

# MOCK DRILL FOR EARTHQUAKE DISASTER RESPONSE

(AUGUST 4, 2004)



A report by:

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## **1. Background**

Delhi with a population of more than 14 million is vulnerable to multiple hazards. The entire region of Delhi is in Seismic Zone IV, which is a high risk zone to earthquakes. In addition, Delhi is also vulnerable to fire, floods, windstorms, terrorist attacks, riots and nuclear, biological and chemical hazards. More than 50% of population is living in highly congested and precarious housing structures that could be seriously affected in and disaster of considerable magnitude. As the National Capital, the hub of national government business, the impact of any such occurrence has multiple implications on the country.

The Delhi government has initiated many activities in reducing risk due to unprecedented event such as earthquake, fire and other hazards. The GoI-UNDP disaster risk management launched in Delhi is one of the major interventions through which the government is launching many preparedness and prevention activities. The Delhi Disaster Management Authority (DDMA) has been constituted to provide a platform for all the stakeholders to coordinate such initiatives. The office of the Divisional Commissioner is the nodal agency in carrying out such activities in the National Capital Territory of Delhi. Delhi has prepared a roadmap outlining priorities and interventions that could be initiated through a participatory and coordinated manner.

The Incident Command System (ICS) for evolving a fool proof response system is being incorporated by Delhi government. Various Emergency Support Functions with their nodal agencies from the government department have been identified to be part of the response system. EMERGENCY SUPPORT FUNCTION based response plans are being formulated ensuring interdepartmental and interagency co-ordination.

In an emergency situation, there is generally a panic, which results in people losing control over their ability to think and decide what to do. While awareness generation is necessary to make people aware of the Dos and Don'ts for a disaster, it is equally critical that people practice what they are expected to do, so that during the disaster, they do not panic. Mock drill is one of the ways to rehearse the response plan. This gives an opportunity for various agencies expected to participate in the response to any actual disaster to come face to face with each other and check their level of preparedness and improve their response level and efficiency.

In view of the above, the Ministry of Home Affairs, Government of India was keen to know the level of preparedness and response coordination of Delhi through an earthquake mock drill. The Divisional Commissioner was requested to organise and coordinate such drill at a State level where participation of all the respective state level agencies and district level official could be ensured. August 4 2004 was chosen for the drill.

## **2. Aim**

The mock drill was aimed at accelerating the pace of development of response plans for the state, and promoting a culture of preparedness. The drill was also

meant for bringing together different departments and agencies providing the emergency support functions for a better coordination

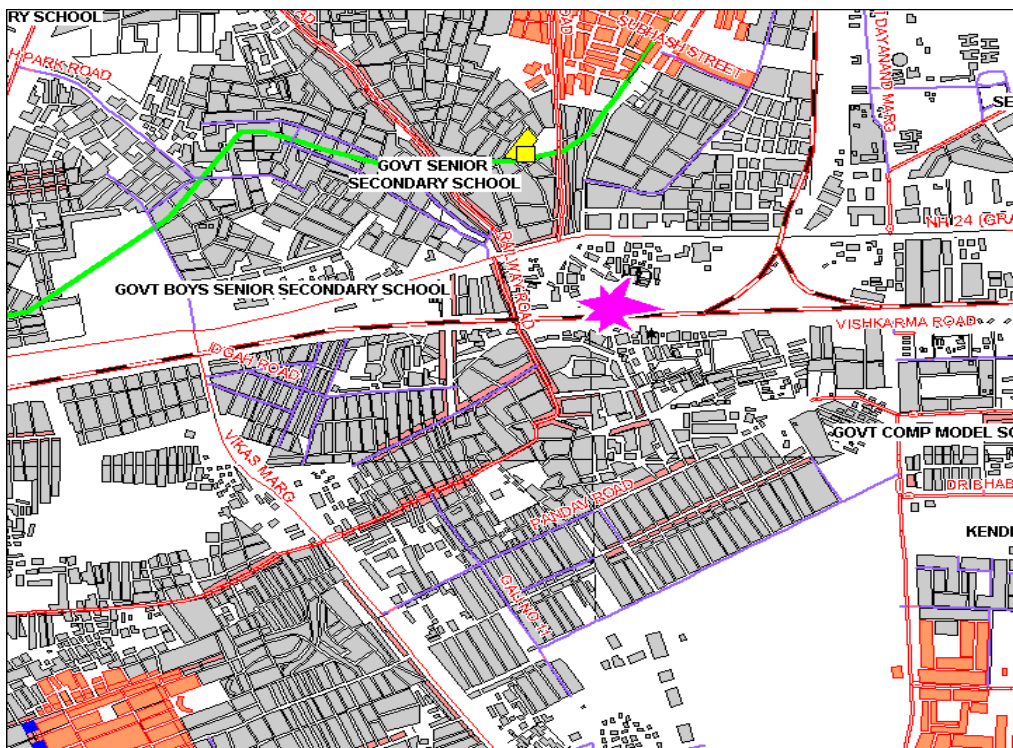
### 3. Objectives

The mock drill was designed to help the coordinating agency in responding to an earthquake scenario. All the relevant departments and official were told to be part of the response drill and the formation of the Emergency Support Functions was done in consultation of the heads of the departments. The details of the Emergency Support Functions along with their coordinating agency are enclosed. ( see annex-I)

