



# ANNUAL REPORT

2006-07



NATIONAL DISASTER MANAGEMENT AUTHORITY  
GOVERNMENT OF INDIA

National Disaster Management  
Authority  
Annual Report

2006-07

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Government of India

## Our Vision

The Disaster Management Act, 2005 envisages a paradigm shift from the erstwhile relief-centric response to a proactive prevention, mitigation and preparedness-driven approach, so as to conserve the developmental gains and also minimize losses to lives, livelihoods and property. The National Vision for disaster management is to build a safer and disaster-resilient India by developing a holistic, proactive, multi-hazard and technology-driven strategy. This will be achieved through a culture of prevention, mitigation and preparedness to generate a prompt and efficient response at the time of disasters. The entire process will centre-stage the community and will be provided momentum and sustenance through the collective efforts of all Government agencies and Non-Governmental Organizations (NGOs).

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# ABBREVIATIONS

<b>ARC</b>	Administrative Reforms Commission
<b>BARC</b>	Bhabha Atomic Research Centre
<b>CBDRM</b>	Community Based Disaster Risk Management
<b>CBRN</b>	Chemical, Biological, Radiological and Nuclear
<b>CD</b>	Civil Defence
<b>CME</b>	College of Military Engineering
<b>CPMFs</b>	Central Para Military Forces
<b>CSCs</b>	Community Service Centres
<b>DM</b>	Disaster Management
<b>DRDE</b>	Defence Research & Development Establishment
<b>DRDO</b>	Defence Research and Development Organization
<b>GOI</b>	Government of India
<b>GSDMA</b>	Gujarat State Disaster Management Authority
<b>HAZCHEM</b>	Hazardous Chemical
<b>HPC</b>	High Powered Committee
<b>IMC</b>	Inter Ministerial Committee
<b>IMD</b>	India Meteorological Department
<b>INSARAG</b>	International Search and Rescue Advisory Group
<b>IRCS</b>	Indian Red Cross Society
<b>IT</b>	Information Technology
<b>MAH</b>	Major Accident Hazard
<b>MHA</b>	Ministry of Home Affairs
<b>MPMCM</b>	Medical Preparedness and Mass Casualty Management
<b>NCRMP</b>	National Cyclone Risk Mitigation Project
<b>NDMA</b>	National Disaster Management Authority
<b>NDRF</b>	National Disaster Response Force

<b>NERMP</b>	National Earthquake Risk Mitigation Project
<b>NGOs</b>	Non Governmental Organizations
<b>NIDM</b>	National Institute of Disaster Management
<b>PSSMHS</b>	Psycho-Social Support and Mental Health Services
<b>R&amp;D</b>	Research and Development
<b>S&amp;T</b>	Science and Technology
<b>ULBs</b>	Urban Local Bodies
<b>UTs</b>	Union Territories
<b>WG</b>	Working Group

# 1

## INTRODUCTION

### Introduction

1.1 India is vulnerable, in varying degrees, to a large number of disasters. More than 28.2% of its geographical area is prone to earthquakes of high to very high intensity (falling into zones IV and V); over 40 million hectares (12%) of its land is prone to floods and river erosion; close to 5700 kms, out of the 7516 kms long coastline is prone to cyclones and tsunamis; 68% of its cultivable area is vulnerable to droughts; and, its hilly areas are at risk from landslides and avalanches. Vulnerability to Chemical, Biological, Radiological and Nuclear (CBRN) emergencies and other man-made disasters has also increased manifold in the recent past.

1.2 Disaster risks in India are further compounded by increasing vulnerabilities related to changing demographic and socio-economic conditions, unplanned urbanization, development within high-risk zones, environmental degradation, climate change, geological hazards, epidemics and pandemics. Clearly, all these contribute to a situation where disasters seriously threaten India's economy, its population and sustainable development.

### Genesis of NDMA

1.3 The Government of India (GoI), in recognition of the importance of Disaster Management (DM) as a national priority, had set up a High Powered Committee (HPC) in August 1999 and also a

National Committee on Disaster Management after the Gujarat Earthquake to make recommendations on the preparation of DM Plans and to suggest effective mitigation mechanisms. However, after the Indian Ocean Tsunami, the GoI took a defining step in the legislative history of the country, through an Act of Parliament, by creating the National Disaster Management Authority (NDMA), headed by the Prime Minister, to spearhead and implement a holistic and integrated approach to DM in India.

### Constitution of NDMA

1.4 The NDMA was constituted on 30<sup>th</sup> May 2005 by an executive order of the GoI. Subsequently, with the assent of the His Excellency President of India to the Disaster Management Act, 2005 on 23 December 2005, the Authority was notified on 27 September 2006 under the provisions of the Act.

### Composition of NDMA

1.5 General N. C. Vij, PVSM, UYSM, AVSM (Retd.) assumed the charge as Vice Chairman of NDMA on 28<sup>th</sup> September 2005, along with three Members Shri K. M. Singh, Prof. N. Vinod Chandra Menon and Lt. Gen. (Dr.) J. R. Bhardwaj, PVSM, AVSM, VSM, PHS (Retd.) Dr. Mohan Kanda and Shri M. Shashidhar Reddy, MLA, joined the Authority on 5<sup>th</sup> October 2005. In August 2006, Smt. P. Jyoti Rao and Shri B. Bhattacharjee joined NDMA and in April 2007, Shri J. K. Sinha joined as the Member of NDMA.



1.6 The Vice Chairperson of the Authority has the status of Union Cabinet Minister and the Members of the Authority have the status of Union Ministers of State.

### Responsibilities of Members of NDMA

1.7 The disaster specific domains as well as States and Union Territories (UTs) have been assigned to the Members of the NDMA on the basis of their expertise in the subject.

### Mandate of NDMA

1.8 The NDMA, as the main body for DM in India, has the responsibility of laying down the policies, plans and guidelines for DM for ensuring timely and effective response to disasters. Its statutory functions include the responsibility to –

- (a) Lay down policies on DM;
- (b) Approve the national plan and the plans prepared by the ministries/

S.No.	Name of the Member	Domains	States & UTs
1.	Lt. Gen. (Dr.) J. R. Bhardwaj (Retd.)	Chemical and Biological Disasters, Medical Preparedness and Mass Casualty Management, Psycho-Social Care and Trauma.	Uttar Pradesh, Uttarakhand, Haryana, Chandigarh.
2.	Shri B. Bhattacharjee	Nuclear and Radiological Emergencies, Early Warning and Communications, GIS & IT, Microzonation, Global Warming and Climate Change.	Rajasthan, Punjab, Dadra & Nagar Haveli.
3.	Dr. Mohan Kanda	National Policy and Plans, Floods, River Erosion, Avalanches, Landslides and Drought.	West Bengal, Maharashtra, Sikkim.
4.	Prof. N. Vinod Chandra Menon	Earthquakes, Tsunami, and NGOs.	Tamil Nadu, Kerala, Puducherry, A & N Islands.
5.	Smt. P. Jyoti Rao	Community Preparedness (CBDM), Education Curricula and Minimum Standards of Relief.	Madhya Pradesh, Karnataka, Lakshadweep.
6.	Shri M. S. Reddy	Cyclones, Urban Flooding, Risk Transfer (Insurance) and Micro Financing.	Andhra Pradesh, Orissa, Goa, Daman & Diu.
7.	Shri K. M. Singh	NDRF, Training and Public Awareness (Media).	Bihar, N. E. States, Jammu & Kashmir.
8.	Shri J. K. Sinha	Civil Defence, Home Guards, NCC, NSS, NYKS, Fire Services, Incident Command System and Public Private Partnership.	Gujarat, Himachal Pradesh, Delhi, Chhattisgarh, Jharkhand.

- departments of the GoI in accordance with the national plan;
- (c) Lay down guidelines to be followed by the state authorities in drawing up the state plan;
  - (d) Lay down guidelines to be followed by the different ministries/ departments of the GoI for the purpose of integrating the measures for prevention of disaster or the mitigation of its effects in their development plans and projects;
  - (e) Coordinate the enforcement and implementation of the policy and plan for DM;
  - (f) Recommend provision of funds for the purpose of mitigation;
  - (g) Provide such support to other countries affected by major disasters as may be determined by the central government;
  - (h) Take such other measures for the prevention of disaster, or the mitigation, or preparedness and capacity building for dealing with threatening disaster situation or disaster as it may consider necessary;
  - (i) Lay down broad policies and guidelines for the functioning of the National Institute of Disaster Management (NIDM);
  - (j) Authorize the concerned department or authority to make emergency procurement of provisions or materials for rescue and relief in threatening disaster situation or disaster;
  - (k) Exercise general superintendence, direction and control of the National

Disaster Response Force (NDRF), constituted under the Act, for the purpose of specialist response to a threatening disaster situation or disaster; and

- (l) Recommend guidelines for the minimum standards of relief to be provided to the persons affected by disasters.

1.9 As mandated by the DM Act 2005, NDMA will concentrate on prevention, preparedness, mitigation, rehabilitation and reconstruction and also formulate appropriate policies and guidelines for effective and synergised national disaster response and relief. It will also coordinate the enforcement and implementation of policies and plans.

1.10 In the DM Act 2005, disaster is defined as "a catastrophe, mishap, calamity or grave occurrence in any area, arising from natural or man-made causes, or by accidents or negligence which results in substantial loss of life, human suffering or damage to, and destruction of property, or damage to, or degradation of environment, and is of such a nature or magnitude as to be beyond the coping capacity of the community of the affected area". This definition is very wide in scope, covering aspects related to day to day happenings like law and order situations, bomb blasts and terrorism as well as accidents warranting specialized handling like oil spills, oil field fires, ship-wrecks, mine disasters etc. Most of these incidents will require the close involvement of the security forces, intelligence agencies and other designated specialized responders.

1.11 It has been resolved that the following categories of events will continue to be handled by the Extant Mechanism and not by the NDMA:

- Terrorism (Counter-Insurgency);

- Law and Order Situation;
- Serial Bomb Blasts;
- Hijacking;
- Air accidents;
- Chemical, Biological, Radiological and Nuclear (CBRN) Weapon Systems;
- Mine Disasters;
- Ports and Harbour Emergencies;
- Forest Fires;
- Oil Field Fires, and
- Oil Spills.

1.12 Notwithstanding the above, it has further been resolved that:

- Formulation of Guidelines, training and preparedness activities will be carried out by the NDMA in respect of

Chemical, Biological, Radiological and Nuclear (CBRN) emergencies.

- Resources available with various Authorities at all levels, which are capable of discharging emergency support functions, will be made available to the nodal ministries/ agencies dealing with specific emergencies.
- The cross cutting themes like Medical Preparedness, Psycho-Social Care and Trauma, Community Based Disaster Preparedness, Information and Communication Technology, Training, Preparedness, Awareness Generation etc. for natural and man-made disasters will be attended to by the NDMA in partnership with the stakeholders concerned.

### The Context

2.1 This Annual Report relates to the activities carried out by NDMA during the period from April 2006 to March 2007. However, being the first Annual Report of NDMA, it presents a brief summary of the activities carried out by NDMA during its initial months from September 2005 to March 2006, to provide the context of NDMA's interaction with various stakeholder groups for carrying out its mandate as spelt out in the DM Act, 2005.

