

Case Study

Delhi Disaster Management Authority

November 2012

Governance Knowledge Centre

Promoted by Department of Administrative Reforms
and Public Grievances
Ministry of Personnel, Public Grievances and Pensions,
Government of India
<http://indiagovernance.gov.in/>

Researched and Documented by


oneworld.net
OneWorld Foundation India
www.oneworld.net.in
owsa@oneworld.net

Table of Contents

Executive Summary.....	2
Methodology	3
Background.....	3
Objective.....	7
Programme.....	7
Key Stakeholders	7
Work Flow.....	8
Awareness Generation.....	11
Funding	12
Achievements	12
Challenges in Implementation	16
Potential for Replication.....	17
Sustainability of the Programme.....	17
Conclusion.....	18
References.....	18
Appendix A – Interview Questionnaire	19

Executive Summary

Delhi, the capital of India, is surrounded by the Indo-Gangetic alluvial plains in the North and East, by Thar Desert in the West and by Aravalli hill ranges in the South. The terrain of Delhi is flat in general except for a low NNE-SSW trending ridge which is considered an extension of the Aravalli hills of Rajasthan. Seismicity around Delhi appears to be associated with a major geological structure, which is known as the Delhi-Hardwar Ridge.

Delhi is prone not only to damaging earthquakes in or near Delhi, but due to its peculiar geological setting it could also sustain strong shaking due to a large earthquake in the Himalaya. Unfortunately, most buildings in Delhi may not meet Indian standards on seismic constructions and may be considered deficient from seismic safety view point. Thus, there is a real potential for a great earthquake disaster in Delhi, the implications of which go well beyond casualties because of its political and commercial significance.

High population density, crowded streets, unmatching mixed occupancies, inadequate water supply, poor electrical services, unplanned sitting of fire stations, encroachment are few examples of ineffective planning which adversely affect the fire response time. Under the present circumstances, a response time of 3 minutes in urban areas and 5 minutes in rural areas is very difficult to achieve. Mobilizing a large quantity of water to the fire scene in walled city area is more cumbersome than fire fighting itself. Besides, floods in Delhi is a recurring phenomenon due to the presence of river Yamuna and flash floods caused by rains due to choked drains of Delhi.

The Disaster Management Act, 2005 envisages establishing of a Disaster Management Authority in every state as well as in every district of the country. Accordingly, the Delhi Disaster Management Authority at the NCT of Delhi level and at each in the nine districts of Delhi were notified on 19th March, 2008 in accordance with the provisions of The Disaster Management Act, 2005.

Since its inception various structural and non structural measures have been carried out by DDMA to reduce disaster impacts and enhance the management skills and improve capacities of the community, local authorities, urban bodies and state authorities to prepare, prevent and respond effectively to disasters.

Methodology

The Governance Knowledge Centre (GKC) research team conducts extensive research to identify initiatives that contribute towards the betterment of public service delivery in India. The Delhi Disaster Management Authority focuses on awareness generation & education, training & capacity development for mitigation and better preparedness in terms of disaster risk management and recovery at community, district and state level, and strengthening of state and district disaster management Emergency Operation Centers.

With this in mind, the GKC team conducted thorough secondary research using web sources to understand the implementation model of The Delhi Disaster Management Authority. Personal interview was conducted with Mr. Kuldeep Singh Gangar, IAS, Spl. Secy., DDMA.

Background

The country has experienced numerous disasters in the past few years resulting in major loss of human life, cattle, homes, infrastructure and livelihood. As a result of these disasters, the government responded by mobilizing manpower; search & rescue equipments; establishing relief shelters; arranging food, medicine and drinking water; providing financial relief etc. The disasters required manpower mobilization from various parts of the country, mobilization of resources and funds. These disasters caused enormous suffering and pain, loss of livelihood and social dislocation of families and citizens in the country.

Some of the major disasters in country have been:- Droughts in Orissa; the Bhopal Gas Tragedy; Landslides in Malpa, Uttarakhand; Uttarkashi Earthquake; Mumbai Serial Bomb Blast; Kangra Valley Earthquake; the Orissa Cyclone; the Bhuj Earthquake; Latur Earthquake and the unprecedented earthquake & Tsunami in Andaman & Nicobar Islands and southern India. The Parliament of India thus enacted The Disaster Management Act in the year 2005.

