



**GOVERNMENT OF INDIA  
PLANNING COMMISSION**

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**REPORT OF THE  
WORKING GROUP ON**

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**DISASTER MANAGEMENT**

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**FOR THE  
ELEVENTH FIVE YEAR PLAN  
(2007-2012)**

**DECEMBER, 2006**

# CONTENTS

**Preface** (i) - (iv)

## CHAPTERS

<b>1. Introduction: Context and Background</b>	1-2
<b>2. Disaster Management: Present Status</b>	3-8
Tenth Plan Formulations	3-5
Status of Implementation	6-8
<b>3. Concept of Disaster Management: New Orientation</b>	9-14
National, State and District Plans	9-11
Existing Mitigation Schemes of Central Ministries and Departments	11
Plan Schemes of MHA on Disaster Management	12-13
GOI-UNDP Disaster Risk Reduction Programme	13-14
Other New Plan Schemes	14
<b>4. Disaster Mitigation Fund</b>	15-18
<b>5. Disaster Management: Issues and Concerns</b>	19-26
<b>6. Recommendations</b>	27-47
Part-I [Term of Reference (a)]	27-40
Part-II [Term of Reference (b)]	40-45
Part-III [Term of Reference (c)]	45-47
<b>ANNEXURE-I</b> : Planning Commission's Order No.M-12016/1/2006-SP-Co. dated the 24 <sup>th</sup> August, 2006, reg. Constitution of the Working Group on Disaster Management.	48-50
<b>ANNEXURE-II</b> : Planning Commission's Order No.M-12016/1/2006-SP-Co. dated the 9 <sup>th</sup> October, 2006, reg. Working Group on Disaster Management.	51-52

<b>ANNEXURE-III</b>	<b>:</b>	Planning Commission's Order No.M-12016/1/2006-SP-Co. dated the 8 <sup>th</sup> November, 2006, reg. Working Group on Disaster Management.	53
<b>ANNEXURE-IV</b>	<b>:</b>	Projects/Programmes/Schemes to be undertaken by the NDMA for implementation.	54-69
<b>ANNEXURE-V</b>	<b>:</b>	Projects/Programmes/Schemes to be undertaken by the Central Ministries/Departments.	70-74

## PREFACE

The Planning Commission, Government of India, vide their Order No.M-12016/1/2006-SP-Co. dated the 24<sup>th</sup> August, 2006, constituted a Working Group on "Disaster Management", as a part of the formulation of the Eleventh Five Year Plan (2007-2012). The Terms of Reference (TOR), inter alia, included (i) examining the manner in which measures for disaster mitigation, preparedness and capacity building should be enhanced and integrated into the development plans of the Centre and the States; (ii) drawing up guidelines that need to be followed by the Planning Commission while according approval to programmes and projects, so as to ensure integration of disaster management principles in planning and plan implementation; and (iii) developing guidelines for ensuring that appropriate financial provisions for disaster management are built into the cost estimates.

2. The composition of the Working Group was broad based and included representatives of the concerned Central Ministries/Departments, State Governments and experts from various relevant fields.

3. In the first meeting of the Working Group held on the 18<sup>th</sup> September 2006, the Group deliberated upon the approach to be adopted and decided to form three Sub-Groups to address each of the three terms of reference. The first Sub-Group, headed by Dr P.K.Misra, the then Secretary, NDMA, was required to examine the issues at item (i) above, while the second and third Sub-Groups, both headed by Ms Somi Tandon, Retired Secretary (Def/Fin), were required to formulate guidelines as brought out at (ii) and (iii) above, respectively. The first Sub-Group held two meetings, while the second and third Sub-Groups held two combined meetings, as most of the members were common.

4. In the second meeting of the Working Group held on the 27<sup>th</sup> November, 2006, both the Sub-Groups presented their respective reports. Prior to that, these reports were also e-mailed to all the members of the Working Group for their valuable suggestions/ comments. In this meeting, it was also decided to entrust the task of preparing the final report of the Working Group to Ms Somi Tandon, Retired Secretary (Def/Fin), and the chairperson of the second and third Sub-Groups.

5. During its deliberations and examination of the subject entrusted to it, a fresh look was given by the Working Group to concerns on disaster management as addressed in the Tenth Plan document and results so far achieved. It clearly emerged that while the X<sup>th</sup> Plan gave a number of prescriptions on disaster management, both at the macro level and at the operational level, very little was actually done to address these issues. However, a number of important and significant initiatives on some of the generic and specific prescription were taken outside the framework of the X<sup>th</sup> Plan during the same period. These have been brought out in Chapter 2 of the Report. During the deliberations of the Working Group, it also became clear that at present there was a lack of clarity as to which of the projects/schemes of the various Ministries and Departments would qualify as "mitigation" schemes as per the Disaster Management Act.