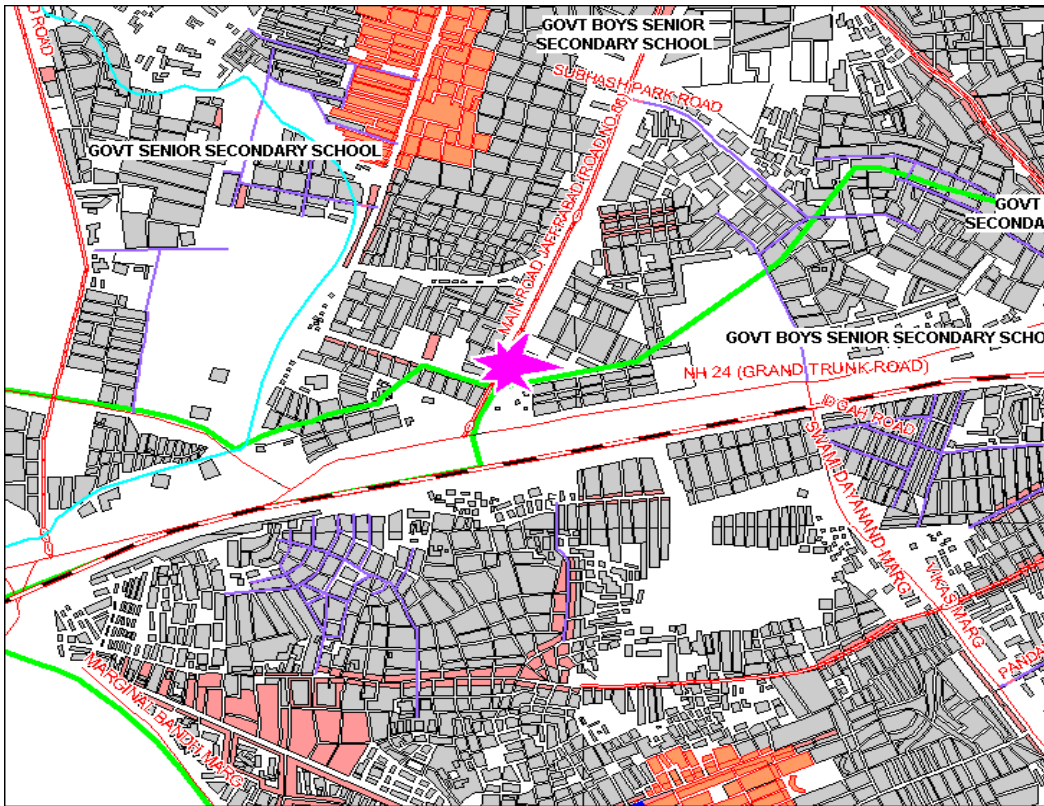
### 4. Venue & Disaster Site

North East Delhi district is one of the nine districts of NCT of Delhi having its district head quarter at DC Office Complex at Nand Nagri. It is one of the most backward districts in Delhi. Certain areas like Seemapuri, Shahadra and the adjacent places are timid with migrants from various other states. Major part of the district consists of slum area.

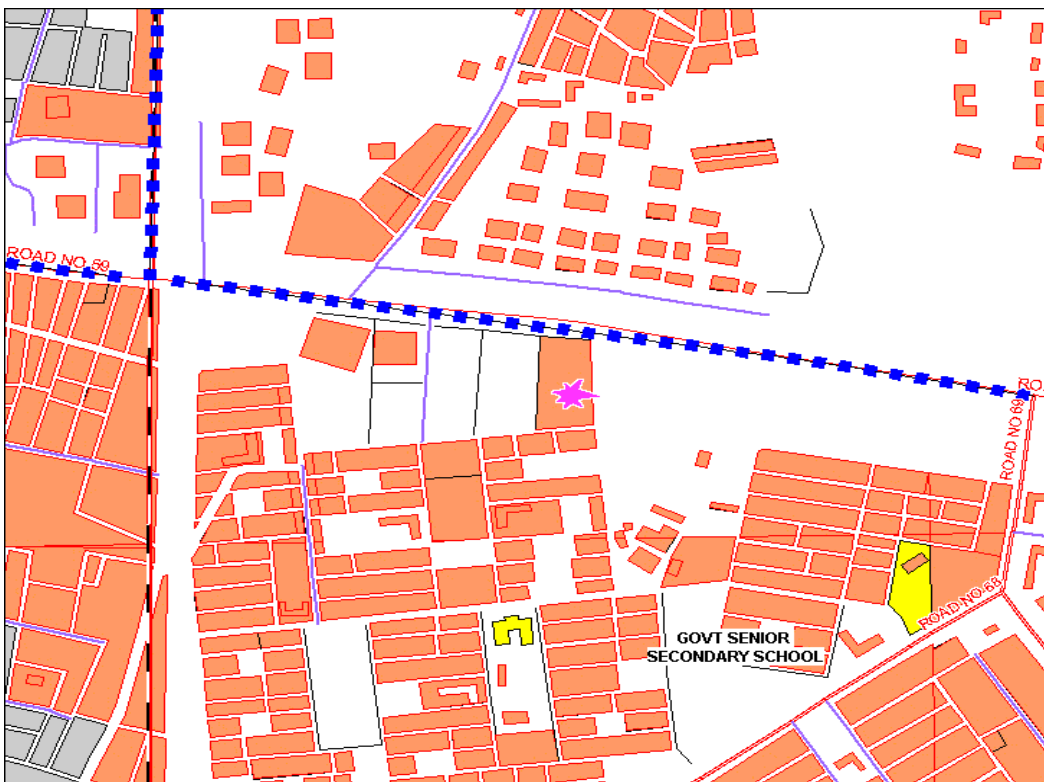
Three sites were selected for Incident Management Teams for the drill.