The Disaster Management Act, 2005 envisages establishing of a Disaster Management Authority in every state & territory as well as in every district of the Country. In the National Capital Territory of Delhi, the subject, jurisdiction and responsibility of the disaster management is with the Revenue Department, Government of National Capital Territory of Delhi. Accordingly, the Delhi Disaster Management Authority at the NCT of Delhi level and at each in the nine districts of Delhi were notified on 19th March, 2008 in accordance with the provisions of The Disaster Management Act, 2005 and with the approval of H.E. Lt. Governor, Delhi.

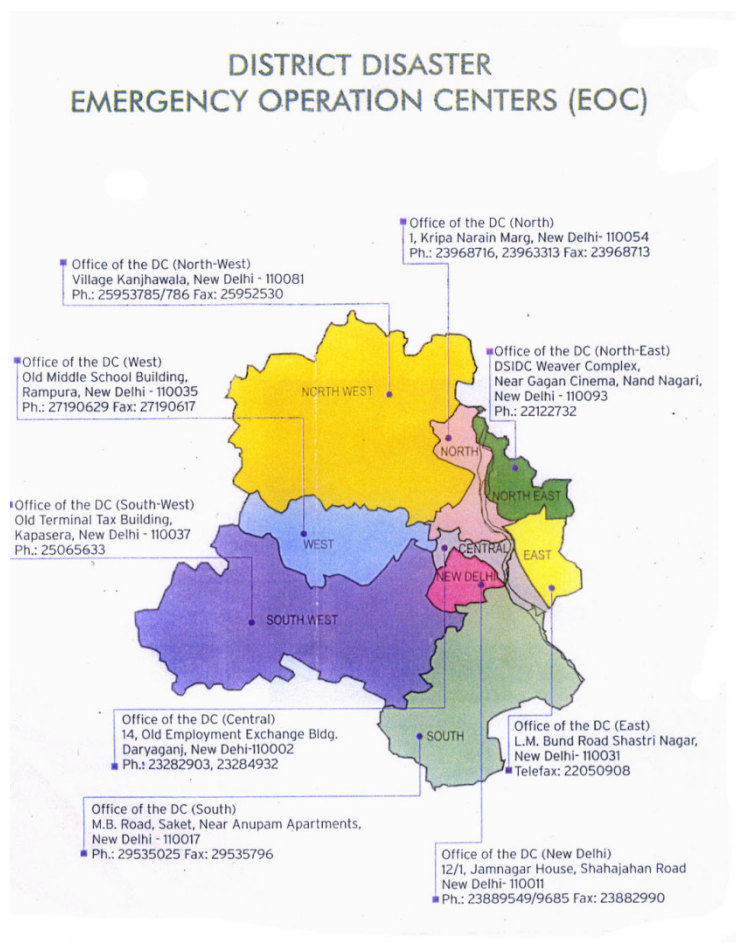


Figure 1 - nine district Disaster emergency operation centres notified by ddma
source – government of nct delhi (revenue department)