6. The Working Group, in its report, has highlighted the fact that the concept of planning for disaster management has received a new orientation with the passage of the Disaster Management Act, 2005. This Act stipulates that a National Plan on Disaster Management shall be prepared in consultation with the State Governments and expert bodies and organizations in the field of disaster management. The Act also stipulates that every Ministry and Department of the Government of India shall make provisions, in its annual plan budgets, for carrying out activities and programmes set out in the disaster management plans.

7. The issues and concerns, as brought out in the report, bring to focus the challenges that will need to be faced in the coming years. The XI<sup>th</sup> Plan's shift from a response-centric approach to focus on mitigation and prevention brings with it an obligation to give impetus to projects and programmes that develop and nurture, both the culture of disaster safety and integration of disaster prevention and mitigation into development processes. It is quite clear that even the best of isolated efforts will not bear fruits unless roles and responsibilities of all stakeholders are clearly spelt out and accountability and sustainability factored in.

8. Recommendations of the Working Group are given in three parts, each part dealing with each of the three terms of reference. It has been emphasized that mainstreaming disaster risk management into the development process essentially means looking critically at each activity that is planned, not only from the perspective of reducing the disaster vulnerability of that activity, but also from the perspective of minimizing that activity's potential contribution to the hazard. In this background, it is essential that every development plan being formulated in the country incorporates elements of impact analysis, risk reduction and the 'do no harm' approach. In the first part of the recommendations, the report has given specific actions that will need to be taken by the various Ministries and Departments.

9. In the second part of the recommendations, the guidelines for taking up projects and programmes on Disaster Management have been given. It has also been brought out that the guidelines prepared at this stage are broad and generic and not disaster or theme specific. Once the National Disaster Management Authority which is in the process of making disaster/theme specific guidelines finalizes these, the same will need to be dovetailed into the set of guidelines now being proposed. The report specifically highlights the fact that conceptualization of hazard scenarios and associated vulnerability and risk assessment in a given situation will necessarily have to depend upon whatever maps and information is available at this point of time.

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10. The third part of the recommendation emphasizes the need to earmark certain portion of the Plan funds for schemes/projects which directly or indirectly add to the efforts of disaster management. It is suggested that 2% of plan funds both of the Central Ministries/Departments as well as of the State Governments are exclusively utilized for this purpose. Once the Disaster Mitigation Fund is created in terms of the Disaster Management Act, funds to the extent catered for in the Disaster Mitigation Fund will be utilized for such schemes. A number of projects/programmes/ schemes that will need to be taken up in the XI<sup>th</sup> Plan have also been recommended by the Working Group.

11. I am thankful to the Members of the Working Group, particularly to those from the States, for their very useful contribution.

12. I would also like to extend my special thanks to Dr. P. K. Mishra, former Secretary, NDMA, (and now Secretary, Department of Agriculture & Cooperation, Ministry of Agriculture) and Ms Somi Tandon, Retired Secretary (Def/Fin), for the outstanding contribution made by them as Chairpersons of the Sub-Groups.

13. I would also like to place on record my sincere appreciation of the efforts of the officers and staff of the Planning Commission for their help, assistance and cooperation in organising the meetings of the Working Groups as well as of the Sub-Groups in the Planning Commission.

**( Mohan Kanda )**  
**Chairman**

..... December, 2006.

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# CHAPTER 1

## INTRODUCTION : CONTEXT AND BACKGROUND

1.1 The Planning Commission, Government of India, vide their Order No. M-12016/1/2006-SP-Co. dated the 24<sup>th</sup> August, 2006, constituted a Working Group on Disaster Management in the context of preparation of the Eleventh Five Year Plan (2007-2012), under the Chairmanship of Dr Mohan Kanda, Member, National Disaster Management Authority (NDMA), Government of India (**Annexure-I**). Subsequently, vide Planning Commission's Orders No.M-12016/1/2006-SP-Co. dated the 9<sup>th</sup> October, 2006, and the 8<sup>th</sup> November, 2006, the Terms of Reference (TOR) of the Working Group were slightly revised and some more members were included in the Working Group (**Annexures-II & III**). The terms of reference, inter alia, included examining the manner in which measures for disaster mitigation, preparedness and capacity building should be enhanced and integrated into the development plans of the Centre and the States. The Group was also entrusted with the responsibility of drawing up guidelines that need to be followed by the Planning Commission while according approval to programmes and projects, so as to ensure integration of disaster management principles in planning and plan implementation and to ensure that appropriate financial provisions for disaster management are built into the cost estimates.