Site: Shahdara Fire Station



Site: Seelampur Police Station



Site: Seemapuri SDM Office



## 5. Preparations for the Drill

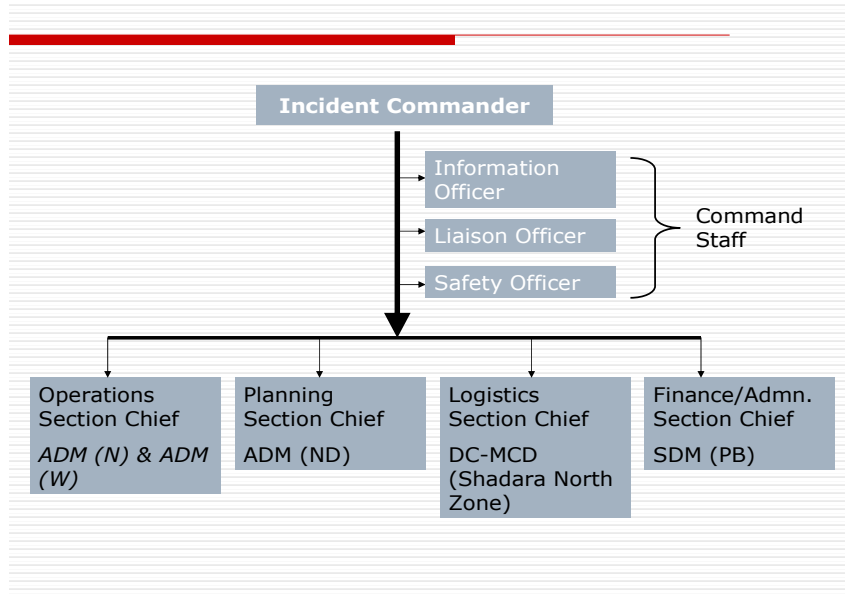
- **1st meeting of Emergency Support Function (ESF) Team Leaders** held on 25/06/04, chaired by Divisional Commissioner to brief agencies on the mockdrill, and to take inputs on the emergency support function structure and Standard Operating Procedures (SOPs) proposed.
- **Draft EMERGENCY SUPPORT FUNCTION Plans:** Information from each Team Leader and member of the emergency support functions collected. Each Team Leader has established contact, chain of command and co-ordination with all its members keeping the mock drill in mind [Letters have been sent and response sought, personal follow-up with each initiated by Disaster Project Officers] (Emergency Support Function plan Format Annexure-II)
- **Draft SOPs and Draft Response Plan:** SOPs developed by the Divisional Commissioner's Office for each emergency support function and shared with all, along with compiled emergency support function plans. Two meetings of emergency support functions had been convened by the Principal Secretary (Home). Principal Secretary (Home) along with Divisional Commissioner, Joint Commissioner of Police, Chief Fire Officer and Director General (Home Guards & Civil Defence) has also visited State EOC and Office of the Deputy Commissioner of district North-East to gauge the preparations at both State and district level. Office of the Divisional Commissioner has incorporated comments and improved on draft plan. Actions to be taken by each agency were drafted by the Divisional Commissioner's Office and circulated to all the members during the meeting. (Draft SOPs Annexure-III)
- **Meeting of Emergency Support Functions at State and District Level:** Here, various functions and co-ordination needs were discussed, to make all the agencies confident about their respective roles in effective response. A brief on the mockdrill and a possible scenario was also shared with all emergency support functions in this meeting.
  - **Emergency Support Function Preparedness through SOPs:** Each team leader was requested to interact with all members to test the preparedness, and links with State/District EOC.
  - **Emergency Operations Centres (Control Rooms):** set up at state and district level, with staff designated for various functions, and with communication equipment.
  - **Sequence of Events:** Not just roles and responsibilities but also sequence of actions to be taken by various agencies was also developed and circulated to all agencies for smooth functioning of response actions. (Annexure-IV)

The mock drill was conducted after above preparations, for six hours duration, and was evaluated in terms of swiftness, effectiveness, response strategy, ability to work in a team as a Team Leader/member, etc.

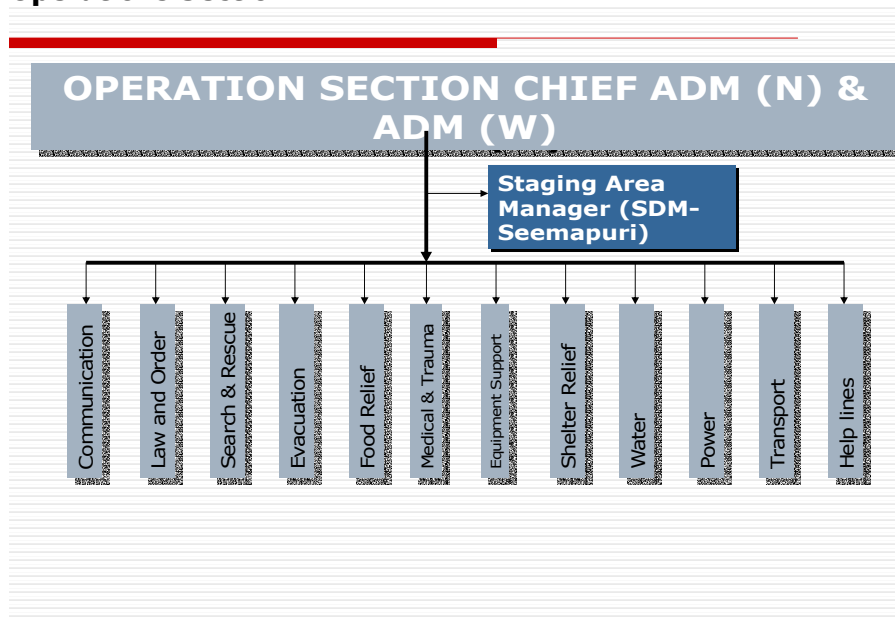
- **Evaluators/observers at various places:** The Deputy Commissioner (North East) was the *Incident Commander* of the district, with MCD, Police, fire, PWD etc., working with him during the event. However, Deputy Commissioners from remaining districts were assigned the role of observers. They were briefed and were given detailed evaluation format to judge the effectiveness of various agencies.