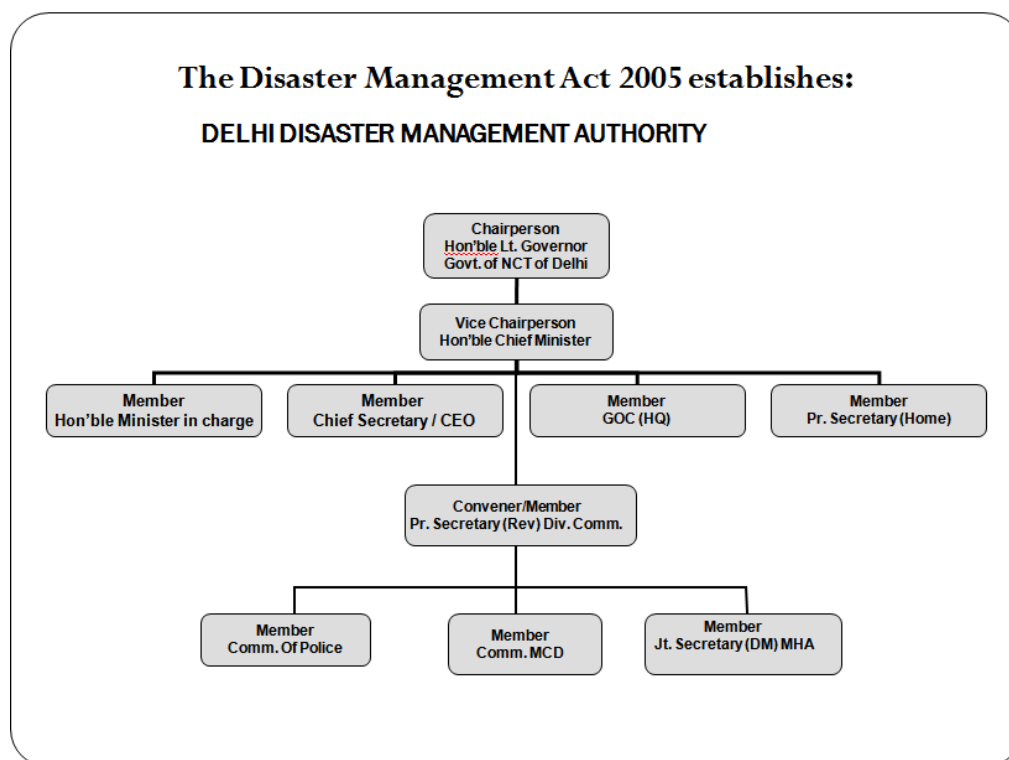


Figure 2-composition of the delhi disaster management authority
source- government of nct delhi (revenue department)

The key elements of Disaster Management which is being undertaken by this office is awareness generation, development of preparedness and response plans at the community and administrative level, development linkages between the Government and Civil Society response and capacity building of Government institution in disaster mitigation, preparedness and recovery. Department has also made efforts to develop database on hazard, risk & vulnerability of NCT of Delhi.

Delhi Disaster Management Authority is the nodal agency for managing disasters in Delhi. However, it has separate committees at the state level as well as the district level to coordinate relief & rescue during the time of emergency.

STATE EXECUTIVE COMMITTEE OF DDMA

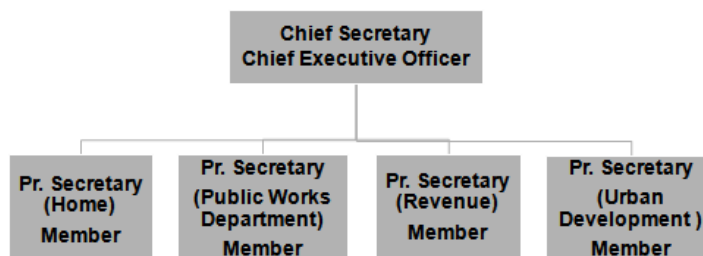


Figure 3 - composition of the state committee under ddma
source - government of nct delhi (revenue department)

DISTRICT DISASTER MANAGEMENT AUTHORITY

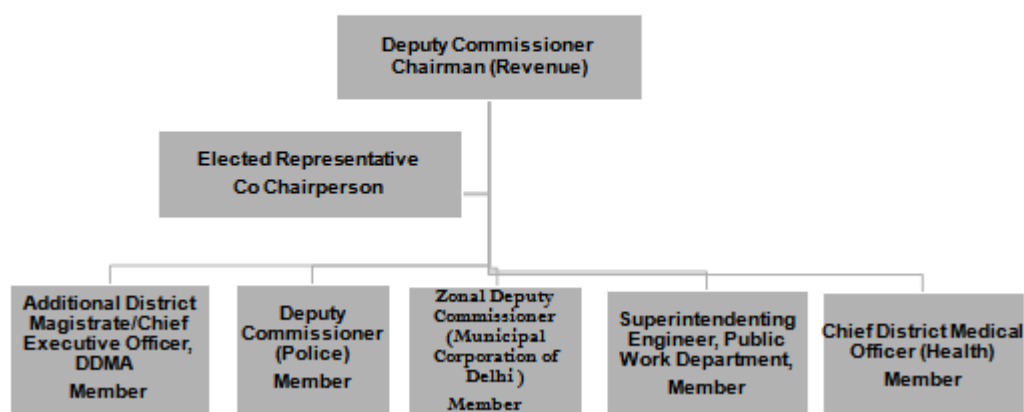


Figure 4 - composition of the district committee under ddma
source - government of nct delhi (revenue department)

Emergency Operation Center at the state level and district levels has been set up. Various structural & non structural measures are being carried out by these committees at their respective district levels to reduce disaster impacts and enhance the management skills and improve capacities of the community, local authorities, urban bodies and state authorities to prepare, prevent & respond effectively to disasters.