### Response to the Jammu & Kashmir Earthquake

2.2 The Vice Chairman and three Members of NDMA assumed charge on 28<sup>th</sup> September, 2005. Barely within a fortnight, an earthquake hit the border districts of Jammu & Kashmir on 8<sup>th</sup> October, 2005. Gen. N. C. Vij, Vice Chairman of NDMA visited the earthquake affected regions of Uri and Tangdhar along with Prof. N. Vinod Chandra Menon and Shri K. M. Singh, Members of NDMA. Meetings were held with the Hon'ble Chief Minister and Senior Govt. officials in the State to review the progress of the rehabilitation efforts.

2.3 As the need for cold-resistant temporary shelters was felt to be an urgent priority, NDMA contacted from Srinagar the International Federation of Red Cross and Red Crescent Societies (IFRC) and the Indian Red Cross Society (IRCS) in New Delhi on 17<sup>th</sup> October, 2005. NDMA

mobilized 24 large rubberised tents to be used as community centres, which were collected from the IRCS warehouse in Bahadurgarh and airlifted to Srinagar by 21<sup>st</sup> October, 2005. The NDMA team also contacted Shri Shanti Lal Mutha, National Chairperson, Bhartiya Jain Sangathan to seek his support to provide pre-fabricated structures for the earthquake affected families in Tangdhar region which would become inaccessible after the snow fall. 870 pre-fabricated shelters with floor area of 325,000 sq. ft. were dispatched from Gandhidham in Gujarat to Jammu in 3 special railway trains with the cooperation of the Railway Board and were erected in Uri and Tangdhar regions for providing temporary shelters to the earthquake affected people.

### Review of the Progress of Post-Tsunami Reconstruction in Andaman & Nicobar Islands

2.4 On 13<sup>th</sup> January 2006 Shri Shivraj Patil, Hon'ble Union Home Minister chaired a review meeting on the progress of Tsunami rehabilitation and recovery efforts in Andaman & Nicobar Islands. He desired that the Vice Chairman, NDMA should lead an Inter-Ministerial Team to visit Andaman & Nicobar Islands to review the progress of Tsunami Reconstruction efforts.

2.5 On 23<sup>rd</sup> January 2006, a meeting of officers from concerned Ministries and Departments of Gol, Planning Commission and Resident Commissioner, Andaman & Nicobar Administration was convened

at NDMA. An Inter-ministerial team led by Gen. N. C. Vij, Vice Chairman, NDMA with Prof. N. Vinod Chandra Menon, Member NDMA visited Andaman & Nicobar Islands during 27<sup>th</sup> to 29<sup>th</sup> January 2006, to review the progress of reconstruction efforts in the various islands and discussed with various stakeholder groups and the Andaman & Nicobar Administration. On 17<sup>th</sup> February 2006, a video conference was held with the Chief Secretary, Andaman & Nicobar Administration and other officials to seek some clarifications on the progress of reconstruction and to firm up the deadlines for carrying out various tasks on priority.



Gen. N. C. Vij, Vice Chairman, NDMA and Prof. N. V. C. Menon, Member, NDMA reviewing the re-construction works in A&N Islands

2.6 On 17<sup>th</sup> March, 2006, Hon'ble Union Home Minister chaired a meeting in which the report on

the visit of the Inter-Ministerial Team to the Andaman & Nicobar Islands was presented and further action plan worked out. Several follow up review visits by the Inter-Ministerial Team were carried out during the subsequent months (which are described in the later part of this report).

### Preparation of Guidelines

2.7 As mandated by the Disaster Management Act, 2005, NDMA convened several workshops on the Management of Earthquakes, Floods, Cyclones and Chemical (Industrial) Disasters. Core Groups of experts were set up to assist NDMA in the preparation of the Guidelines for the effective management of these disasters. Meetings of several Core Groups on different types of disasters were held to identify the critical gaps in the management of these disasters and to work out strategies for improving the effectiveness of disaster preparedness, mitigation and emergency response.

### Coordination of Scientific and Technical Institutions in Disaster Management

2.8 Scientific and Technical institutions play a very significant role in improving the effectiveness of disaster preparedness and emergency response. NDMA convened a National Workshop of Scientific and Technical Institutions during 24<sup>th</sup> to 26<sup>th</sup> March 2006 at the Dr. MCR HRD Institute, Hyderabad which was attended by more than 100 scientists and technocrats who deliberated on the strategies to improve the disaster preparedness, mitigation and emergency response using state-of-the-art science and technology inputs.

### NDMA Members call on His Excellency the President of India

2.9 Gen. N. C. Vij, Vice Chairman and Members of NDMA called on Dr. A. P. J. Abdul Kalam, His

Excellency the President of India on 29<sup>th</sup> November 2005 at the Rashtrapathi Bhavan. The President of India discussed the strategies identified by NDMA for strengthening disaster preparedness, mitigation and emergency response capabilities in the country.

He advised NDMA to study the experience of Iceland and Russia in the monitoring of seismicity using earthquake precursors to forecast the possibility of earthquakes.



Dr. A. P. J. Abdul Kalam, His Excellency the President of India with the Vice Chairman and Members of NDMA

### Visit to States and Union Territories

3.1 The Vice Chairman and Members of NDMA visited several States and Union Territories and met the Chief Ministers, Governors and Government officials to identify their concerns and priorities in the field of DM. Several meetings were held during these visits with various stakeholder groups to obtain their feedback on strengthening disaster preparedness, mitigation efforts and emergency response capabilities at the national, state and local levels.

### National Disaster Response Force

3.2 The DM Act, 2005 has made the statutory provisions for the constitution of the National Disaster Response Force (NDRF) for the purpose of specialized response to natural and man-made disasters. The Force has to function under the general superintendence, direction and control of the NDMA. Though the units of this Force were nominated in 2003, it is only after the establishment of NDMA, their training and equipping were vigorously pursued. The rules for functioning of the Force have been formulated and are now awaiting notification. Procedures for procurement of specialist equipment have been streamlined. Several items of equipment have already been procured and are being used in the training and capacity building efforts as well as in response operations. Training of this Force for natural and man-made disasters, including CBRN emergencies is in progress.

### Mitigation Projects

3.3 Giving due recognition to the paradigm shift in DM, NDMA is initiating a number of disaster mitigation projects. The National Cyclone Risk Mitigation Project (NCRMP) in partnership with the World Bank has been initiated, covering 13 cyclone prone states/ UTs. Other projects which are in advanced stage of planning are the National Earthquake Risk Mitigation Project (NERMP), the preparation of National Reserves for disaster-prone communities, Medical Preparedness and Mass Casualty Management (MPMCM), National Disaster Communication Network, Flood Mitigation Project, Landslide Mitigation Project, School Safety Project, etc. Studies have also been initiated on Microzonation, Risk Assessment and Vulnerability Analysis.

### Inter-Ministerial Committee

3.4 In January 2006, an Inter-Ministerial Committee (IMC) with Vice Chairman, NDMA as the Chairman was constituted to consider the financial requirements of the States for the long-term rehabilitation and reconstruction in the areas severely affected by heavy rains / cyclonic storms / floods / flash floods during the monsoon season of 2005. The IMC has its Members from Ministry of Home Affairs, Planning Commission, Ministry of Finance and other concerned Ministries such as Department of Agriculture and Cooperation, Ministry of Road Transport and Highways, Ministry of Rural Development etc.

3.5 The IMC held various rounds of meetings and submitted its First Report dated 20<sup>th</sup> October 2006 for Jammu and Kashmir.

### Working Group for Eleventh Five Year Plan

3.6 To mainstream the DM into developmental plans, a working group was constituted in partnership with Planning Commission, under the Chairmanship of Dr Mohan Kanda, Member, NDMA. Recommendations of the Working Group for the 11<sup>th</sup> Five Year Plan have already been submitted to the Planning Commission.

### Coordination of NGOs in Disaster Management

3.7 After its inception, NDMA convened a series of workshops to obtain the feedback from the NGOs to improve disaster preparedness, mitigation and emergency response in the country through mobilizing the participation of a large number of stakeholder groups. As an outcome of these meetings, a National NGO Task Force has been constituted to work out the strategies through a consultative and participatory process.

### Coordination of Corporate Sector in Disaster Management

3.8 Similarly, NDMA organized a series of workshops to obtain feedback from the representatives of various Chambers of Commerce and Industry and Trade Associations on improving disaster preparedness, mitigation and emergency response. These workshops with members of CII, FICCI, ASSOCHAM and other corporate business houses explored the various possibilities for encouraging Public Private Partnerships in the field of DM and for streamlining the role of Corporate

Sector not only in relief measures but also in mitigation and preparedness.

### Civil Defence and Fire Services

3.9 In order to ensure prompt and effective response to disasters, at the grassroots level, the reorientation of Civil Defence Organization in the country and upgradation of the Fire Services are of paramount importance. To provide the Government with necessary inputs, a committee headed by Shri K M Singh, Member NDMA has finalized the report on the upgradation of Fire Services and revised role of Civil Defence Organization and the same were submitted to the Government in February and December 2006 respectively.

### Awareness and Preparedness Campaigns

3.10 Awareness and preparedness campaigns are key components of proactive approach on DM. Two focused campaigns on Earthquake and Cyclones have been initiated on the electronic and print media at the national as well as states level. These campaigns have generated a lot of awareness amongst the community and other stakeholders.

### Mock Exercises

3.11 To inculcate a culture of preparedness among the Govt and NGOs and to reach out to the community, a number of Table Top and Mock Exercises have been planned throughout the country on various types of disasters – earthquakes, cyclones, floods, fire and chemical (industrial) disasters. These mock exercises have generated a lot of interest, awareness and enthusiasm. Critical gaps in preparedness and response have been identified for remedial actions by the stakeholders.



### Visit of Disaster Management Specialists to NDMA

3.12 After the establishment of NDMA, several distinguished DM specialists and dignitaries visited NDMA and held discussions with the Vice Chairman and Members. They included:

- Dr. Suvit Yodmani, Executive Director, Asian Disaster Preparedness Centre, Bangkok called on the Vice Chairman and Members of NDMA on 7<sup>th</sup> December, 2005.
- Dr. Lynn Fritz, Chairman of Fritz Institute met the Vice Chairman and Members of NDMA on 12<sup>th</sup> December, 2005.
- Mr. Rudolf Kent, Director of Humanitarian Futures, UK called on the Vice Chairman and Members of NDMA on 22<sup>nd</sup> June 2006.
- Shri Veerappa Moily, MP and Chairman of the 2<sup>nd</sup> Administrative Reforms Commission (ARC), along with the Members of the 2<sup>nd</sup> ARC met the Vice Chairman and Members of NDMA on 1<sup>st</sup> August, 2006 and held discussions on the DM related concerns as applicable to the Terms of Reference of the ARC.
- Professor Ho Peng Kee, Hon'ble Sr. Minister for Law & Home, Government of Singapore called on the Vice Chairman and Members of NDMA on 16<sup>th</sup> November 2006.
- Mr. Sataru Nishikawa of the Japanese Cabinet Office called on the Vice Chairman and Members of NDMA on 29<sup>th</sup> January, 2007.
- Mr. Olivier Brouant, Director General, Humanitarian Aid, European Commission called on the Vice Chairman and Members of NDMA on 8<sup>th</sup> March 2007.

