Delhi, being the national capital of India, set the example by conducting the first statewide mega mock drill exercise in India. It involved all the support functionaries to check their preparedness of disaster risk reduction in case a potential risk occurs and how each stakeholder attempts to protect the lives and properties of the people. The event has showcased that since disasters affect economic and social processes, it is imperative to have preparedness and mitigation plan to minimize losses.

Some of the steps such as developing emergency plans for rescue and relief measures, developing local warning and community evacuation plans such as community based Disaster Management

Teams (DMT) and administrative preparedness by way of mobilizing and organizing of supplies will go a long way in setting standards of procedures for disaster management plans for every state.



Annexure-1:

Annexure-1: Mega Mock Drill Discussed And Appreciated By The Union Home Minister Shri. P. Chidambaram In The Parliament

1127
20 MAR 2012

**RUSH
PARLIAMENTARY MATTER**

42-2/2012-NDM-1 (A)
Ministry of Home Affairs
(Disaster Management Division)

A-Wing, Lok Nayak Bhawan,
Khan Market, New Delhi
Dated the 27th March, 2012

OFFICE MEMORANDUM

02 APR 2012
3140

Sub: Lok Sabha Starred Question No.83 answered on 20.03.2012 regarding "Mock Drill", raised by Shri Tarachand Bhagora, MP and Shri Sanjay Dina Patil, MP.

The undersigned is directed to refer to the subject mentioned above and to say that the above Question has been answered by Home Minister in the Lok Sabha on 20.03.2012, the relevant extracts from the transcript is enclosed.

2. During the oral answer of the above mentioned Question, Shri Sanjay Dina Patil, MP has asked a supplementary Question on whether the Government has a plan to have a specific training programme conducted for the volunteers. The Home Minister while replying to the Supplementary made a statement that he has clearly requested the National Disaster Management Authority (NDMA) that in all future mock drills conducted anywhere in the country, they should apply the lessons of the elaborate Delhi Mock Drill and run through a programme of preparedness before the Mock Drill is conducted. He further stated that in future all Mock Drills would follow the protocol that were followed in Delhi.

3. In view of the above, NDMA is requested to prepare a template for Mock Drills in consultation with DDMA, and circulate the same for conducting future Mock Drills by NDMA. A copy of the template may also be sent to this Ministry for information and record.

Dev Kumar
(Dev Kumar)
Director (DM-1)
Tele: 011-24642853
Fax: 011-24603033

AS (CDMA)

Encls : As above.

To

1. Shri Sutanu Behuria, Secretary, National Disaster Management Authority, NDMA Bhawan, A-1 Safdarjung Enclave, New Delhi [Fax: 26701820]
2. Shri Vijay Dev, Secretary (Revenue), Divisional Commissioner, Delhi Disaster Management Authority, 5 Sham Nath Marg, New Delhi-54 [Fax: 23931269]

Copy to:

3. Parliament Section, MHA - for information and necessary action. [as per the remarks of Secretary (BM) on answer to LSSQ No. 83 for 20th March, 2012(Extract enclosed)].

OS (Par cell)

PC (V)