The approach to the Disaster Management earlier was search & rescue and relief activities after the incidence of a disaster. This has now changed to preventive disaster management. The preventive disaster management is possible through various activities which result in an aware and prepared community, citizens, government departments, various stakeholders etc. The

preventive disaster management results in reducing the impact and losses occurring due to disasters.

The framework created provided for institutional structures for unified command, control and co-ordination, with legal sanctity and the ability to achieve the disaster management needs of Delhi (systems that define the roles and responsibilities of each part of government and of institutions, techno-legal regime, awareness generation, capacity building, disaster management plans at all levels, specialised teams, an Incident Command System, etc.) in the broader framework of development.

Objective

1. To create a dedicated body that will assess, plan and implement the vital aspects of disaster management (Prevention, mitigation, preparedness and response) for Delhi.
2. To ensure smooth coordination between Central and State Governments in the event of a disaster.
3. To create a unified command, control and co-ordination structure for disaster management in Delhi, integrating the various wings and agencies of government that are necessary for emergency response, as well as for preparedness, mitigation and prevention activities. For purposes of Disaster Management, the nodal department shall have the authority to command the services of all partner departments and agencies, as pre-decided through Memoranda of Understanding.

Programme

Delhi is at risk from numerous hazards, such as earthquake, flood, bomb-blasts, acts of terrorism, fires-industrial and nuclear, biological and chemical hazards, flash floods, building collapses, road accidents, water logging etc.

Key Stakeholders

- **Key implementing agency** – The Delhi Disaster Management Authority
- **Primary partnerships-** Volunteer Based Organizations like Civil Defence and Home Guards; Bharat Scouts and Guides; National Cadet Corps; National Service Scheme; Nehru Yuva Kendra Sangathan; Indian Red Cross Society; St John Ambulance Brigade, schools, colleges, RWA's, market associations, metro commuters, civil defense.

Indian Institute of Architects
Institutions of Engineers
Indian Medical Association
Various National and International NGOs

- **Beneficiaries** – Residents of Delhi

Work Flow

The state of Delhi has been prone to various disasters both natural as well as manmade. The Government of NCT of Delhi recognised the need to have a proactive, comprehensive and sustained approach to disaster management to reduce the detrimental effects of disaster on overall socio-economic development of the state.

DDMA has two committees which work on state and district levels. Each district implements the intents of the Disaster management Act. Hence, each district will conduct its own awareness generation programs, mock drills, resource mapping and so on among the various stakeholders like RWA's, schools, colleges, hospitals etc within its respective region.

For the state level, all the district disaster plans are put together, and certain value additions are done to them, to accommodate the demands of the whole state which requires close co-ordination between various emergency support functions.