1.2 The Working Group in its first meeting held on the 18<sup>th</sup> September, 2006, deliberated upon the broad approach to be adopted while addressing the terms of reference. The Working Group made minor modifications in the terms of reference and formulated two Sub-Groups to deal with the three issues figuring in the terms of reference. The two Sub-Groups set up are given below: -

**Sub-Group 1:** Dr P.K.Mishra, Secretary, NDMA, Chairperson; Shri J.B. Sinha, Jt. Secretary, NDMA, Convenor; and 15 other Members.

### **Terms of Reference (a)**

'To examine the manner in which measures for disaster mitigation, preparedness and capacity building should be enhanced and integrated into the development plans of the Centre and the States'.

**Sub-Groups 2&3:** Ms Somi Tandon, Retired Secretary (Def/ Fin), Chairperson;  
Ms Dipali Khanna, Financial Advisor, NDMA, Convenor; and  
15 other members.

### **Terms of Reference (b)**

'To draw up guidelines that need to be followed by the Planning Commission while according approval to programmes and projects, so as to ensure integration of disaster management principles in planning and plan implementation'.

### **Terms of Reference (c)**

'To develop guidelines for ensuring that appropriate financial provisions to provide for disaster management are built into the cost estimates of programmes and projects'.

1.3 The two Sub-Groups deliberated on the various issues in their respective Sub-Group meetings and presented their reports in the second meeting of the Working Group held on the 27<sup>th</sup> November, 2006. These two reports were discussed at length and keeping in view the observations and suggestions of the members of the Working Group, the draft report of the Working Group was prepared and circulated to all members. The Report was finalised thereafter.

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## CHAPTER 2

### DISASTER MANAGEMENT : PRESENT STATUS

2.1 For far too long disaster management in India was marginalized as an issue of providing relief and rehabilitation to the people affected by natural calamities. In the Central Government it occupied a place in the Ministry of Agriculture, in the States it was a concern of the Revenue or Relief Departments, while in the districts it was one of the many crisis management functions of the Collectors. There was hardly any attempt to look into the impact of disasters on the economy and development and to examine how at times development itself can lead to disasters as the recent urban floods in various parts of India has demonstrated. The significant issues of disaster risk reduction in the policies and programming of various plan schemes on poverty alleviation, environment, micro-credit, social and economic vulnerabilities, etc., have hardly ever been deliberated in the apex planning body of the country. The country's commitment to mainstream disaster risk reduction into the process of development planning at all levels for sustainable development, as stated in *Hyogo Framework of Action 2005-15: Building the Resilience of Nations and Communities to Disasters* have not been carried forward across sectors for actionable programmes for achieving the desired results.

#### **Tenth Plan Formulations**

2.2 The Tenth Five Year Plan, prepared in the backdrop of Orissa super cyclone, Gujarat earthquake and end of International Decade of Natural Disaster Reduction (IDNDR), for the first time, recognized disaster management as a development issue. The Plan document not only included a separate chapter on Disaster Management, it made a number of important prescriptions to mainstream disaster risk reduction into the process of development.

2.3 The Tenth Plan prescriptions on disaster Management can broadly be divided in three categories: (a) policy guidelines at the macro level that would inform and guide the preparation and implementation of development plans across sectors, (b) operational guidelines of integrating disaster management practices into development, and (c) specific developmental schemes for prevention and mitigation of disasters.

2.4 At the macro level, the Plan emphasized that *"while hazards, both natural or otherwise, are inevitable, the disasters that follow need not be so and the society can be prepared to cope with them effectively whenever they occur"* and called for a *"multi-pronged strategy for total risk management, comprising prevention, preparedness, response and recovery, on the one hand, and for initiating development efforts aimed towards risk reduction and mitigation, on the other"*. It stated that *only then we can look forward to "sustainable development."*

2.5 At the operational level, the Plan made a number of very important prescriptions as given below:

- a) Institutional arrangements for disaster response should be streamlined by an integrated approach involving civilian and military resources, setting up a modern permanent national command centre or operations room with redundant communications and data links to all State capitals, establishing a quick response team particularly for search and rescue operations, developing standard operating system for dealing with humanitarian and relief assistance from non-government sources and formulating a unified legislation for dealing with all types of disasters.
- b) Disaster prevention and preparedness should be built into development planning by introducing a rigorous process of vulnerability analysis and risk assessment, maintaining comprehensive database and resource inventories at all levels, developing state-of-the-art infrastructure for mitigation planning and establishing a Disaster Knowledge Network for the use of disaster managers, decision makers, community, etc.