# 4

## POLICY, PLANS AND GUIDELINES

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### National Policy on Disaster Management

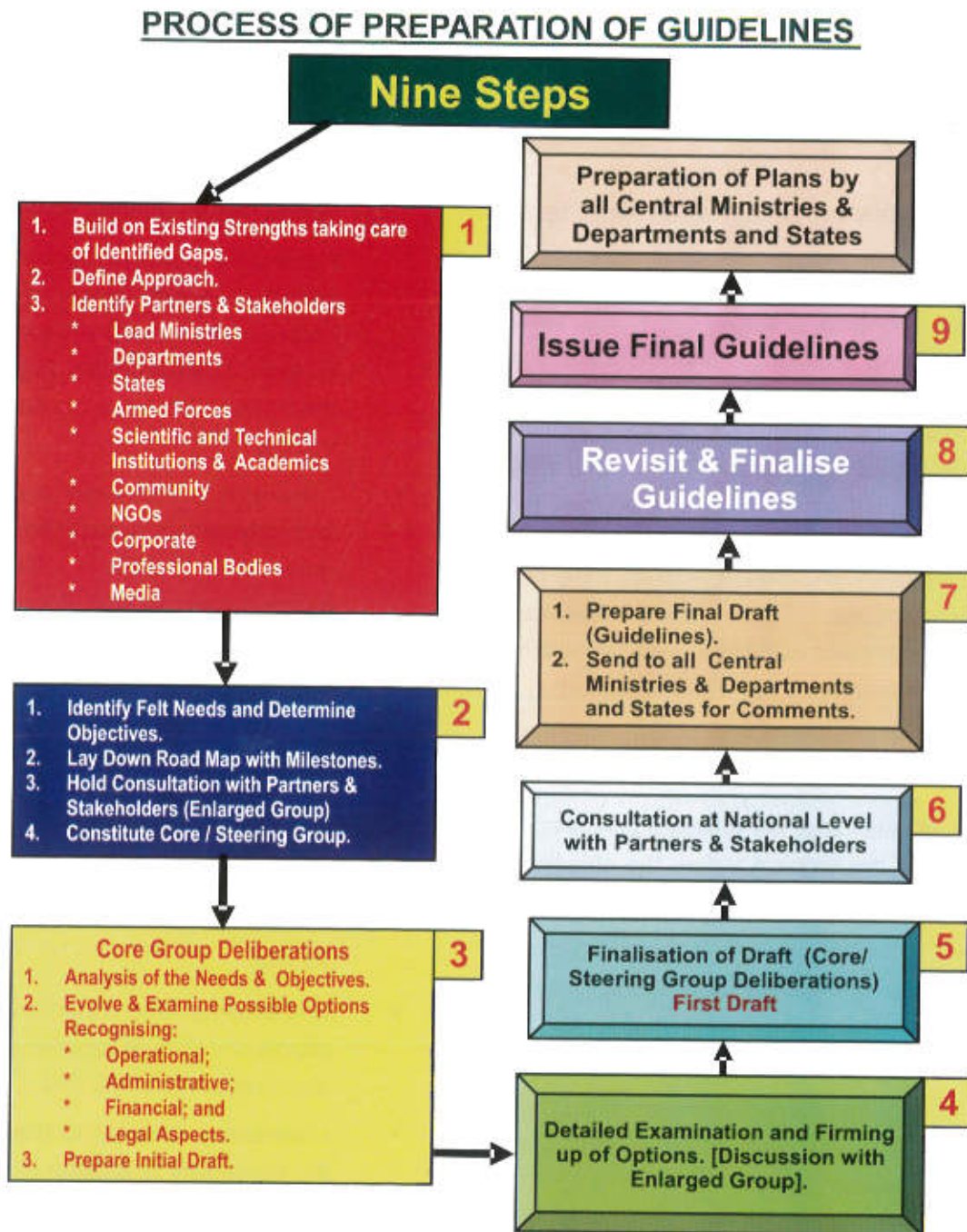
4.1 NDMA is mandated to lay down policy and guidelines on disaster management. An elaborate, comprehensive, wide ranging, consultative and transparent method was adopted for formulation of National Policy on DM which has been sent for clearance by the Government of India. The wide consultative process included a National Workshop on 27<sup>th</sup> October 2006 at Dr. MCR HRD Institute of Andhra Pradesh, Hyderabad, with an extended group of participants to build a national consensus. Valuable suggestions made by all the stakeholders have been incorporated in the final draft.

### Objectives of the Policy

4.2 In pursuance of the mandate enshrined in the Act, and the national vision, the objectives guiding the NDMA are:

- Promoting a culture of prevention and preparedness by ensuring that DM receives due priority at all levels;
- Encouraging mitigation measures based on state-of-the-art technology, traditional wisdom and environmental sustainability;
- Making DM concerns built into the developmental planning process;
- Putting in place a streamlined institutional techno-legal framework in order to create and preserve the integrity of an enabling regulatory environment and a compliance regime;
- Developing contemporary forecasting and early warning systems backed by responsive and fail-safe communications and Information Technology (IT) support;
- Promoting productive partnership with the media to create awareness and contributing towards capacity development;
- Ensuring efficient response and relief with a caring approach towards the needs of the vulnerable sections of the society;
- Undertaking reconstruction as an opportunity to build disaster resilient structures and habitat; and
- Undertaking recovery to bring back the community to a better and safer level than the pre-disaster stage.

Figure 4.1



## Guidelines

4.3 In order to translate the objectives into plans, the NDMA has adopted a mission-mode approach involving a number of initiatives with the help of various institutions (administrative, academic, scientific and technical) operating at the national, state and local levels. As a policy, the central ministries and departments and states have been involved in evolving the guidelines, besides all other stakeholders. These guidelines, based on specific disasters and themes (such as capacity development and public awareness), will provide the basis of preparation of plans. Preparation of these Guidelines will take minimum 12 to 18 months, depending upon the complexity of the subject. The approach to formulation of guidelines will comprise a 'nine-step' participatory and consultative process with stakeholders as shown in figure 4.1.

## Disaster Specific Guidelines

4.4 The guidelines on Earthquakes, Chemical (Industrial) Disasters, Preparation of State Disaster Management Plans and Medical Preparedness and Mass Casualty Management are in the final stages, which will be released shortly. Guidelines on Floods, Tsunami, Nuclear Disasters, Biological and Chemical (Terrorism), Cyclones, Landslides, Urban Flooding, River Erosion, etc. are at various stages of preparation and shall be released in the coming year.

## Guidelines for the Management of Earthquakes

4.5 On 3<sup>rd</sup> May 2006, a workshop for an extended group of earthquake management experts was held at NDMA to discuss the outline of the draft Guidelines for Management of Earthquakes, followed by a core group Meeting on

9<sup>th</sup> May 2006. A workshop for the extended group of earthquake management experts was again held on 9<sup>th</sup> June 2006 to review the draft Guidelines. On the basis of the feedback of this workshop, the draft Guidelines for Management of Earthquakes were revised by incorporating the recommendations and suggestions of the Extended Group of earthquake management experts.

## Guidelines for the Management of Chemical (Industrial) Disasters

4.6 The Core Group for the Management of Chemical Disasters held several meetings to identify the critical gaps in the management of Chemical (Industrial) Disasters and started the preparatory work for drafting the Guidelines. The initial drafts were discussed in the meetings of the extended group of experts and was modified incorporating their feedback.

## Guidelines for the Preparation of State Disaster Management Plans

4.7 The preparatory work on the Guidelines for the preparation of State DM Plans was initiated through several consultations and meetings in NDMA.

## Guidelines for Medical Preparedness and Mass Casualty Management

4.8 On 11<sup>th</sup> September 2006, a National workshop on Medical Preparedness and Mass Casualty Management was held at NDMA which was attended by Government officials and medical practitioners. They identified the critical gaps in Medical Preparedness and Mass Casualty Management. A core group of experts was constituted to assist NDMA in the preparation of the Guidelines. On 26<sup>th</sup> October 2006, a core group meeting of experts was held to discuss the outline

of the Guidelines for Medical Preparedness and Mass Casualty Management.

### Guidelines for the Management of Cyclones

4.9 On 20<sup>th</sup> and 21<sup>st</sup> April 2006, a national workshop on the Management of Cyclones was held in Ahmedabad, which was attended by experts in the Management of Cyclones. A core group of experts was constituted after this national workshop which was further divided into various sub-groups to deliberate on specific aspects related to the management of cyclones.

### Guidelines for the Management of Floods

4.10 A core group of experts on the management of floods was constituted. It met at NDMA on 11<sup>th</sup> July 2006 and 25<sup>th</sup> August 2006 and made deliberations on various aspects related to flood preparedness, flood mitigation and flood response. The initial draft of the Guidelines for the management of floods was prepared and circulated to the Ministry of Water Resources, Central Water Commission and various flood prone states for their comments and feedback.

### Guidelines on Psycho-Social Care

4.11 On 12<sup>th</sup> January 2007 and 9<sup>th</sup> February 2007, the core group on Psycho-Social Care met at NDMA and held their deliberations for the preparation of Guidelines on psycho-social care. The draft Guidelines were prepared and circulated to an extended group of experts for their comments and feedback.

### Guidelines for the Management of Landslides

4.12 A core group of experts was constituted to assist NDMA in the preparation of Guidelines for effective management of landslides. Several meetings of this core group were held to identify the critical gaps in the management of landslides. The draft guidelines prepared by the core group were circulated to an extended group of experts for their comments and feedback.

### Guidelines for the Management of Nuclear and Radiological Emergencies (unclassified)

4.13 A core group on guidelines for management of nuclear and radiological emergencies was constituted under Shri B. Bhattacharjee, Member, NDMA. This group has met a number of times to finalize the guidelines for management of nuclear and radiological emergencies (unclassified). The document is in final stages of preparation, which will thereafter be sent to all the stakeholders for their comments and suggestions.

### National Institute of Disaster Management (NIDM) Guidelines

4.14 As per the provisions of the Act, the National Institute of Disaster Management (NIDM) has to function within the broad policies and guidelines laid down by the NDMA. NIDM will be responsible for planning and promoting training, research, documentation and development of national level information base relating to DM policies, prevention mechanism and mitigation measures. To ensure that the Institution becomes a Centre of Excellence for institutionalizing training of trainers, a comprehensive set of guidelines were issued by the NDMA in April 2006.

# 5

## DISASTER PREPAREDNESS

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### Communication Support for Disaster Management

5.1 NDMA has planned the design of an integrated disaster communication network to ensure connectivity of all the stakeholders before, during and after the disasters. This network is conceived to be a fail-safe, multi-faceted and highly reliable communication network with adequate redundancy at each level, building on the existing telecommunication facilities and infrastructure available with the Government and private sector. It will be a highly reliable communication system based on diverse technologies with adequate redundancy at each level. Some of its important features are as follows:

- It will ensure voice, data and video connectivity for all the stakeholders before, during and after the disasters.
- It will ensure the restoration of disrupted communication at the disaster site and fail-safe last-mile connectivity to disaster affected areas.
- It will provide Multi-Lingual Voice Connectivity upto the Village Level, through terrestrial and microwave-based Communication and Information Technology System and Data Connectivity upto the "clusters of villages" through Fibre Optic Cable-based Community Service Centres (CSCs).