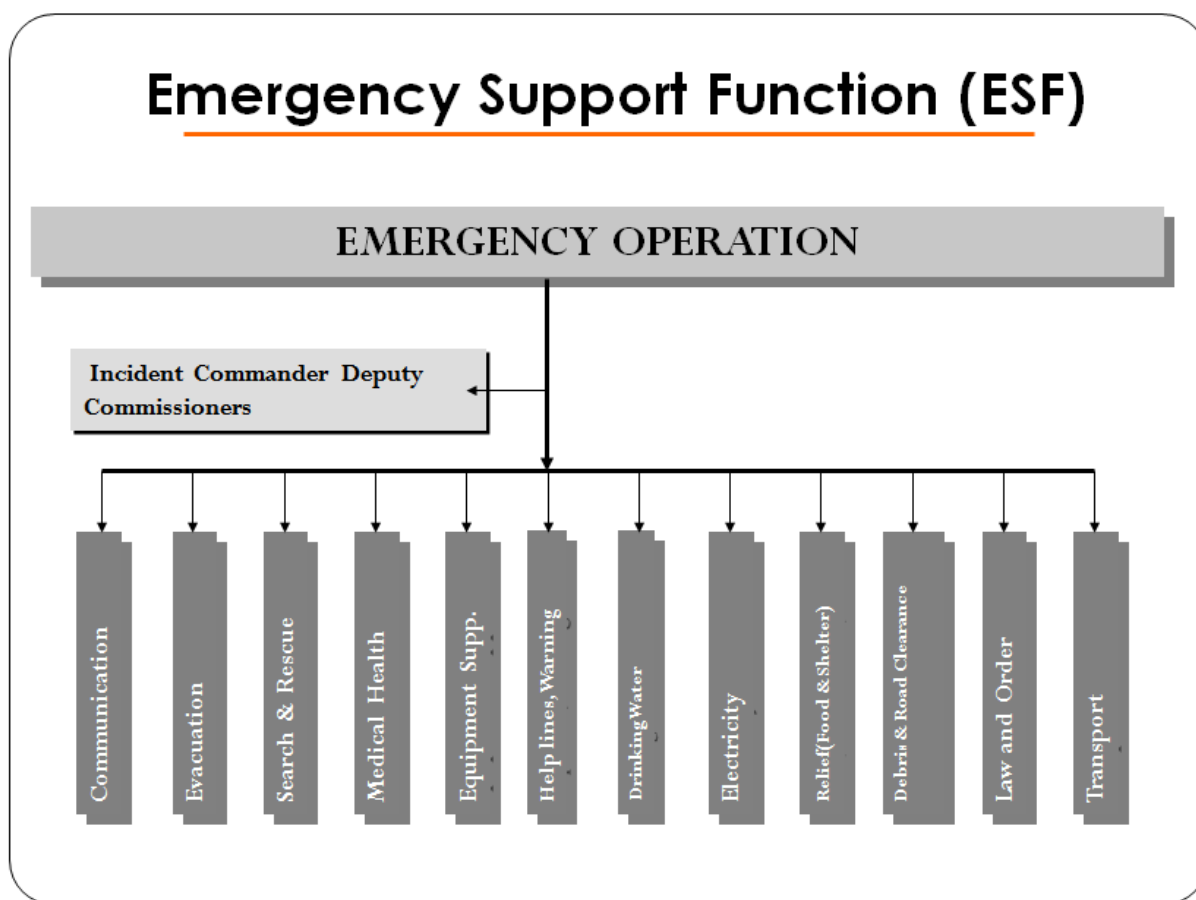


Figure 5 - Emergency support function of the ddma
source – government of nct delhi (revenue Department)

For performing of these functions, coordination is also required with various government departments, organizations, stakeholders, institutions and agencies within the NCR region.

ESF Framework for Delhi

ESF	Function	Coordinator	Members
ESF1	Communication	MTNL	NIC, Police, Revenue Wireless, Private Telecom
ESF2	Evacuation	Police Department	Army, Health Dept, Civil Defence, Delhi fire Service, NCC
ESF3	Search and Rescue	Secy. Home	Fire Deptt, Police, Civil Defence, Army
ESF4	Medical Health/Trauma	Secy. Health	Major Hospitals, CATS, St. John Ambulance, Civil Defence
ESF5	Equipment Support	Secy. Urban Development	MCD, PWD, NDMC, Cantt. Board, DDA, JAL Board
ESF6	Helplines, Warning Dissemination & coordination Media coverage	Pr. Secretary (Revenue/Disaster Management)	All Emergency Support Functionaries (ESFs), Media Agencies

ESF Framework for Delhi – Cont'd

ESF	Function	Coordinator	Members
ESF7	Drinking Water	CEO, Jal Board	DJB
ESF8	Electricity	Secy. Power	Transco, Power Companies (NDPL/BSES)
ESF9	Relief (Food and Shelter)	Pr. Secretary (Revenue/Disaster Management)	Civil Supplies Corporation, Civil Defence, Volunteer Organisations
ESF10	Debris and Road Clearance	Commissioner, MCD	PWD, NDMC, Cantt. Board, DDA, MES, CPWD
ESF11	Law and Order	Commissioner, Police	Civil Defence, Home Guards
ESF12	Transport	Secy. Transport	DTC, DMRC

Figure 6 - emergency support framework for delhi
source – government of nct of delhi (revenue department)

For receiving information relating to disasters from the public and other sources, a disaster helpline with no. 1077 has been established at the Revenue & DDMA (HQ) at 5, Shamnath marg, Civil Lines, Delhi.

The Disaster Helpline operates from an emergency operation centre (EOC) which works round the clock in 24*7 mode. Upon receiving information, the emergency operation centers interact and coordinate with the concerned district administration authorities as well as with the emergency support functionaries and stakeholders.