- c) A nation wide culture of prevention should be developed by introducing disaster management in school curriculum, including relevant aspects of disaster management in professional courses, enhancing the capacity of disaster managers by better training facilities and creating a massive awareness at all levels.
- d) Community level initiatives for disaster preparedness should be encouraged by involving people at the grassroots, particularly those who are more vulnerable, for better preparedness and response.
- e) Appropriate zonal regulations, design standards, building codes and performance specifications should be developed for safe constructions.
- f) All development schemes in vulnerable areas should include a disaster mitigation analysis, whereby the feasibility of a project is assessed with respect to vulnerability of the area.
- g) Disaster mitigation components should be built into all development projects, financed under the Plan, as part of approved project costs.

2.6 Given the pervasive nature of disasters and the widespread havoc caused by some of them, the Tenth Plan felt that *"planned expenditure on disaster mitigation and prevention measures, in addition to the Calamity Relief Fund (CRF), is required"*. The Plan, however, stopped short of recommending any specific plan scheme for prevention, mitigation or preparedness for disasters nor allocated any amount for such scheme, except making a general recommendation as follows:

*"Creation of faculties in disaster management in all 28 states is proposed to be taken up in the Tenth Plan in addition to community mobilization, human resource development, establishment of Control Rooms and forging international cooperation in disaster management. There is also an urgent need for strengthening the disaster management pedagogy by creating disaster management faculties in universities, rural development institutes and other organizations of premier research".*

## Status of Implementation

2.7 The Mid Term Appraisal of the Tenth Five year Plan was silent about the implementation of the Plan prescriptions regarding disaster management probably because the plan schemes and allocations did not have much to offer in this field. However, many significant initiatives were taken during the period for implementation of some of the general and specific prescriptions of the Plan. These are the following:

- a) A Central law on disaster management has been enacted in December, 2005, providing for requisite institutional and coordination mechanism and outlining an integrated approach for undertaking prevention and mitigation measures at the Central, State and District levels.
- b) National Disaster Management Authority under the Chairmanship of Prime Minister has been set up. The Authority has drafted a National Policy on Disaster Management and has taken up preparation of guidelines on prevention, mitigation, response and recovery in regard to various types of disasters such as earthquake, flood, landslide, industrial disaster etc.
- c) The State Governments are in the process of setting up the State Disaster Management and District Disaster Management Authorities. Notifications in this regard have already been issued by a few States.
- d) 8 battalion strong National Disaster Response Force comprising 144 specialized response teams on various types of disasters, including NBC disasters, is being raised.
- e) The Civil Defence set up in the country is being revamped and further strengthened to supplement the local efforts for disaster response and relief. Similarly, the Fire Services are being modernized to convert them into multi hazard response units.

- f) National Institute of Disaster Management has been set up for training, capacity building, research and documentation on various natural and man made disasters. A comprehensive Human Resource Plan for Disaster Management has also been developed.
- g) Disaster Management has been included in the curriculum of Middle and Secondary school education. Disaster Management has also been included in the post-induction and in-service training of civil and police officers. Course curriculum has also been developed for Engineering, Architecture, Medicine and Nursing courses.
- h) A committee of experts has finalized the model building bye laws for town and country planning legislations, land use zonation and development control legislations. The municipalities and city development authorities all over the country have been advised to make necessary changes in their respective bye laws and regulations in accordance with the model laws.
- i) Bureau of Indian Standards has issued new building codes for construction of different types of buildings in different seismic zones in the country. The National Building Code has also been revised taking into consideration the natural hazards and risks of various regions of the country.
- j) Two national programmes to train 10,000 engineers and 10,000 architects on safe construction architectural practices are under implementation.
- k) A community based disaster risk management programme is under implementation with UNDP assistance in 169 multi hazard districts in 17 States and Union Territories. Under this programme disaster management plans are being prepared from village to district; village volunteers are being trained in first-aid, search and rescue, evacuation, relief and shelter management; disaster management teams are being constituted at the district and sub-district levels and mock drills are being conducted at all levels.

- l) A web enabled centralized inventory of resources has been developed to minimize response time in emergencies. Over 84,000 records from 564 districts have been uploaded.
  
- m) Safe construction practices and do's and don'ts for various hazards are being disseminated for creating public awareness.