### Medical Preparedness

5.2 In the recent past, India has witnessed numerous mass casualty events including the Latur Earthquake, Orissa Super Cyclone, Bhuj Earthquake, Indian Ocean Tsunami in the Southern Coastal States and Andaman & Nicobar Islands and J&K Earthquake causing large scale damage to life, property and environment. The unexpected disasters of such magnitude and our capability to cope with them highlighted the need for high level of preparedness for addressing the emergency medical health needs of disaster affected communities. The lessons learnt from these disasters revealed the need for the establishment of a community-centric institutionalized mechanism to prepare, prevent, mitigate and respond at all levels so that the adverse effects can be minimized in terms of mortality and morbidity, environment and public health related concerns. Medical management of mass casualties is an 'all-hazard' concept where practically every Ministry/ Department, along with the private sector health providers, will be playing a role, directly or indirectly, with the Ministry of Health and Family Welfare, GoI acting as the nodal ministry.

### National Workshop on Medical Preparedness and Mass Casualty Management (MPMCM)

5.3 A National Workshop on 'Medical Preparedness and Mass Casualty Management' was held at NDMA, in August 2006 wherein large

number of experts including DG Health Services, Relief Commissioners and heads of the professional and research institutions in the country participated. In this workshop, the present status of the medical preparedness in the country was reviewed and a suggested future course of action was drawn. A core group of experts was constituted under the chairmanship of Lt. Gen. (Dr.) J. R. Bhardwaj (Retd.), Member, NDMA.

5.4 The initial layout was formulated in the first two meetings held at NDMA on 11<sup>th</sup> September 2006 and 26<sup>th</sup> October 2006. Following that, the core group met on 17<sup>th</sup> November 2006 at Institute of Human Behavior and Allied Sciences, Delhi and on 13<sup>th</sup> December 2006 at PGIMER, Chandigarh, for deliberations and finalization of the initial draft which was presented to the steering group thereafter.

### Civil Defence and Home Guards

5.5 The mandate of the Civil Defence and the Home Guards is proposed to be redefined to play an effective and meaningful role in the DM in India. As an important part of the DM structure, they will also contribute in community preparedness and public awareness at the grassroots. Under the aegis of the State and District Disaster Management Authorities, the Civil Defence and Home Guards will also be key responders. Efforts will be directed to upgrade them progressively to be able to contribute significantly in DM functions. Further, a culture of voluntary reporting of Civil Defence personnel to their designated duty stations in the event of any disasters will be promoted.

5.6 The Civil Defence policy of the Government of India, till 1962, remained confined to making the states and UTs conscious of the need for civil protection measures and to prepare civil protection

plans for major cities and towns under the Emergency Relief Organization Scheme. However, following the Chinese aggression in 1962 and the Indo-Pak conflict of 1965, there was considerable rethinking on the policy and scope of Civil Defence, which culminated in the enactment of the Civil Defence (CD) Act, 1968. Since then the organization has been functioning as per the provisions of the Act. Even though 225 towns have been identified as CD towns, it is currently operational in only 121 towns.

5.7 During the seventies, CD was successful in mobilizing citizens to assist civil administration in their functions and supporting the Armed Forces during hostile attacks. While the global geo-political factors have reduced the chances and occurrence of traditional wars, new challenges have emerged for the community in the form of terrorism, natural calamities or human-induced disasters, resulting in large-scale destruction of property, loss of human lives and disruption of normal life in society. Since the community is invariably the first responder to any disaster situation, adequate awareness and preparedness of the community to respond to any such situation can be crucial in mitigating the damage and the suffering. The CD being a community-based voluntary organization can, in addition to rescue, relief and rehabilitation, play a stellar role in the field of public awareness and community capacity building, as is being done by the CD in many countries.

5.8 As desired by the Hon'ble Union Home Minister, a High Powered Committee was constituted under the Chairmanship of Shri K M Singh, Member, NDMA to prepare an approach paper on revamping of CD in the country. This report was submitted to the Gol in December 2006 for their consideration.

## Community-Based Disaster Management

5.9 During any disaster, community is always the first responders. Community participation ensures local ownership, addresses local needs, and promotes volunteerism and mutual help to prevent and minimize damage. Therefore, the efforts of the states/ UTs, in this regard will be supported through robust campaigns to make communities understand their vulnerabilities and the lead role that they can play in managing risks with less dependence on external entities.

### Co-ordination of Voluntary Organizations (NGOs) in DM

5.10 NGOs play a vital role in disaster preparedness, mitigation and response. In various disasters, the NGOs and other community-based organizations have contributed in assisting the civil administration in immediate response, provision of relief supplies, temporary and permanent shelters, medical help and psycho-social care. However, proper co-ordination, networking and collaboration continue to remain a challenge. In order to promote Community-Based Disaster Risk Management (CBDRM) and effective collaboration, networking and co-ordination for effective disaster risk mitigation and response, NDMA has taken up the co-ordination of NGOs in the field of DM at the National level.

5.11 On 24<sup>th</sup> April 2006, 12<sup>th</sup> May 2006, and 14<sup>th</sup> & 15<sup>th</sup> June 2006, the meetings of the National NGO Task Force on DM were convened at NDMA to chalk out strategies for strengthening of CBDRM initiatives at the national level and the disaster prone states.

5.12 The National NGO Task Force will function as the national level platform for Government-NGO

coordination in the field of DM. The National NGO Task Force would facilitate and support the formation of similar task forces at state and district levels. The objectives of the National NGO Task Force are:-

- Mapping of NGOs at State and District Levels.
- Training and capacity building of various stakeholders.
- Mainstreaming vulnerability reduction through CBDRM in civil society initiatives.
- Assisting the transition from relief codes to DM codes through policy and guidelines.
- Guidelines for Government Organization - NGO collaboration.
- Providing assistance in setting up NGO Task Forces at state and district levels.
- Integrating CBDRM in development programmes.
- Strengthening disaster preparedness, mitigation and effective response in States and Districts.
- Setting up working groups on specific themes to include Broad-Based Participation of Civil Society Organisations.

### Role of the Corporate Sector in Disaster Management

5.13 With the increasing frequency of natural and man-made disasters, there is an urgent need to mobilize and expand the efforts of disaster preparedness, risk mitigation and effective response. As a part of mobilizing critical



stakeholders in professionalizing DM, NDMA has initiated the process of interaction with the corporate sector to understand and define corporate sector's role in DM. Corporate sector has contributed in post-disaster relief, but their role in disaster preparedness and mitigation has been very limited.

5.14 On 11<sup>th</sup> July 2006 and on 19<sup>th</sup> July 2006, meetings of representatives of FICCI, CII and ASSOCHAM were convened at NDMA to work out the modalities for organizing a National Conference on the Role of Corporate Sector in DM. This national conference was planned with the objectives of exploring the potential role of business and trade associations in DM and working out the strategies for setting up a National Corporate Task Force for DM. Based on the feedback from these two meetings, a National Conference on Role of Corporate Sector in DM was convened by NDMA on 1<sup>st</sup> & 2<sup>nd</sup> September, 2006 at FICCI in New Delhi, which was attended by representatives of more than 120 corporate sector agencies. A National Corporate Task Force on DM was constituted as a part of the outcome of this National conference. The Task Force would work towards exploring the potentials of Corporate Social Responsibility and Public Private Partnership in DM, identify roles of various corporate entities in different areas of DM preparedness and mitigation, and identify roles of corporate entities in emergency response, post-disaster reconstruction and rehabilitation and work out modalities for an effective partnership in the field of DM.

5.15 Meetings of the National Corporate Task Force on DM were held at NDMA on 6<sup>th</sup> December 2006 and 31<sup>st</sup> January 2007 to chalk out the strategies for more effective corporate sector participation in the field of DM.

## Public Awareness

5.16 In its endeavour to spread awareness amongst the masses, NDMA has launched a few public awareness campaigns through electronic and print media. The focus was on building appropriate environment for DM and creating a high level of impact on the target audience. Two campaigns were launched:

- Cyclone awareness campaign (focused on 4 cyclone-prone key states of Tamil Nadu, Andhra Pradesh, Orissa, and Gujarat); and
- Earthquake awareness campaign (across the earthquake-prone states).

## Cyclone Awareness Campaign

5.17 The first campaign, launched in November 2006, focussed on cyclones. It emerged that, while a lot had been done at the ground level which has yielded good results, yet there remains a significant gap in the knowledge, skills, beliefs and behaviour levels of the vulnerable groups to effectively deal with pre, during and post-disaster events. The key need, hence, is individual capacity building aimed at increasing the levels of:

- Risk Perception;
- Preparedness;
- Self-reliance; and
- Self-confidence.

5.18 Three TV commercials, two radio spots and five print advertisements were run for a six week period in all the 4 states during the period from November to December 2006.

## Earthquake Awareness Campaign

5.19 The Earthquake awareness campaign is ongoing at present and is spread across the states prone to earthquakes. The focus is on selected areas of knowledge gap amongst the target audience. The media selected are:

- (a) T.V. commercials on Doordarshan:
  - DD national news (the largest watched news channel in India);
  - DD Regional news;
  - DD Friday and Saturday Feature film (high viewership across India); and
  - DD Prime time serials (high viewership across India).
- (b) Public awareness advertisement spots on All India Radio:
  - Cricket World cup commentary sponsorship during 13<sup>th</sup> March to 28<sup>th</sup> April 2007; and
  - All India Radio news - national and regional;
- (c) Print advertisements in leading national and regional dailies across earthquake prone states; and
- (d) Messages on postcards, envelopes and inland letters to be printed and distributed through the Department of Post and Telegraph.

## Information, Education and Communication Activities through States/UTs

5.20 In order to reach out to the villages and local level communities, NDMA has decided to involve the State/UT Governments in the awareness generation activities. The State Governments have undertaken similar campaigns in the past and this would serve to bring into the campaign the necessary synergy between states and NDMA.

5.21 In order to ascertain the activities that the states may like to take up on behalf of NDMA, a video conference was first held with the States on 2<sup>nd</sup> February 2007, followed by a meeting with representatives of State Governments on 9<sup>th</sup> February 2007. This was considered necessary as it would be difficult for NDMA to arrange local level awareness programmes/schemes in local languages, a very important component in any 'Awareness Campaign'.

5.22 The activities proposed by the States include posters, documentary films in cinema halls (including radio jingles, TV spots), distribution of booklets/ leaflets in local languages, hoardings, wall paintings, school-safety programmes, mock drills, preparation of training modules on preparedness, emergency response, retrofitting, earthquake resistant construction, public awareness etc. A duly constituted committee scrutinized the proposals from States and thereafter recommended activities that State Governments may take up on behalf of NDMA for generating public awareness on disaster risk and vulnerability in their respective states.