Thereafter, various concerned agencies respond to manage the disaster. The emergency operation centers have also been established in each district. The emergency operation centre utilizes technology support for communicating on landlines, mobiles, SMS, and TETRA wireless sets.

The Revenue Department has provided static, vehicular and hand held TETRA sets to all deputy Commissioners, Addl. District Magistrates and Sub-Divisional Magistrates in all the nine districts and at Headquarters. Hand Held TETRA Sets are also provided to the Tehsildars/ executive Magistrates in the Districts.

The MCD has established disaster management centers in 10 zones and will be establishing two more zones soon. The disaster management centers keep and maintain search and rescue equipments like bob cats, JCB, disc cutter, power packed cutter and hydraulic pump, personal safety dress, gum boots, respirator, loudspeaker and amplifier and mike etc.

Awareness Generation

The approach to the Disaster Management earlier was search, rescue and relief activities after the incidence of a disaster. This approach has now changed to preventive disaster management. The preventive disaster management is possible through various activities which result in an aware and a prepared community, citizens, government departments, various stakeholders etc, and results in reducing the impact and losses occurring due to disasters. DDMA spreads awareness and preparedness through a range of activities like organizing programs, workshops, seminars, nukkad nataks (street play), publicity through the media, training and mock drills.

Besides information, education and communication material have been developed and distributed to all districts, schools, communities, markets, RWA's, offices etc. Disaster Management has also been included in CBSE curriculum for Class VIII, IX and soon will be made mandatory for Class X.

Ordinary citizens can also participate in the mock drills or any other activity conducted by the Delhi Disaster Management authority, by registering themselves online through DDMA website.



Figure 7 - manuals used by ddma
source- Delhi Disaster Management Authority website

Funding

The Revenue Department has procured more than 300 sets involving an estimated annual recurring expenditure of about INR 96,00,000.

In the Five Year Plan 2012-2017 of the Revenue Department, an outlay of INR 200 crores (revenue) has been allocated for disaster management. In the annual plan 2012-13, an amount of INR 10.50 crore (revenue) has been allocated for disaster management projects and activities.

Achievements

The most significant achievement of Delhi Disaster Management Authority is to make state machinery more proactive in dealing with disasters.

Disaster Management Activities like Awareness Program, Mock Drill, and Training Programs conducted in all Districts from the year 2009 to 2011

S.No.	Activities	District-NE	District-ND	District-West	District-SW	District-South	District-North	District-NW	District-East	District-Central	Total
1.	Number of Awareness Programmes conducted in last 3 years.	778	420	675	192	733	50	1553	1055	210	5666
2.	Number of Training Programmes conducted in last 3 years.	316	22	600	30	80	10	1200	241	190	2689
3.	Number of RWA plans made in last 3 years.	75	10	156	38	190	125	100	35	80	809
4.	Number of Relief Centers identified in last 3 years.	34	14	09	06	43	06	38	10	20	180
5.	Number of CDVs trained in last 3 years.	1084	300	740	520	5809	150	5000	1752	7000	22355
6.	Number of School Plans prepared in last 3 years.	553	118	549	105	283	126	300	352	62	2448
7.	Number of Teachers oriented in Disaster Management in last 3 years.	2010	350	2785	456	4590	200	4000	1125	3720	19236
8.	Number of Mock Drills conducted in Jhuggi Jhopris, Market Trade Associations, Community level in last 3 years.	81	273	33	15	204	13	36	670	190	1515
Total											54898

**Figure 8-summary of the activities undertaken by ddma
source- government of nct delhi (revenue department)**

DDMA conducts a major mock drill of Delhi Metro (DMRC) annually. The mock drill is conducted on different metro stations in various districts of Delhi and also in Gurgaon and Noida. This mock drill is conducted at NCR level involving complex activities and scenarios.

Delhi has also been selected as one of the territories in the country by NDMA for a pilot study on multi-hazards analysis to be done with UNICEF.

Further, DDMA has successfully handled various disasters in Delhi. Some of these are -

- Lalita park on November, 2010 in District East
- Fire Incident during Kinner Sammelan at Nand Nagri, November, 2011.
- Chandni Mahal Building Collapse in 2011.
- Flood Control during Commonwealth Games
- Bomb Blast High Court., 2011.