## Incident Command System Observed during the Drill

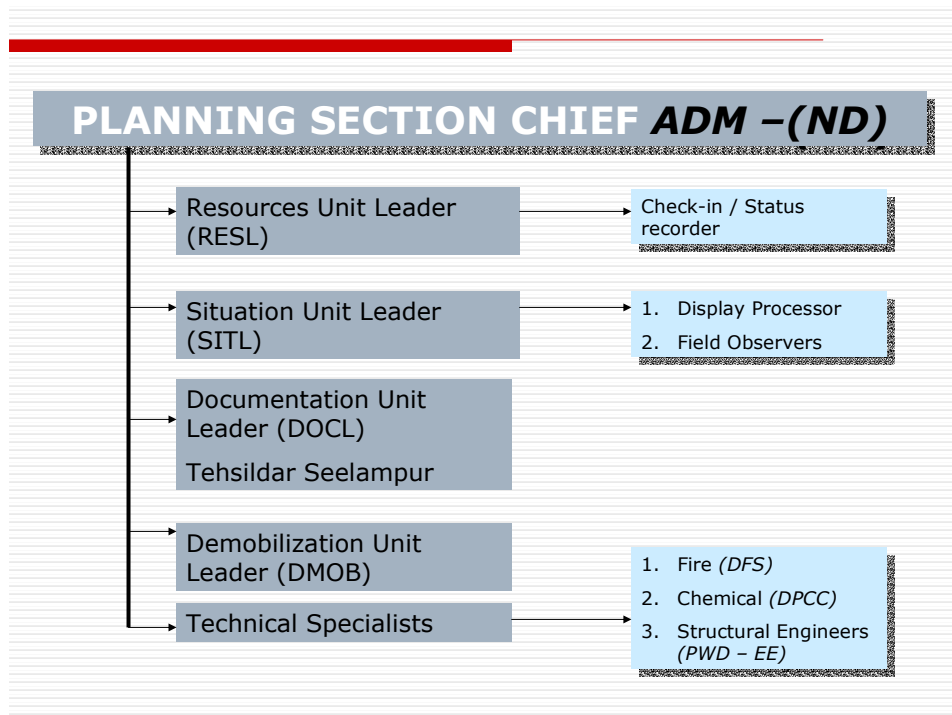
### Incident Command Post



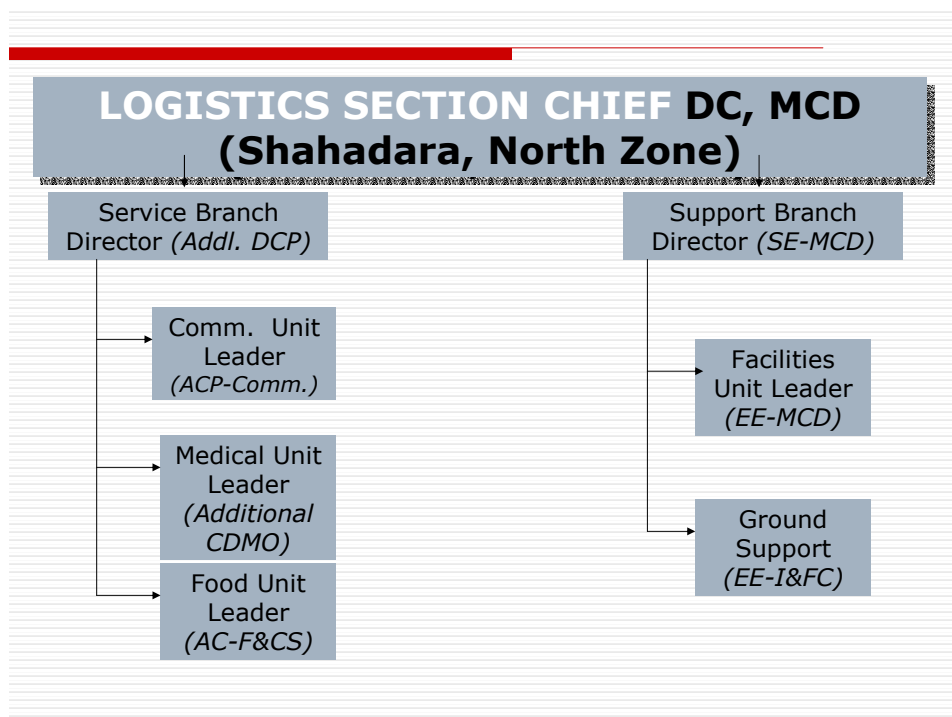
### Operations Section



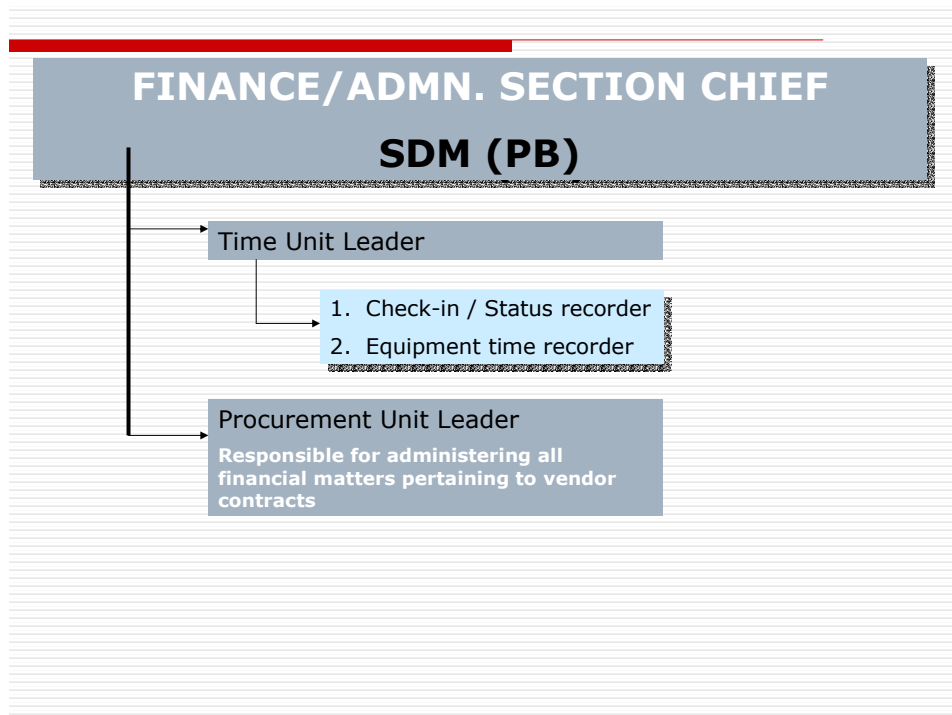
## Planning Section



## Logistics Section



## Finance/ Admin Section



The Sections shown above were set up by arranging tents. All the designated officers for the system were adequately briefed on the functioning of Incident command system in meetings held before the drill.

### Proceedings of the Response Drill

On 4<sup>th</sup> August 2004, at 1.57 p.m., a PCR van located at Seelampur reported earthquake to the Seelampur SHO and he informed the Deputy Commissioner (NE). The Incident Commander (Deputy Commissioner- North East, declared the disaster and message was floated that 'a massive earthquake has struck North East district of Delhi at 1.57 p.m.'. As soon as the disaster was declared, the State and District level EOC were activated through wireless. It was the first large scale mock drill exercise involving every functionaries of the State and District administration in India.

### State Emergency Operation Centre (State EOC)

- Unified Commander (Divisional Commissioner) received the first information of the incident from Police Wireless at 2:05 pm. This was followed by declaration of disaster from Incident Commander at 2.10 PM.
- Unified Commander activated the State EOC at 2:15 PM.
- MHA control room informed immediately through police wireless at 2:17 PM.
- Various Emergency Support Function Nodal agencies informed by wireless (through Noble net Sets) about the incident between 2:18-2:30 pm. This included



Home Department, Directorate of Health Services, Delhi Fire Service, Delhi Jal Board, MCD, Transport, Transco, Department of Food & Civil Supplies.

- Some of the critical Emergency Support Function support agencies were also informed through wireless (Noble Sets) including Directorate of Home Guards & Civil Defence, CATS and Public Works Department.
- Amateur Radio Operators (HAM) reached the State EOC at 2:40 pm and set up a radio station within 15 minutes. HAM sets were very effectively used for establishing communication with District EOC/ Incident Sites.
- On receipt of the information at, Delhi Police provided 10 wireless sets (rescue 71 to rescue 80) for facilitating communication emergency support functions.
- MTNL installed 5 temporary landline phones at State EOC within 45 minutes (between 3:00 pm to 3:45 pm) to restore communication.