# 6

## DISASTER MITIGATION PROJECTS

6.1 During discussions with the Planning Commission, the Ministry of Home Affairs, GoI and NDMA have proposed two categories of Disaster Mitigation Projects to be initiated at the National level. The category A consists of projects, programmes and schemes to be undertaken by NDMA for implementation, while category B consists of projects, programmes and schemes by Ministries for which the overall assistance, supervision, monitoring of design and implementation will be done by NDMA.

6.2 The category A consisting of projects, programmes and schemes to be undertaken by NDMA for implementation are:

- National Cyclone Risk Mitigation Project (with World Bank assistance);
- National Earthquake Risk Mitigation Project;
- National Flood Mitigation Project;
- National Landslide Mitigation Project;
- Expanded Disaster Risk Mitigation Project;
- National Disaster Communication Network (NDCN);
- Information, Education and Communication (IEC) Programme;
- Micro-zonation of major cities;
- Project Preparation Facility/Research Programme Studies;

- Vulnerability Assessment Schemes;
- International Cooperation;
- Infrastructure of 8 NDRF Battalions;
- Upgradation of NIDM and other institutes; and
- Strengthening of Fire Services.

6.3 The Category B consisting of projects, programmes and schemes to be undertaken by the nodal ministries, with the overall assistance, supervision and monitoring of design and implementation by NDMA, are:

- Medical Preparedness for Mass Casualty Management;
- National School Safety Project;
- Programme for Upgrading Capabilities and Dissemination of Early Warning to Communities;
- Detection, Early Warning System and Preparedness & Response for Nuclear Emergencies; and
- National Standing Mechanism (Science & Technology).

6.4 The methodology for project implementation of the mitigation projects being pursued by NDMA begins with the conceptualization and fixing of the contours of projects and architecture of design by NDMA in consultation with the Nodal Ministry and concerned Government agencies. Detailed Project

Reports (DPRs) will be formulated through multi-disciplinary teams describing all support systems like financial, technical and managerial resources and techno-legal regimes required. The execution of the projects will be entrusted to the various nodal agencies responsible for specific disasters and/or thematic interventions. Periodic monitoring will be carried out through a multi-sectoral group consisting of representatives of the ministries, state governments and technical experts in the NDMA.

6.5 NDMA has initiated the preparatory work for launching a National Cyclone Risk Mitigation Project (NCRMP) and the National Earthquake Risk Mitigation Project (NERMP) in close collaboration with the nodal agencies and the State Governments.

### National Cyclone Risk Mitigation Project

6.6 A National Cyclone Risk Mitigation Project (NCRMP) developed for the 13 cyclone-prone coastal States/ UTs, was formulated by the Ministry of Home Affairs and was transferred to NDMA in September 2006 for its management. The project is proposed to be implemented by nine States namely, Andhra Pradesh, Goa, Gujarat, Karnataka, Kerala, Maharashtra, Orissa, Tamil Nadu and West Bengal and four UTs namely, Andaman & Nicobar Islands, Daman & Diu, Puducherry and Lakshadweep.

6.7 The aim of the project is to address the cyclone-hazard risks in the country. The project will be implemented with the financial support of the World Bank. The main objective of the project is to strengthen the structural and non-structural mitigation efforts to reduce the cyclone risks and vulnerability in the 84 coastal districts prone to cyclones. NCRMP will assist States/UTs which are prone to cyclones to build capacities for cyclone

risk mitigation, strengthen cyclone preparedness and improve emergency response capacities. National Guidelines have been prepared to help the participating States/UTs in prioritizing, preparing and submitting their proposals for cyclone mitigation investments.

6.8 The NCRMP has the following four components:

- **Component-A:** This is related to the improvement of Cyclone Early Warning System in totality to be implemented by India Meteorological Department (IMD) under its upgradation programme through its own budget. Last-Mile Connectivity, relating to cyclone warning and advisories from district and sub-district levels to community, is proposed to be included as an element of this component. However, elements of this component are still under preparation.
- **Component-B:** This component is related to Risk Mitigation Investments to be implemented by 13 participating coastal States/UTs. It has many sub-components like construction of cyclone shelters, construction of coastal canals and embankments for improved drainage, shelterbelt plantation, plantation/ regeneration of mangroves, construction of missing road links/ bridges, institutional capacity building and hazard reduction studies, improvement of on-shore warning dissemination system, retrofitting of life-line/key/vital installations and awareness generation for cyclone risk mitigation.

- **Component-C:** This component is related to technical assistance for hazard risk management and capacity building to be implemented by all the states/UTs which inter-alia includes strengthening of national and regional training institutions, putting in place the techno-legal regime for cyclone mitigation, commissioning of different studies on risk assessment and cost-benefit analysis of cyclone risk mitigation measures, strengthening of NIDM and ATIs in the project states, development of codes and manuals by Bureau of Indian Standards (BIS), wherever needed, and need-based studies related to storm surge modeling, etc.
- **Component-D:** This component is related to project management and monitoring of the entire system. Under this component, project management and monitoring units will be established in implementing states/UTs. High level State Steering Committees will be constituted in each implementing state/UT for screening the Investment proposals and monitoring the implementation status. NDMA will manage the project. A National Steering Committee is in place to screen the project at national level and to provide guidance for its implementation.

6.9 The total cost of the project is estimated to be about Rs. 2064 crores. The states/UTs have been requested to submit Investment proposals as per the National Guidelines. The completed investment proposals from Andhra Pradesh,

Gujarat, Maharashtra and Orissa have been received.

### National Earthquake Risk Mitigation Project (NERMP)

6.10 The National Earthquake Risk Mitigation Project (NERMP) aims to address the critical gaps in the management of earthquake-related risks. The NERMP aims to achieve the following objectives:

- Capacity building of various stakeholder groups like engineers, architects, faculty members of engineering colleges, site supervisors, contractors, lead masons and masons etc;
- Creation of public awareness on earthquake risk and vulnerability, techno-legal regime, building safety etc;
- Creating an enabling techno-legal regime and its enforcement and compliance by different Ministries of Gol and State Governments;
- Institutional strengthening and Research and Development (R&D);
- Retrofitting of lifeline structures starting with district hospitals in 229 high risk districts in seismic zones IV and V for demonstrative effect;
- Setting up a National Institute for Earthquake Management to work as a nodal institute for R&D, capacity building, consulting and technical support to State Governments and Urban Local Bodies etc.; and
- Project management support.

6.11 The proposed NERMP would involve an outlay of over Rs.616.62 crores spread over a five-year period during the 11<sup>th</sup> Five Year Plan. The concept paper of NERMP has been forwarded to the Ministry of Home Affairs, for seeking the "In Principle" approval of the Planning Commission.

#### Other Mitigation Projects

6.12 The work for preparation of mitigation projects for National Disaster Communication Network, National Flood Mitigation Project, National Landslide Mitigation Project and National Reserves for 325,000 people has been initiated, on priority.

# 7

## GEOLOGICAL DISASTERS

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### Management of Earthquakes

7.1 India is extremely vulnerable to devastating earthquakes. Almost 28.2% of the country's land area, covering 229 districts, in Seismic Zones IV and V, is likely to face high to very high intensity earthquakes. In the recent past, India has witnessed several damaging earthquakes. During the last 15 years, the country has experienced a few major earthquakes that claimed more than 23,000 lives.

7.2 Earthquakes of magnitude 6.0 or larger on Richter scale usually result in large number of casualties. Ninety per cent of casualties result directly from the collapse of buildings. Faulty or deficient structural designs, inappropriate construction techniques, poor quality of construction and the nature of building stock also contribute to the increase in seismic risk. Most constructions in India are non-engineered and have very poor earthquake resistance. The level of awareness of earthquake risk prevalent in the country is very low. The earthquake risk can be reduced only if there is better and more widespread understanding of the contributors to the risk. In this direction, NDMA has undertaken the task of developing the policy and guidelines for management of earthquakes through a series of consultations with stakeholders.

7.3 The approach to the management of earthquakes in India envisages the institutionalization of initiatives and activities based on scientific strategies, covering pre-earthquake

components of prevention, mitigation and preparedness and post-earthquake components of emergent and effective response, rehabilitation and recovery.

### Tsunami

7.4 Indian Ocean experienced an earthquake of magnitude 9.3 on the Richter Scale on 26<sup>th</sup> December 2004, which triggered a Tsunami that affected coastal South East Asian Countries such as Indonesia, the Philippines, Thailand, Laos, Vietnam, India, Sri Lanka and even as far as east coast of Africa. In India, approximately 2,260 km of the coastal area was affected, with huge damage to life and property in the UTs of Andaman & Nicobar Islands and Puducherry and in the coastal districts of the States of Andhra Pradesh, Kerala and Tamil Nadu.

7.5 In India, tsunami was considered a low probability event; hence, there were no codal provisions for tsunami warnings in the country. Out of the coastline of 7,516 km, almost 5,770 km is prone to Tsunami and Cyclones. After the Indian Ocean Tsunami of December 26, 2004, it was decided to set up an early warning system to mitigate such potential losses. In the vicinity of India, there are two tsunami-genic zones the Andaman-Sumatra trench and the Makran coast. The project on 'Establishment of National Early Warning System for Tsunami and Storm Surges in the Indian Ocean' was approved by the Gol in October 2005

for implementation at a cost of Rs.125 crores with the Ministry of Earth Sciences as the nodal ministry. The National Early Warning System is targeted to be made operational by September 2007 after necessary testing and simulations. Apart from the Tsunami Early Warning System to be put in place, it is very important to carry out preparedness; mitigation, both structural and non-structural; carry out mass awareness programme targeting scientific community, co-ordinators and operators of warning system and all stakeholders; encourage research in tsunami science and mitigation techniques; development of design criteria; risk and vulnerability assessment and reduction and review and implementation of Coastal Regulation Zone (CRZ) notification.

7.6 In order to take the first step towards the tsunami preparedness and mitigation and to work out effective response and rehabilitation capabilities, NDMA has initiated the process of consultation with the lead stakeholders and experts. In addition to the development of Guidelines, NDMA is closely monitoring the progress of rehabilitation and reconstruction efforts in Andaman & Nicobar Islands in the aftermath of the Great Indian Ocean Tsunami of 26<sup>th</sup> December 2004.

### Landslides

7.7 Landslides are among the major hydro-geological hazards that affect large parts of India, especially the Himalayas, the Northeastern hill ranges, the Western Ghats, the Nilgiris, the Eastern Ghats and the Vindhyas, in that order. In the Himalayas alone, one could find landslides of every fame, name and description – big and small, quick and creeping, ancient and new. Similarly, most of the northeastern region is bristling with landslides of a bewildering variety. Then, there are landslides in the Western Ghats in the South, along the steep

slopes overlooking the Konkan coast; landslides are also very common in the Nilgiris, characterized by a lateritic cap, which is very sensitive to mass movement.

7.8 NDMA constituted, in August 2006, a core group on Landslides Management. Geological Survey of India as the nodal agency assisted NDMA in the preparation of a base paper. Further action, to finalize the National Disaster Management Guidelines on Landslides, is underway.

### Microzonation

7.9 During the last decade or so, several expert groups have been constituted to formulate appropriate methods for microzonation in India. Based on these recommendations, a methodology was worked out in the Indian context and microzonation for a few cities has been attempted. However, due to lack of consensus within the scientific and technical community, results of none of the microzonation studies have been adopted for actual use due to certain technical deficiencies.