DDMA has also made arrangements for Disaster Management at the Feroz Shah Kotla Stadium for:-

- ICC world cup matches
- IPL 2011
- IPL 2012

The Delhi Disaster Management Authority along with the National Disaster Management Authority conducted a Delhi wide Mega Mock Drill on 15th February 2012 at 11:30 am. The mega mock drill was conducted at more than 1000 locations in all the districts at the same time. The mega mock drill was preceded by a preparation for about three months. The preparation involved a series of meetings, planning, awareness programs, nukkad nataks, training programs, rallies, localized mock drills and a preparatory mock drill involving 3 districts at a time. Workshops were also held for members of the Delhi Legislative Assembly, the high court judges and the district courts. A major media campaign for about three months was undertaken through print media, outdoor media, Delhi Metro, FM Radio and SMS. The media campaign involved an estimated expenditure of about rupees 4 Crores. Thousands of manpower from various departments, RWAs, School children etc. participated in the mega mock drill. The mega mock drill is biggest ever mock drill conducted in the country.

The mega mock drill has been appreciated by Sh. P. Chidambaram, the Hon'ble Union Home Minister on the floor of the parliament on 20th March, 2012. The Union Home Minister said in the parliament that " I have clearly requested the National Disaster Management Authority 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. In fact, the preparedness stage runs for about two months before the mock drill is conducted. In future, all mock drills will follow the protocol that was followed in Delhi".

DDMA along with NDMA have conducted another major mock drill, namely Delhi Emergency Management Exercise (DEMEX). The exercise was conducted during August-December 2011. The exercise dealt with preparedness of the medical sector to handle disasters - hospitals, medical staff, ambulances, PCR vans, etc.

DEMEX – Delhi Emergency Management Exercise

DEMEX was jointly conducted by DDMA and NDMA from 9th August 2011 to 9th December 2011. The exercise involved various activities in all the districts by associating all the ESF's with special attention to the health sector. During the exercise various activities like training programmes, awareness programmes, media campaign, publicity activities preparatory mock drills were undertaken.

Before the mock drill, training was provided by an International faculty to Doctors, Nurses, PCR staff, etc on handling various kinds of medical emergencies during disasters. The training also prepared 600 future trainers (ToT).

The DDMA also involves various RWAs through the Bhagidari Platform.

DDMA has also prepared draft disaster management plans at the district level.

Enhancements

The DDMA is also working on important projects like:-

- Having a modern GIS based Emergency Operation Centers.
- Establishing warehouses at the State Level as well as the Sub-Division level. These warehouses ranging from about 2.5 Acres to 22 Acres will work as relief shelters during disasters and as training centers during the other time.
- Having State Disaster Response Force.
- Having Quick Response Team Vehicles like the PCR Vehicles of Delhi Police.

160 roads in Delhi will soon have disaster lanes, which will be used by ambulances, fire brigades and other emergency vehicles under crisis situations.



Figure 9 - proposed disaster management lane
source - government of nct delhi (revenue department)

Challenges in Implementation

The state of Delhi has been prone to various disasters both natural as well as manmade. The Government of NCT of Delhi does recognise the need to have a proactive, comprehensive and sustained approach to disaster management to reduce the detrimental effects of disaster on overall socio-economic development of the state.

The peculiar setback of Delhi in creating a well co-ordinated and integrated disaster management system has been its traditionally nurtured multiplicity of command, control and co-ordination structures with its myriad institutions, through the consciousness on the need for disaster management has been accepted for long within the government. Hence, DDMA has a long way to go in making citizens aware about handling disasters.

Potential for Replication

The Disaster Management Act 2005, mandates all the states and Union Territories to have disaster management bodies at the state and district level. DDMA was thus established in 2008. Since its inception DDMA has undertaken many programmes like institutionalization of disaster risk management systems at all levels; development of multi-hazard preparedness; response and mitigation plans for disaster risk management at state and district level; organisation of mock drills to bring out an effective response mechanism; establishment of appropriate techno-legal regime for multi-hazard safety; awareness generation programme for disaster mitigation and preparedness; capacity building of disaster management teams at all levels in the field of first-aid, shelter management, rescue and evacuation, damage assessment etc; training of engineers, architects and masons in disaster risk technologies; inclusion of disaster management in the school curriculum and strengthening public private partnership for awareness generation and disaster preparedness and mitigation planning.