- MCD Nodal Officer reported to state EOC at 3:00 PM.
- Designated State EOC Officer from Transco reported at 3:05 pm.
- Chief Fire Officer reported to State EOC at 2:35 pm.
- A Detailed map of Delhi and a enlarged map of North–East district was mounted on one of the walls of State EOC for reference.
- State level Helpdesk was also been setup at State EOC by Revenue Department.
- Satellite Phones were also used for communication assuming collapse of complete communication network.'



*Ham Radio Operators in action at the State EOC*

#### **Proceedings at District Emergency Operation Centre (EOC)**

- After declaring “disaster”, DC (NE) passed the message by 2.10 pm (using wireless and phone) to all Emergency Support Functions, and the same is registered as

received by the Emergency Support Functions at 2.10, 2.20, 2.25, 2.40 etc. The messaging time was appreciable. The State EOC was also intimated and immediately the State EOC was activated. The respective Emergency Support Functions responded promptly to the District Administration. They all reached timely (at the earliest) with their QRT at the HQ level to the Dt. Emergency Operation Centres. It was extremely encouraging that all team leaders of Emergency Support Functionaries started reporting to the operation centres of incident sites and District Emergency Operation Centre.

- Incident Command Post was set up and tents were put up for the same. Deputy Commissioner of North East District acted as Incident Commander and discussed with all the Emergency Support Function team leaders about their action plan.
- Immediately after that all the nodal officers of Emergency Support Functions had sent their Quick Response teams to the incident sites to take up their position accordingly.
- Observers were designated by the Div. Commissioners office to observe the entire spectrum of response.
- Three Incident Management Teams (IMTs) in North-East viz. Seelampur SHO station, Shahdara Fire Station and Seemapuri SDM Office were setup to effectuate the focused response.
- Onsite EOCs were set up at these three IMTs and Emergency Support Functions teams including Quick Response Teams (QRTs) were sent to these IMTs.
- Emergency meeting of all the Emergency Support Functions was conducted by the Incident Commander and quick decisions were taken to manage the disaster.
- Staging areas, base camps, emergency support function desks were set up at all levels.