7.10 In the light of the above, the Steering Committee on Geo-Physical Hazard constituted by NDMA has set up several working committees of experts for completing the seismic microzonation task for all the vulnerable cities within minimum possible time-frame, after evolving a credible methodology for national acceptance of the seismic microzonation maps in the country. The various inputs to be made available for the microzonation task include, inter alia:

- 'Source Characterization' by considering all active faults and past epicentres of earthquakes in the regions around the cities/towns concerned;



- Development of Probabilistic Seismic Hazard Map (PSHM) of India for appropriate return periods to suit the economic design periods of various structures, which will involve division of Indian land-mass into appropriate grid – size and grouping the country into a few viable Seismic Tectonic Domains and subsequent establishment of the Most Appropriate Attenuation Relations applicable in those domains;
- Detailed geo-technical and geo-physical studies to be adopted for soil characterization, and finally,
- Integration of these inputs for seismic microzonation of Indian land-mass with respect to all the cities/towns belonging to the seismic zones V, IV and III and developed the results for various return periods that would be useful for land-mass planning, planning/execution of mitigation measures (e.g. retrofitting of life-line infrastructure/facilities), conservation of heritage structures, etc.

# 8

## HYDRO-METEOROLOGICAL DISASTERS

### Cyclones

8.1 NDMA initiated the process for preparing the National Guidelines for the Management of Cyclones through a National workshop on "Cyclone Risk Mitigation and Management" jointly organised by NDMA and Gujarat State Disaster Management Authority (GSDMA) on 20<sup>th</sup> and 21<sup>st</sup> April 2006 at Ahmedabad. The two-day workshop identified the critical gaps in the management of cyclone, explored possible cyclone risk mitigation strategies and analysed best management practices and lessons learnt at the national and state levels. This National workshop was attended by 165 participants including officials from various Ministries of GoI, State Governments, academics, scientific institutions, NGOs etc. The participants provided exhaustive feedback on cyclone preparedness, mitigation and response capacities.

8.2 The workshop was designed to evolve National Disaster Management Guidelines for Management of Cyclones by:

- Assessing present status of cyclone risk mitigation and preparedness;
- Identifying gaps and overlaps;
- Setting targets state-of-the-art and highest standards in terms of quality and quantity; and
- Identifying tasks and agencies in respect of all facets of Cyclone Disaster Management.

8.3 Following the identification of task and agencies, it was decided to constitute a core group to hold detailed consultation with all stakeholders on all aspects of cyclone disaster management and assist NDMA in the preparation of Guidelines on Management of Cyclones. The first meeting of the core group was held on 24<sup>th</sup> May, 2006 at NDMA to deliberate exhaustively on all aspects of Cyclone Disaster Management including Cyclone Monitoring and Early Warning Systems, communication and dissemination, response, structural measures for preparedness and mitigation measures for coastal zone management and capacity development. Five sub-groups were set up to focus on all these aspects. Several meetings of all the sub-groups have been held. Besides this, field visits to Andhra Pradesh, Maharashtra, Orissa and Tamil Nadu were also undertaken for feedback from state, district and sub-district levels. Interactions were also held with academic, scientific and technological Institutions and eminent experts. Each of the sub-groups met several times to deliberate upon and to finalise their views/recommendations.

### Floods

8.4 Floods are the most frequent natural calamities faced by India almost every year in varying magnitudes. Most of the rainfall in India (75%) takes place between June to September (4 months) and normal annual rainfall varies from about 100 mm in some parts of Rajasthan to over 10,000 mm in parts of Meghalaya.

8.5 North Bihar, Eastern Uttar Pradesh, Assam and West Bengal are the most chronically flood affected parts of the country. Orissa and Andhra Pradesh also face floods mainly due to drainage congestion in the deltaic regions and excessive run-off from unprecedented rains. Floods in Eastern U.P. and North Bihar located on left bank of the river Ganga is caused by rivers flowing from Nepal. Floods in Assam are caused mainly due to narrowness of the valley, high rainfall in the catchments, unstable steep slopes, long monsoon period etc.

8.6 NDMA constituted a core group, in June 2006, for the preparation of Guidelines on the Management of Floods. Since its inception, several meetings of the core group and two follow-up meetings with expanded groups have been held. The National DM Guidelines on Management of Floods are under finalization.

### Control of River Erosion

8.7 Several villages in many riverine States like Assam and West Bengal have been facing severe river erosion in the recent past. Experts have recommended the following measures to be implemented on priority in locations prone to river erosion:

- The erosion of land due to sea/river water should be minimized;
- Indiscriminate occupation and exploitation of coastal strips to be discouraged, besides regulation of economic activities near them; and
- Each coastal State to prepare a comprehensive coastal land management plan, though absolute flood control and protection to all flood prone areas for all magnitudes of floods is not possible.

# 9

## MAN-MADE DISASTERS

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### Chemical Disasters

9.1 India has an advanced commercial chemical industry and produces bulk of its own chemicals for its domestic consumption. The chemical industry is a crucial component of the ongoing remarkable and spectacular industrial growth in India. The increased production, storage and use of hazardous chemicals (hazchem), is associated with commensurate escalation of threats of major accidents. The handling of large quantities of hazchem including spills and accidents in industries, installations, isolated storages, and during transportation of dangerous goods (road, rail, air & pipelines); leakages of chemicals, sudden release of copious quantities of toxicants, marine spills resulting in large-scale oil/ chemical leaks etc. pose grave risks by adverse impact on the communities, flora/ fauna and the environment. The rapid industrialization is further increasing the risk of occurrence of chemical accidents. India has faced one of the worst chemical accidents, i.e., Bhopal Gas Tragedy of 1984 that have accounted for more than 15,000 deaths till date.

9.2 Chemical releases can be unintentional, as in the case of an industrial accident, or intentional, as in the case of a sabotage activity or terrorist attack. In chemical terrorism attacks, chemicals are used simultaneously with explosives and other dangerous materials for spreading panic and terror. It is rather important to view this issue more critically and with the new vision of prevention, preparedness and mitigation. In view of the above, National

Authority took several initiatives to formulate National Guidelines on Chemical (Industrial) Disasters and Chemical (Terrorism) Disasters in a consultative and participatory manner.

### National Workshop on Chemical (Industrial) Disaster Management

9.3 A National workshop on Chemical (Industrial) Disaster Management was held at NDMA on 17<sup>th</sup> February 2006 to take stock of the existing institutional mechanisms and identify salient gaps. Representatives from concerned ministries, stakeholders and experts from the field of chemical DM participated in the deliberations. During the workshop, the priority areas for prevention, mitigation and preparedness of chemical disasters were identified and an outline of comprehensive guidelines to assist in the preparation of plans by ministry/states was worked out. It was decided that issues of Chemical (Terrorism) Disasters should be addressed separately. A core group of experts and a steering group were constituted for the same.

### Deliberations of the core group

9.4 Several meetings of the core group were held to formulate the draft guidelines in consultation with ministries concerned, regulatory bodies and industries to evolve a consensus on the issues involved. After these meetings, the steering group met on 18<sup>th</sup> May 2006 and deliberated on the salient gaps identified by the Core Group.



Training workshop on Chemical Disaster Management

### Deliberations during workshop and meeting of steering group

9.5 Inputs were also obtained by participating in a workshop on Disaster Management organised by National Safety Council, at Mumbai on 6<sup>th</sup> April 2006, and FICCI Training workshop on Chemical Disaster Management held on 25<sup>th</sup> April 2006 in New Delhi.

### Deliberations with the extended group

9.6 The various recommendations from the steering group were further discussed during the core group meetings. As a result, an initial draft was prepared that was presented to more than 150 experts from Major Accident Hazard (MAH) units and regulatory bodies during the two-day workshop organized on 7<sup>th</sup> and 8<sup>th</sup> September 2006 at Bhopal in collaboration with Disaster Management Institute, Bhopal. Based on the comments received from the experts, the guidelines were further modified by the core group on 23<sup>rd</sup> to 25<sup>th</sup> November 2006. The final draft thus prepared was sent to the ministries concerned for their valuable feedback.

### Testing of Emergency Plans using Mock Drills

9.7 Various mock drills for testing the On-Site and Off-Site Emergency plans for chemical disaster management were conducted at different locations in the country. The lessons learnt at the ground

level during these drills were also incorporated in the final draft of the Guidelines.

### Deliberations within NDMA and finalization of draft guidelines

9.8 The comments received from various ministries were duly addressed in consultation with the Ministry of Environment and Forests and the final draft was prepared and presented to NDMA by Lt. Gen. (Dr.) J. R. Bhardwaj, (Retd.), Member, NDMA and Chairman of the core group on 25<sup>th</sup> January 2007. The recommendations received from the Members of NDMA were also incorporated and by the end of March, 2007, the final draft was ready and sent to Chairman, NDMA.

### Biological & Chemical (Terrorism) Disaster Management

9.9 The issue of chemical and biological disaster was deliberated during a 'National Workshop on Biological & Chemical Disasters' held on 22<sup>nd</sup> and 23<sup>rd</sup> February 2007 at NDMA, which was attended by 100 stakeholders.

9.10 Consequent to this workshop, the national core groups for drafting Chemical (terrorism) disaster management guidelines and Biological disaster management guidelines were constituted separately. The biological disaster management core group met on 23<sup>rd</sup> March 2007 whereas the chemical (terrorism) core group met on 26<sup>th</sup> March

2007 and reviewed the present status in the country and arrived at a consensus on the format and layout of the guidelines. Action is in hand for formulation of National guidelines on Biological and Chemical (Terrorism) Disasters.