Modelled on the mock drill conducted by DDMA on 4th December 2012, NDMA is now pursuing a project 'Mw 8 Mandi Earthquake Scenerio: Multi State Exercise and Awareness Campaign', covering the states of Punjab, Haryana, Himachal Pradesh, and UT Chandigarh. This initiative under the project shall culminate into a Mega Mock-drill in tri-cities of Chandigarh, Panchkula, Mohali and Shimla.

Sustainability of the Programme

DDMA has made substantial financial provisions in Annual Plan 2012-2013 and proposed an outlay for the 13th Five Year Plan. To further enhance the outreach of the programme 24X7 disaster help lines have been established along with Emergency Operation Centres in all Districts, Disaster Management Centres in Fire Department, MCD, NDMC and DDA.

DDMA has also made substantial investment in infrastructure and facilities for disaster management, and conducted the largest ever mock drill in the country to generate awareness among people about disaster management.

Conclusion

Delhi is at risk of various kinds of disasters like floods, fire etc. Coming under seismic zone IV it is also prone to earthquakes. Delhi is the National capital and therefore important national and international organisations and bodies are located here. Thus, the creation of DDMA has significantly ensured that any disaster will be mitigated by coordination among the disaster response team from different departments of Delhi.

Research was carried out by the OneWorld Foundation India (OWFI), Governance Knowledge Centre (GKC) team.

*Documentation was created by Research Associate, **Ankita Sharma***

For further information, please contact. Rajiv Tikoo, Director, OWFI at owisa@oneworld.net

References

- Delhi Disaster Management Authority. 2008. Web. November 2012.
<http://delhi.gov.in/wps/wcm/connect/doi_t_dm/DM/Home>

Appendix A – Interview Questionnaire

BACKGROUND

1. What was the motivation behind creating Delhi Disaster Management Authority?
2. Was there any other such initiative (different state) from which Delhi Disaster Management Authority took inspiration from?
3. What was the Disaster Risk Management Programme? How is it related to Delhi Disaster Management Authority?

PROGRAMME DESIGN

Key stakeholders

1. As per our research, the key stakeholders are PHD chambers, NGO's and others. What their primary roles and responsibilities?
2. Who is the primary funding agency for DDMA?
3. What is the nature of partnership between DDMA and other academic and private institutions?

Awareness generation

4. How did DDMA create awareness about its necessity among the people who will benefit from this?
5. The safety manuals published by DDMA only deal with fire, flood and earthquake related emergencies. How does DDMA create awareness among people regarding other emergencies?
6. Considering the fact that DDMA aims at informing people from all age group, how have specific age groups targeted?
7. What has been the response of beneficiaries?

Process flow

8. How does DDMA function?
9. What are the duties involved?
10. What are the DDMA plans at different levels?
11. What is the incident command system?
12. What are the specialized teams appointed and allocated works?
13. What are the resources employed – in terms of infrastructure, human resource, training process etc.? Are there any specific criteria for selecting people who are eligible to be a part of the DDMA? How were these training programmes designed and decided upon? And how often do the personnel undergo training?
14. What are the qualifications of the trainers employed at the mock drills?
15. What is the planning module for mock drills? Is the mock drills area specific or general for all?

16. What are the measures taken to organize and control the mob?
17. Apart from mock drills what are the other methods used by DDMA?
18. Besides the mock drills, how many other services are being offered by DDMA?
19. How does DDMA unit operate in crisis? How is the procedure effective? For example, are responsibilities divided along geographical lines for timely response? How is this different than the procedure followed before?

Monitoring and evaluation

20. How is the performance of DDMA monitored?
21. How are the findings of the mock drills shared? In other words, what are the next steps after a module is prepared?

SUSTAINABILITY

Financial costs

22. What was the overall cost of development of the DDMA?
23. How are the trainers paid?

IMPACT

Achievements

24. What have been the most significant achievements of this initiative?
25. How has the creation of DDMA helped the government in responding to crisis/natural disasters in Delhi? Can you provide us with data for this?

Challenges

26. Can you please describe the major challenges in pursuing such a large scale and initiative? For example, in terms of recruiting/training personnel, identifying RAF unit locations etc.?

Enhancements

27. What are the future values additions (if any) that DDMA plans to incorporate?
28. What are the pre-conditions that you can think of for the success of this authority?