*Planning meeting in action at the District Emergency Operation Centre for disaster response*

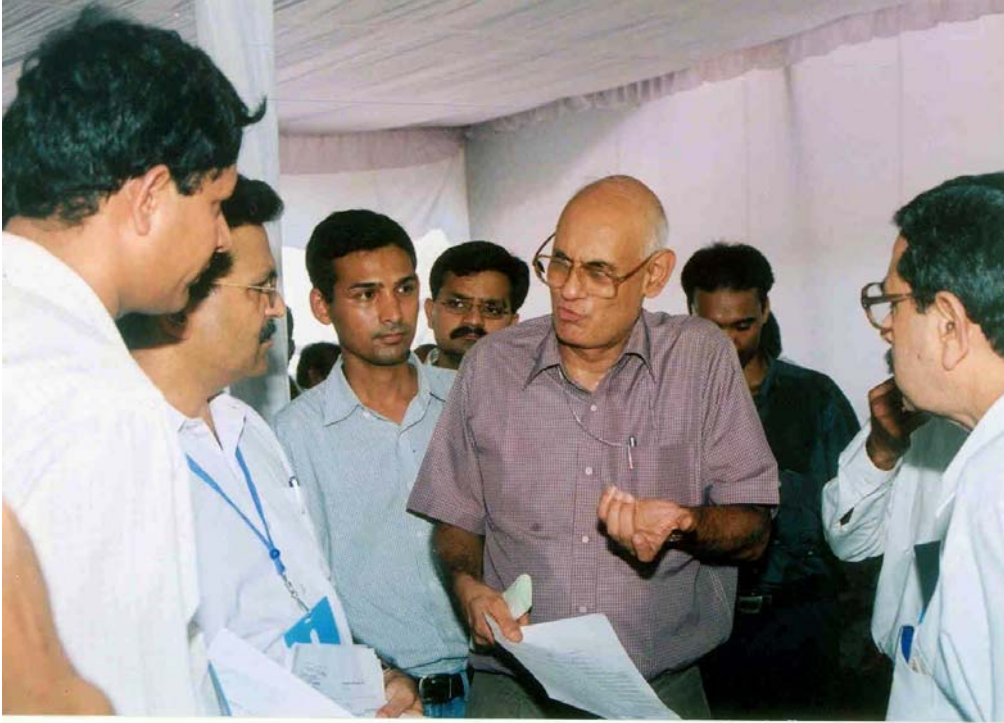


*Incident Commander with Logistics Section Chief and Other unit leaders*



*Incident Commander with Operations Section Chief and Other unit leaders*





*Principal Secretary (Home), Shri R. Narayanswami taking stock of situation*



*ESF Help Desk: Water Supply*



*ESF Help Desk: Medical response and trauma counselling*



*ESF Help Desk: Warning and information dissemination*



- Help desks in tents were set up for all Emergency Support Functions where the nodal officers and the team leaders of supporting agencies met and discussed the action plan.
- The Emergency Support Function desks were activated and the nodal officers started coordinating from their desks. The Emergency Support Function on Medical Response and Trauma Counselling had brought the equipments and medicines required in case of disasters.
- All the emergency support functions were actively involved in responding to the disaster as per their well defined standard operating procedures for the disasters. They had also brought the equipments and vehicles (a representative number). Apart from the manpower deployed at the disaster site, skilled personnel from support agencies also reported at the various Emergency Support Function desks. Delhi Police had come with a large number of police officers including lady police. They were ready and alert to move for the disaster site as per instructions or information received from the Incident management teams.
- **Quick response teams** left for the disaster sites with their equipments and man power. They were constantly in touch with their team leaders and nodal officers. The quick response teams from Delhi Fire Service performed demonstration of Search and Rescue and Fire Fighting actions. They had brought the Fire Brigade, Hazmat vans along with other equipments and trained manpower. The teams were deployed at the disaster sites for further action.