### Nuclear Disaster Management

9.11 A detailed and comprehensive study was made for radiological protection of certain sensitive areas. After visiting the sites, every aspect was taken into consideration (like possible CBRN attack and the possibilities of attack from outside/ inside

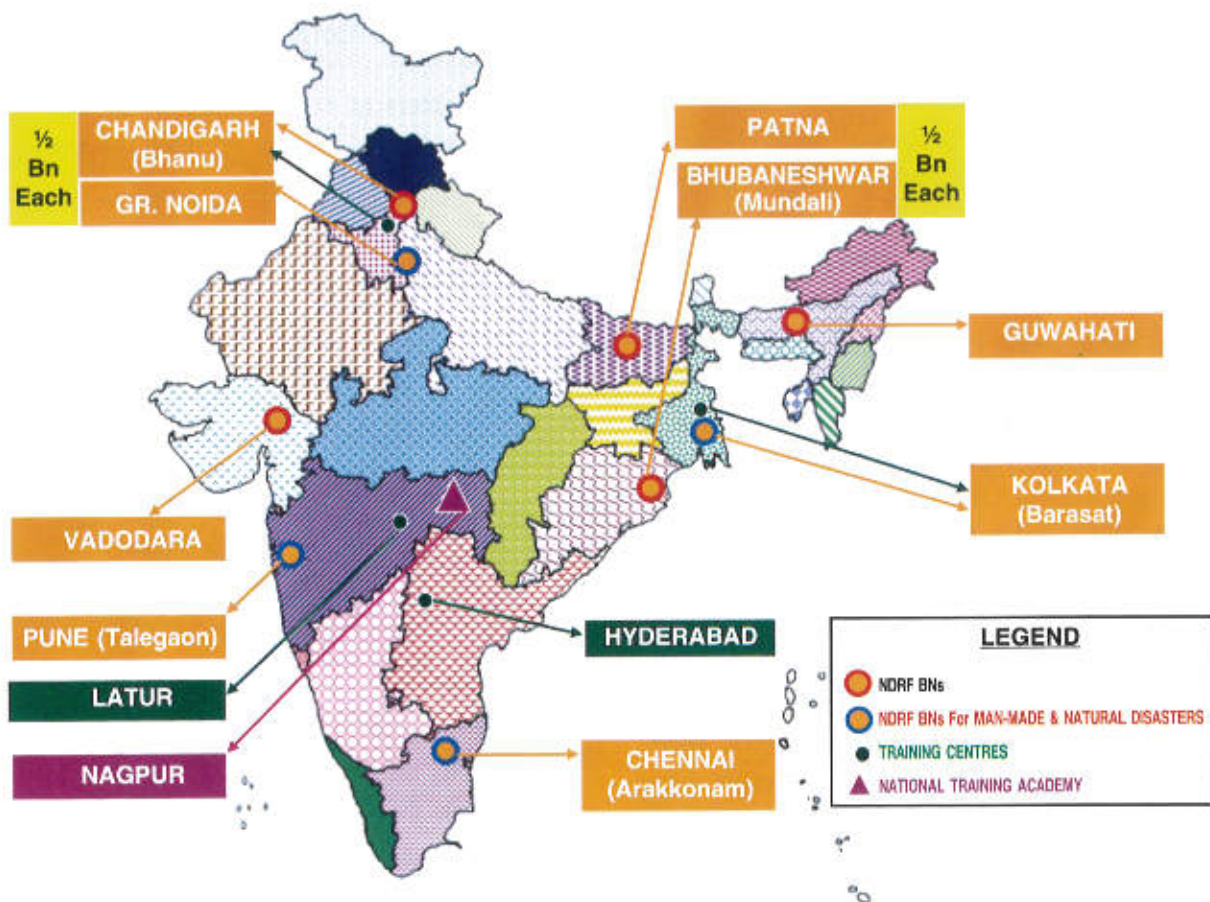
the area). A report has been submitted containing details of the pilot project and response actions proposed for the safety of the occupants in the area. Text and campaign materials for awareness generation on Nuclear and Radiological Emergencies in the country have been prepared. It would be implemented by regular campaigns at school, college as well as university levels. Guidelines for management of Nuclear and Radiological Emergencies (unclassified) is in the final stage of preparation and will be issued after due consultations with all the stakeholders.

# 10

## STRENGTHENING EMERGENCY RESPONSE

10.1 The National Disaster Response Force (NDRF), constituted under the provisions of Sections 44 and 45 of the DM Act, 2005, began to take shape as a 'Specialist Force' and set out to a planned road-map towards its operationalization during this period. All the NDRF battalions presently located at Guwahati, Kolkata, Mundali

(Bhubaneshwar), Arakonam (Near Chennai), Pune, Gandhinagar (proposed to be moved to Vadodara) and Chandigarh have been assigned areas of responsibility. Another NDRF Battalion at Greater Noida sanctioned by the Government will also be available after the recruitment and basic training of their men are completed by ITBP.



Map showing the location of NDRF Bns

## Infrastructure

10.2 Out of 8 NDRF Battalions sanctioned by the Government, land was already available at three locations, i.e., Arakonam (Chennai), Mundali (Bhubaneswar) and Greater Noida. For the remaining locations, NDMA impressed upon the Chief Ministers and other officials of the respective State Governments for allotment of suitable land for the NDRF Battalions and was able to get land allotted at two places, i.e., Guwahati and Vadodara. Suitable lands have already been identified at Kolkata and Pune and allotment of the same is likely to materialize shortly.

## Manpower

10.3 The NDRF battalions are authorized a strength of 1158 personnel each including 145 technical and medical personnel. At the beginning of the year, the overall availability of manpower in the NDRF Battalions was roughly around 45% only. The issue of enhancement of manpower availability in NDRF battalions was taken up by NDMA in the presentation before Hon'ble Home Minister on 23<sup>rd</sup> June 2006, in the meeting of all the Director Generals on 23<sup>rd</sup> July 2006 and at the NDRF workshop at Pune on 26<sup>th</sup> December 2006. These efforts led to a marked improvement in the manpower situation in these NDRF Battalions and now the total availability of manpower in NDRF Battalions has gone up to 78%.

10.4 Besides, in order to address the problem of availability of technical manpower in the NDRF battalions, Ministry of Home Affairs constituted a committee on 20<sup>th</sup> March 2007 under the Chairmanship of Additional Secretary, NDMA to resolve the issues pertaining to appointment and recruitment of technical staff, doctors and paramedics for NDRF battalions. The committee has already sent its recommendations to the MHA.

## Training

10.5 During the year, NDMA organized the training of 54 master trainers in Nuclear, Biological and Chemical (NBC) emergencies at College of Military Engineering (CME) Pune and Defence Research and Development Establishment (DRDE) Gwalior in association with Bhabha Atomic Research Centre (BARC) Mumbai. It also organized water rescue training for over 500 personnel of NDRF from Life Saving Society and Sea Explorer Institute, Kolkata.

10.6 NDMA also finalized the details of heli slithering training of over 1,260 personnel of NDRF with the help of Ministry of Defence to be conducted during September 2007 to March 2008. Besides, 4,207 personnel of NDRF had been trained in Natural Disasters at different training centres of Central Para Military Forces (CPMFs) till March, 2007.

## Development of Training Infrastructure

10.7 NDMA constituted a committee under the Chairmanship of Shri Kamal Kumar, Consultant supported by the core group of officers of respective CPMFs to prepare detailed plan for creation/upgradation of the DM training centres, i.e., DMI CRPF Latur, NISA CISF Hyderabad, National Institute of Training for Search, Rescue and Disaster Response ITBP Bhanu, Chandigarh and BSF Training Centre, Tekanpur.

## Foreign Courses /Exercises

10.8 NDMA arranged the following foreign courses/exercises for the NDRF personnel during the year:

- International Search and Rescue Advisory Group (INSARAG) Asia



Pacific Earthquake Response Exercise in China, in August 2006, in which 5 personnel of NDRF participated.

- United Nations Disaster Assessment and Co-ordination (UNDAC) Asia Pacific Induction Course at Korea in September 2006, in which 2 personnel of NDRF and 1 of Fire Services, Mumbai participated.
- Chemical/ Biological Emergency Course at Finland in September 2006, in which 2 personnel of NDRF participated.

### Disaster Response, Community Preparedness and Public Awareness Programme

10.9 NDRF continued to re-organise, train and equip themselves during 2006-07 at their respective earmarked locations under the supervision of NDMA to prepare itself as a 'Specialist Response Force' of international standards to meet the challenges of any threatening disaster situation or disaster. The NDRF personnel also remained actively associated with community capacity building and public awareness programmes including the training of vulnerable people and officials at different levels in the areas with high vulnerability. Simultaneously, NDRF personnel also familiarized themselves with topography, demography and disaster risk and vulnerability in their assigned areas of responsibility. The NDRF Battalions actively responded to floods in Gujarat in August 2006 and in Orissa in September 2006.

### Equipment

10.10 The Original MHA sanction dated January 19, 2006 had authorized 334 equipments costing

Rs. 281.38 crores for NDRF battalions. At the behest of the NDMA, a committee of technical experts reviewed this list and removed some of the repetitive and redundant items from the list, thus bringing down the number of items to 310 costing Rs. 188.42 crores. The resultant saving of Rs. 92.96 crores is proposed to be utilized for purchase of additional equipments for which list is being prepared.

10.11 NDMA constituted a committee with representatives of all the CPMFs and MHA as the members to finalize the mechanism of procurement of these equipments. The committee in its report dated 17<sup>th</sup> August 2006 made the recommendations assigning the responsibility of procurement of:

- 198 low value equipments to respective Director Generals;
- 70 high value equipments for centralized procurement by Central Para Military Forces (CPMFs); and
- 42 NBC/ Ordnance Factory equipments to MHA (Later to CPMFs).

10.12 The committee also suggested a procedure for the above procurement which was subsequently approved by MHA and fresh orders were issued for this procurement with the committee's suggested procedure. As a result, the CPMFs have purchased over 150 low value items and the remaining items being procured at the Central level will start arriving by March 2008.

### NDRF Workshop at Pune

10.13 As a follow up of the earlier NDMA presentation on NDRF before Hon'ble Union Home Minister on 23<sup>rd</sup> June 2006, a two-day workshop of NDRF officers was held on 26<sup>th</sup> and 27<sup>th</sup> December 2006 at NDRF Battalion of the CRPF in Talegaon,

Pune. Vice Chairman Shri K. M. Singh, Member, NDMA, the Director Generals of CPMFs, officers dealing with the NDRF and heads of Disaster Management Training Institutes of CPMFs participated. The workshop focussed on a wide range of issues having direct bearing on early operationalization of NDRF. The Hon'ble Union Home Minister Shri Shivraj V. Patil, in his inaugural address mentioned –

"My vision for the NDRF is to create a world class, multi-skilled Force with the state-of-the-art equipment and high technology force multipliers to provide a specialized response to both natural and man-made disasters. I also see this Force getting actively associated in the pre-disaster phase for the training of the State Disaster Response Forces, State Police and other stakeholders. In fact, NDRF battalions will form the nucleus around which the States will build their entire Disaster Management structure for capacity development. To realize this objective,

we have to accelerate the process for equipping and training of this Force in a time-bound manner with due alacrity and commitment. As far as training is concerned, we are putting in place a multi-tiered infrastructure at the Unit, Force and National levels. Blueprint for a National Training Institute, which will be established at Nagpur, is under preparation. It would be a Centre of Excellence with world-class infrastructure."

#### INSARAG-USAR Team leaders Meeting

10.14 On behalf of United Nations Office for the Co-ordination of Humanitarian Affairs (UN OCHA), Annual USAR Team Leaders Meeting was organized by NDMA in Delhi from 13<sup>th</sup> to 15<sup>th</sup> March 2007 at USI auditorium, New Delhi. 65 foreign and 15 Indian delegates attended this meeting and deliberated on various technical issues related to urban search and rescue in collapsed structure caused by earthquakes or man-made disasters.

# 11

## IMPROVING RECONSTRUCTION AND POST-DISASTER RECOVERY

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### Coordination of the Post-Tsunami Reconstruction efforts in Andaman and Nicobar Islands

11.1 During 25<sup>th</sup> to 27<sup>th</sup> April, 2006 Gen. N. C. Vij, Vice Chairman, NDMA led the visit of the inter-ministerial team to the Andaman & Nicobar Islands to review the progress of the reconstruction work and to chalk out strategies for fast tracking the construction of permanent houses in these Islands. On 15<sup>th</sup> May, 2006, a meeting was held with the Hon'ble Union Home Minister to discuss the progress of these reconstruction efforts.