*Delhi Fire Service in Action*

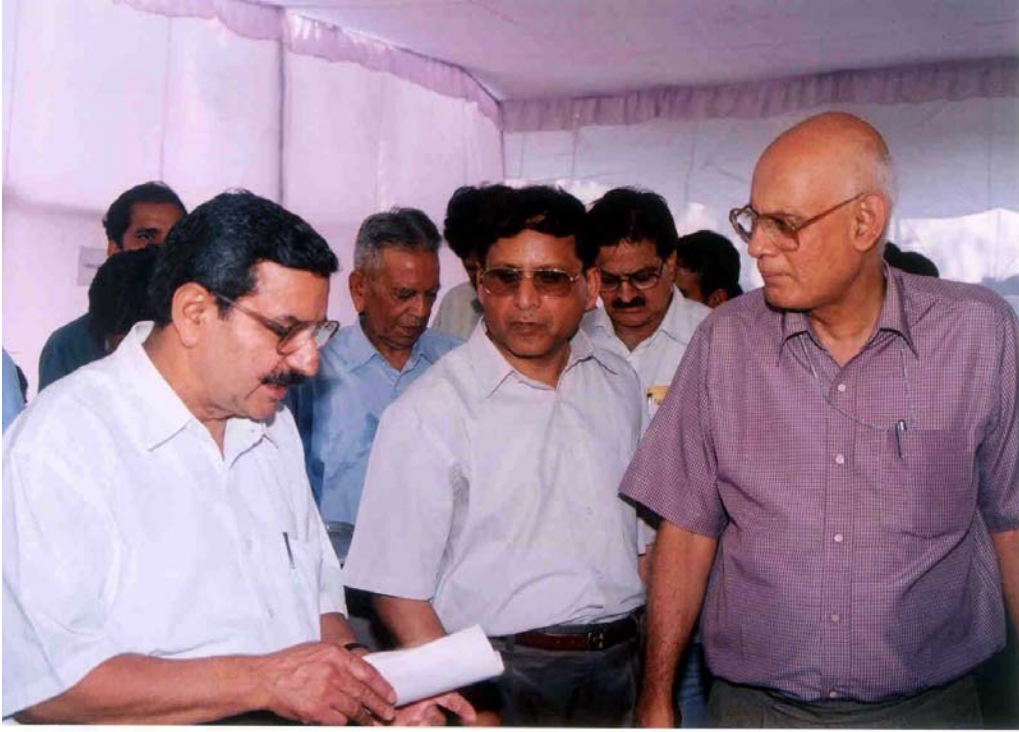




*Delhi Fire Service in Action*



*Delhi Police in Action*



*Principal Secretary- Home (Right) with Divisional Commissioner (left) and Director General (Civil Defence)*



*Lady constables deployed for the mock drill*





*Staging Area for resources to be used by operations section*



*Incident Management Team: Seemapuri SDM Office*

All Emergency Support Function teams had reported with the details of equipments, manpower, vehicle and other important material etc. and responded according to the Standard Operation Procedures (SOPs) provided to them.

### **SUMMARY OF THE PERFORMANCE MATRIX (DISASTER SITES & DISTRICT EOC)**

Soon after the drill was called off, Performance Matrices were given to the team leaders and nodal officers of all agencies. They were asked to fill in details like response time, message received, and resources brought by them. They also gave their inputs on the difficulties faced by them. Following was the outcome of the analysis of matrices.

#### **Remarks made by EMERGENCY SUPPORT FUNCTION members:**

**Communication:-** as per the evaluation format filled by the Nodal agency (MTNL) the message was not clear to them. However, the time taken after receiving information in starting from their offices and reaching at EOC was reasonable. Coordination with the support agencies was poor as they could not network with other support agencies. However HAM Operators showed exemplary response by setting up stations at State/District EOCs as also at the sites and has provided alternative communication support to the agencies.

**Law and Order:-** The message was clear to them. However, some effort needs to be made in improving coordination with the support agencies. Resources were brought adequately.

**Search and Rescue:-** Message was not clear to the Nodal agency. However they were prompt and their response time was quite less. Coordination with the support agency again was poor as they could not network with other support agencies. Adequate resources were brought by them.

**Evacuation:-**In order to avoid panic among the people, evacuation was deliberately avoided during the drill. However, site and escape routed were identified by the revenue department.

**Food and Shelter:-** Food and Civil Supplies was the nodal agency for both. Lack of coordination was clearly observed. The Quick Response Teams were not very clear about their role in disaster management.

**Medical and Trauma:-** Needs attention in coordination with other support agencies and hospitals. Performance of their ESF was up to the mark nonetheless.

**Equipments and Road and debris clearance:-** Message was not clear to the Nodal agency . The resources were brought by them adequately. Require attention in coordination with the support agency.

**Water Supply:-** Network with the support agency was not very satisfactory however response from nodal agency was good. They got clear message on disaster. They brought necessary resources with them in adequate numbers.

**Power:-** Network with the support agency was not clear. The message was clear to them. Response time was also good. They had brought necessary tools required to restore power related damage.

**Transport:-** Message reached very late and it was not even clear. Networking with the support agency was not up to the mark.

### **OBSERVATIONS:**

Observers were appointed for the event, and they were evaluating the performance of specific EMERGENCY SUPPORT FUNCTIONs based on the evaluation formats provided to them. (Annexure- V). Following were the observations made from each Emergency Support Function.

#### **○ EMERGENCY SUPPORT FUNCTION- Communication**

Amongst the ESF agencies for Communication, MTNL, NIC, Bharti Teleservices, IDEA Cellular, HAM Operators reported to the District Emergency Operation Centre. Sufficient resources were made available by them. The nodal agency for communication (MTNL) was aware of its responsibilities. More clarity, however, is required with respect to emergency functions of various agencies. Nodal agency's ability to coordinate with support agencies was good but can be improved further. Team leaders' ability to coordinate with their respective agencies was satisfactory, however, more meetings are required between the member of the nodal and support agency officials. Overall coordination amongst various EMERGENCY SUPPORT FUNCTION agencies needs improvement. It was observed that Nodal agency & support agency need to be more informed about human resource and the material resource of each other and the functions to perform.

#### **○ EMERGENCY SUPPORT FUNCTION- Law and Order**

Delhi Police, Civil Defence and Home Guards had reported to the District Emergency Operation Centre. Skilled manpower along with Helmet, Body protector, cane shield, rope, gas, arms & ammunition and vehicles were made available. The members were well aware of their responsibilities. Nodal agency was not seen coordinating with support agency. Overall coordination amongst various Emergency Support Function agencies was also good.

○ **EMERGENCY SUPPORT FUNCTION- Search and Rescue**

Delhi Fire Service, Civil Defence and Home Guards had reported to the District Emergency Operation Centre. Skilled manpower along with Helmet, Body protector, cane shield, rope, gas, arms & ammunition and vehicles were made available. The members were well aware of their responsibilities. Large number of Civil Defence volunteers participated for rendering services like rescue, first-aid, fire-fighting, casualty service and mobile canteen. Team leaders' ability to coordinate within their respective agencies was good. Overall coordination amongst various Emergency Support Function agencies was also good.