11.2 On 19<sup>th</sup> September, 2006, Vice Chairman, NDMA chaired a video-conference with the Andaman & Nicobar Administration along with officers from various concerned Ministries/ Departments of GoI to review the progress of construction of permanent houses in the Andaman & Nicobar Islands.

11.3 During 4<sup>th</sup> to 6<sup>th</sup> January, 2007, Vice Chairman again led an Inter Ministerial team to Andaman & Nicobar Islands to review the progress of construction of permanent houses in various tsunami affected Islands. In this review meeting, milestones were fixed for the progress of various activities related to the reconstruction efforts in Ports, Jetties and Harbours, the North South Road and East West road, strengthening of the telecommunication networks and the construction of permanent houses in the Andaman and Nicobar Islands.

### Minimum Standards of Relief

11.4 As mandated by the DM Act 2005, NDMA has to recommend guidelines for the minimum standards of relief to be provided to the persons affected by disasters. The preparatory work for reviewing the current provisions of relief to the people affected by disasters has been initiated by NDMA.

# 12

## CROSS-CUTTING THEMES

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### Training and Mock Exercises

12.1 To facilitate the State Governments in reviewing the adequacy and efficacy of the State and selected District/s Disaster Management Plans and to identify gaps in resources and systems, NDMA, in co-ordination with the vulnerable States, has embarked on conducting Mock Exercises on various types of natural and man-made disasters. This will also help in inculcating a culture of preparedness.

12.2 The Mock exercises are being conducted in a systematic step-by-step approach as follows:

**Step 1.** Co-ordination and Orientation Conference to sensitize the various stakeholders and delineate their roles and responsibilities during the Table-Top and Mock Exercises.

**Step 2.** Conduct Table-Top Exercise. The key stakeholders present their response plans, thereafter the scenarios are projected at various levels from preparedness to early warning to rescue and relief phases and response of the stakeholders is sought.

**Step 3.** Actual conduct of the Mock Exercise takes place by mobilization of the resources according to developing situations. The situations are conceptualized to derive certain lessons and find gaps if any, in the resources/systems.

12.3 The implementation of the above initiative by the NDMA started in September 2006. Upto 31<sup>st</sup> March, 2008, 23 Mock Exercises, covering 21 States, have been planned. The following Mock Exercises have been conducted till March, 2007:

- Mock Exercise on Chemical Disaster involving two MAH units namely M/s. Hindustan Petroleum Corporation Limited (HPCL), a LPG Bottling Plant and M/s. Arikav Fab (Pvt.) Ltd., a chemical handling unit, in Greater Noida Industrial Complex, Noida, Uttar Pradesh was conducted on 6<sup>th</sup> October, 2006.
- A Mock Exercise on fire in a high rise building (City Centre Mall) and chemical leak in a lorry carrying LPG cylinders was organised in Gurgaon on 1<sup>st</sup> December, 2006.
- Mock Exercise involving three MAH units, namely M/s. Bharat Petroleum Corporation Limited (BPCL), a LPG refilling Plant, M/s. Pratibha Syntex Ltd. and M/s. AVTEC Ltd., in Pithampur Industrial Complex, Dhar District, MP was conducted on 12<sup>th</sup> March, 2007.



Mock Exercise on Fire in Gurgaon (Haryana)

Mock Exercise on Chemical (Industrial) Disaster in Pitampur (MP)

### Mock Exercise on Earthquakes

12.4 A co-ordinating conference on Earthquake preparedness was held on 17<sup>th</sup> and 18<sup>th</sup> November 2006 at Dehradun in co-ordination with the Department of DM, government of Uttarakhand. This co-ordinating conference was attended by Shri M. Shashidhar Reddy and Prof. N. Vinod Chandra Menon, Members of NDMA. On 20<sup>th</sup> November 2006 a coordinating conference on Earthquake preparedness, chaired by Prof. N. Vinod Chandra Menon, Member, NDMA, was held at Shimla to review the earthquake preparedness.

### Techno-Financial Regime: National Disaster Response and Mitigation Funds

12.5 The DM Act, 2005 enables the Central Government to constitute a Fund to be called the National Disaster Mitigation Fund for projects exclusively for the purpose of mitigation.

12.6 In its third report on Crisis Management, the Second Administrative Reforms Commission (ARC) recommended an initial annual contribution of Rs 5,000 crores each from the GoI, in addition to the Calamity Relief Fund (CRF) and National Calamity Contingency Fund (NCCF), which may cease to exist

at the end of the award period of the Twelfth Finance Commission. The matter is under examination.

12.7 The Act also provides for the constitution of a National Disaster Response Fund. Creation of such funds has been envisaged at the State and District levels.

### Working group on Disaster Management

12.8 A Working Group (WG) on DM was constituted for the XI Plan period (2007-2012), by the Planning Commission with Dr. Mohan Kanda, Member NDMA as the Chairman and Joint Secretary, NDMA as convener. The working group submitted its report on 10<sup>th</sup> January 2007. The recommendations of the WG emphasize the mainstreaming of DM concerns into the overall developmental efforts and measures to fund mitigation projects:

- In the first part, specific actions have been outlined that need to be taken by the various Central Ministries/ Departments and State Governments to address these concerns.
- The second part, gives the guidelines

for taking up projects and programmes on DM. The WG has also recommended a list of programmes/schemes that need to be taken up in the 11<sup>th</sup> Five Year Plan.

- The third part brings out the importance of earmarking plan funds for projects that will add to the DM efforts.

12.9 For the financial year 2007-08, Planning Commission has allocated Rs. 50 Crores for the preparation of DPRs on different disasters for various mitigation projects and measures undertaken by NDMA or being planned by other agencies during the XI plan period.

### Involvement of Science & Technology Community in DM Work

12.10 In order to co-ordinate the research efforts of Science & Technology Institutions in the country in the specific fields of disaster management, two steering committees have been set up, one each on, Earthquake, Landslides and Tsunami and the other on Tropical Cyclones and Floods. The steering committees have started their deliberations.

12.11 A National workshop was organized on involvement of science and technology community in DM in the field of hydro-meteorological hazards on 2<sup>nd</sup> and 3<sup>rd</sup> February, 2007. In their deliberations on 21<sup>st</sup> March 2007, the steering committee decided to establish the following:

- Preparation of upgraded hazard maps for Cyclones and Floods hazards.
- Vulnerability and Risk Analysis in appropriate scale for cyclones and floods hazards.

- Improved forecast techniques for Intensity and Tracking of cyclones.
- Development of GIS-based Decision Support System (DSS) for cyclones and floods hazards for the use of various stakeholders.

### Micro-Finance

12.12 In an effort to acquaint with the linkages between Microfinance and Disaster Management, NDMA invited Shri S. H. Khan, CGM & Principal, College of Agricultural Banking, RBI, Pune to make a presentation on this subject, on May 23, 2006 to the Vice Chairman and Members of NDMA.

12.13 As a follow up, a preliminary meeting on Micro-Finance and Disaster Management was held on 3<sup>rd</sup> August 2006 at NDMA under the Chairmanship of Shri M Shashidhar Reddy, Member NDMA. Representatives from RBI, leading Micro Finance Institutions such as SKS Micro-Finance, Basix and Cashpor attended the said meeting. The meeting decided *inter alia* to organize a national workshop on micro finance and disaster management for further feedback. Accordingly, a National Workshop was convened on the subject at NDMA, New Delhi on 4<sup>th</sup> September 2006 with a view to ensuring better preparedness to face the consequences of disasters. The Workshop recommended the formation of a Core Group to deal with the thematic and sectoral issues of micro-finance in disaster management.

### Insurance and Risk Transfer

12.14 Dr. K. C. Mishra, Director, National Insurance Academy, Pune made a presentation on the Present Status and Future of Risk Transfer and Re-insurance in India at NDMA on 16<sup>th</sup> May, 2006.

12.15 A preliminary meeting on Insurance and Disaster Management was held on 29<sup>th</sup> September 2006 at Mumbai under the chairmanship of Shri M. Shashidhar Reddy, Member NDMA along with Prof. N. Vinod Chandra Menon, Member NDMA. The formation of subject specific sub-groups has been identified on the basis of themes and the co-ordinators/experts have been identified for further programmes. A decision was also taken to organize a National Workshop on 24<sup>th</sup> November 2006.

12.16 A National Workshop on Insurance and Disaster Management was organized under the Chairmanship of Shri M Shashidhar Reddy, Member NDMA at National Insurance Academy, Pune on 24<sup>th</sup> November 2006. Prof. N. Vinod Chandra Menon, Shri. B. Bhattacharjee Members, NDMA also addressed the Workshop.

### Psycho-Social Support and Mental Health Services (PSSMHS)

12.17 Medical Preparedness for effective disaster management has a number of aspects that were not paid much attention in the past. One of the most important aspects is the provision of psycho-social support and mental health services (PSSMHS) to the survivors of the natural and man-made disasters. The National Mental Health Programme (NMHP) for India was initiated in 1982. The re-strategized District Mental Health Programme (DMHP) has already been implemented in 94

districts. Urban Mental Health Programme (UMHP) is a new addition in this programme. Activities under PSSMHS range from the provision of emotional first-aid and special attention to guilt-syndrome, depression and post-traumatic syndromes among disaster effected communities. A large number of cases of Post-Traumatic Stress Disorders (PTSD) were reported in the aftermath of the Indian Ocean Tsunami in December 2004. Further, the issues of care of carers and long-term management of survivors also need special attention. The integration of these concerns in the preparedness for rehabilitation and recovery activities to be performed in the aftermath of disasters is a serious challenge.

### Constitution of Steering Group on PSSMHS

12.18 In recognition of the above concerns, NDMA decided to focus on this particular sector during the deliberations of the core group on medical preparedness and mass casualty management. It was then decided to formulate a separate set of Guidelines on 'Psycho-social Support and Mental Health Services'. Accordingly, a steering group of eminent persons drawn from the field of Psychiatry, Clinical Psychology and Psychiatric Social Work from the major mental health and disaster management institutions in the country, administrators, NGOs representatives, funding agencies and UN Agencies was constituted.

# Annexure I

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## Composition of the NDMA

1. Dr. Manmohan Singh Prime Minister of India	Chairperson
2. Gen. N. C. Vij, PVSM, UYSM, AVSM (Retd.)	Vice-Chairperson
3. Lt. Gen. (Dr.) J. R. Bhardwaj, PVSM, AVSM, VSM, PHS (Retd.)	Member
4. Shri B. Bhattacharjee	Member
5. Dr. Mohan Kanda	Member
6. Prof. N. Vinod Chandra Menon	Member
7. Smt. P. Jyoti Rao	Member
8. Shri M. Shashidhar Reddy	Member
9. Shri K. M. Singh	Member
10. Shri J. K. Sinha	Member



## Annexure II

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### List of Senior Officers of the NDMA

1. Dr. P. K. Mishra, Secretary (Upto 30-11-2006)
2. Shri H. S. Brahma, Additional Secretary (Since 01-12-2006)
3. Smt. Dipali Khanna, Financial Advisor
4. Shri J. B. Sinha, Joint Secretary
5. Shri A. R. Sule, Deputy Secretary
6. Shri J. S. Sehwat, Under Secretary (Upto 14-11-2006)
7. Shri R. K. Chopra, Under Secretary (Since 14-11-2006)