○ **EMERGENCY SUPPORT FUNCTION- Transport**

Department of Transport, DTC, PWD, MCD had reported to the District Emergency Operation Centre. Three teams of enforcement branch with 20 persons, 2 welding cutters and DTC Buses were made available. All the members were fully aware of their responsibilities. Nodal agency's ability to coordinate with support agencies was poor. They were unable to recognize team leaders of support agencies. The members of nodal and support agencies, however, introduced each other later. Team leaders' ability to coordinate with their respective agencies was good. All were willing to work with each other. Overall coordination amongst various agencies was good.

○ **EMERGENCY SUPPORT FUNCTION-Power**

Transco and BSES reported to the District Emergency Operation Centre. Both the agencies were aware of their roles. Nodal agency could coordinate well with the support agency. This coordination in case of a disaster is crucial. It will have to coordinate not only with BSES but with other support agencies as well. It would be appropriate if Transco as well as BSES build up sufficient infrastructure on this side of Yamuna as most of the heavy equipment for restoration of supply is on the the other end at Rajghat. More efforts will have to be made to ensure overall coordination amongst agencies.

○ **EMERGENCY SUPPORT FUNCTION- Help lines, Information dissemination**

Department of Revenue was taking care of Help lines and information dissemination. Adequate resources were available. There was awareness about responsibilities. Since the department of revenue was the only agency working for this function, there was no coordination required with support agencies. The response by various agencies to mock drill was quite encouraging which showed that various training and meetings carried out in the months prior to drill have been able to sensitise the agencies to effects of disaster and systems required to deal with it.



- **EMERGENCY SUPPORT FUNCTION- Equipment Support and debris clearance**

MCD, PWD, DJB reported to the District EOC. Adequate number of manpower and other resources were made available. They were well aware of their. Nodal agency could coordinate well with support agencies. Team leaders were also coordinating well within their agency. The overall coordination was also appreciable.

- **EMERGENCY SUPPORT FUNCTION- Food Relief**

The Department of Food and Civil Supplies reported to the District EOC under this Emergency Support Function. Two hundred food packets were made available within a short time. The nodal agency was aware of its responsibilities. The nodal agency was not aware of support agencies. Support agencies need to be informed that they are member of a particular emergency support function e.g. Indian Red Cross representatives reported for the on medical response but did not know that they were also member of Food emergency support function. Emergency Support Function Nodal agency needs to be clear about its roles and responsibilities and develop SOPs. emergency support function nodal agency needs to develop SOPs for the emergency support function in coordination with the support agencies and have better coordination.

- **EMERGENCY SUPPORT FUNCTION- Water Supply**

Delhi Jal Board, Irrigation and Flood Control and MCD reported to the District EOC soon after they got intimation from the District EOC. Resources were adequately made available. Nodal officer of DJB was not aware of his nodal role. Although representatives of the 3 departments were aware of their individual roles, efforts wise have to be made that all departments report to incident commander through nodal officer. The nodal agency is having capability to coordinate with support agencies. The team leaders of nodal and support agencies have the ability to coordinate with each other however efforts will have to be made by DC (MCD) of respective zones to ensure that various wings of MCD at field level are made aware of their individual role and should cooperate with each other in pooling of resources. Overall coordination was good to start with but efforts will have to be made to make it responsive.

- **EMERGENCY SUPPORT FUNCTION- Medical Response and Trauma Counselling**

Department of Health, CATS, SDN Hospital (Shahadara) , IRCS Hospital – Seemapuri, St. Johns Ambulance Brigade reported to the District EOC. The teams had come with resources available. They were aware of their responsibilities. Clarity of roles was missing. Overall coordination amongst various agencies was fair. Team leaders could coordinate well within their respective agencies.

## **CONCLUSIONS**

1. A general lack of coordination between the Nodal Agency and the Support agencies was noticed and it was felt by nodal agencies that support agencies were not much aware about their roles and responsibilities.
2. The agencies can coordinate very well with their own teams.
3. The clarity of roles existed at the top level but was lacking in many field staff.
4. The same message floated on wireless was received differently by the different Emergency Support Function agencies. There is a need to check distortion of information. Alternately there is a need to counter check the information received.
5. Police, Fire Service, Civil Defence and Home Guards, Jal Board, Health department, Red Cross workers and other Emergency Support members were actively involved during the event.
6. It was also observed that the Incident Command System was not very clear to the members of Emergency Support Functions.
7. The members of Emergency Support Functions were quite adequately trained in carrying out their designated functions. They could make available the desired resources in a short time.

## **IMPORTANT LESSONS LEARNT**

1. In case of a mass casualty, many agencies and departments have to work together. It is extremely vital therefore, that the departments understand what they do and what the others departments/ agencies can do.
2. Mock drills for different types of disasters should be organised frequently as they give an opportunity to the different emergency support function agencies to come together and to be able to coordinate. In case of a disaster it has been observed that it becomes very difficult to identify who belongs to which agency and how the other agency can be of help.
3. Such response drills provide an opportunity for the agencies to test their own potential to combat any adverse situation and also to improvise the existing system. It enables them to gauge their capabilities and develop on them.
4. Response drills give a chance to practice things the members of emergency support function agencies are trained to do.

5. It is important that the members of emergency support function agencies are familiar with the area, various routes etc. In case of any roads being blocked they should know the alternate routes. They should also be able to reach the disaster site in minimum time.
6. Response time in case of a disaster is very critical in saving life and property.
7. Messages often get distorted while being conveyed. Correct information needs to be gathered for proper action.

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End of the Report  
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