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## **CHAPTER 3**

### **CONCEPT OF DISASTER MANAGEMENT: NEW ORIENTATION**

#### **National, State and District Plans**

3.1 The concept of disaster management plan at different levels has received a new orientation with the passage of the Disaster Management Act, 2005. Earlier such plans were being prepared at the district level only. Under the GOI-UNDP Disaster Risk Reduction Programme, such plans are being prepared at the village level as well. But all encompassing disaster management plans have never been prepared at the National and the State levels.

3.2 The Disaster Management Act stipulates that a National Plan on Disaster Management shall be prepared in consultation with the State Governments and expert bodies and organizations in the field of disaster management. The National Plan shall include:

- a) measures to be taken for the prevention of disasters, or for the mitigation of their effects;
- b) measures to be taken for the integration of mitigation measures in the development plans;
- c) measures to be taken for preparedness and capacity building to effectively respond to any threatening disaster situation or disaster; and
- d) roles and responsibilities of different Ministries and Departments of the Government of India in respect of measures specified in clauses (a), (b) and (c) above.

3.3 The Act stipulates that every Ministry and Department of the Government of India shall make provisions in its annual budgets for funds for the purpose of carrying out the activities and programmes set out in its disaster management plan.

3.4 At the State level, a State Plan on Disaster Management shall be prepared in consultation with district and local authorities and people's representatives. The State Plan shall include:

- a) the vulnerability of different parts of the State to different forms of disasters;
- b) the measures to be taken for prevention and mitigation of disasters;
- c) the manner in which the mitigation measures shall be integrated with the development plans and projects; and
- d) the roles and responsibilities of each Department of the Government of the State in responding to the measures specified in clauses (a), (b) and (c) above.

3.5 At the District level, a District Plan on Disaster Management shall be prepared in consultation with the local authorities and having regard to the National and the State Plans. The District Plan shall include:

- a) the areas in the district, vulnerable to different forms of disasters;
- b) the measures to be taken for prevention and mitigation of disasters, by the Departments of the Government at the district level and the local authorities in the district;
- c) the capacity building and preparedness measures required to be taken by the Departments of the Government at the district level and the local authorities in the district to respond to any threatening disaster situation or disaster; and
- d) the response plans and procedures, in the event of a disaster, providing for-
  - (i) allocation of responsibilities to the Departments of the Government at the district level and the local authorities in the district;
  - (ii) prompt response to disaster and relief thereof;
  - (iii) procurement of essential resources;

- (iv) establishment of communication links; and
- (v) dissemination of information to the public.

3.6 The statutory provisions regarding preparation of a hierarchy of disaster management plans at the National, State and District levels provide an opportunity to prepare holistic plans on disaster management covering the entire disaster management cycle and integrating the macro level policy issues with micro level issues of implementation. This also provides an opportunity of converging resources available from various sources for disaster risk reduction and management in the country.

3.7 Ideally, it could be most appropriate if a National Plan on Disaster Management was in place at this juncture when the Planning Commission is in the process of preparing the Eleventh Five Year Plan. This could be a basis for projecting demands for revamping various schemes and programmes of different departments on disaster risk reduction and management and for launching new schemes on areas which are not covered by any of the existing schemes. But preparation of such a National Plan may not be completed before the finalization of the Eleventh Five year Plan.

### **Existing Mitigation Schemes of Central Ministries and Departments**

3.8 Neither the Planning Commission nor the Ministry of Home Affairs have a clear picture of the various Plan schemes of different Central Ministries and Departments which would qualify as mitigation schemes as per the Disaster Management Act. Hence a discussion may be called for with concerned Ministries and Departments regarding the status of implementation of the relevant mitigation schemes. The manner in which the schemes may be restructured for better convergence and implementation and for further mainstreaming disaster risk reduction into the process of their implementation during the XI<sup>th</sup> Plan may have to be looked at. Across the board, disaster risk reduction measures can straightway be incorporated into all infrastructure projects and other development programmes involving construction of buildings, etc., such as *Sarva Shiksha Abhiyan, Indira Awas Yojana, Jawaharlal Nehru National Urban Renewal Mission, etc.*

## Plan Schemes of MHA on Disaster Management

3.9 The Ministry of Home Affairs, which is the administrative Ministry in the Government of India on Disaster Management, has only one Plan scheme, namely, the National Disaster Management Programme (NDMP). This Central Sector Scheme was initiated in 1993-94 by the Ministry of Agriculture and Co-operation with the objective of enhancing the capability of disaster managers at all levels to reduce the adverse impact of disasters. The scheme was transferred to the Ministry of Home Affairs in 2002 subsequent to the transfer of the subject of disaster management from the Ministry of Agriculture to the Ministry of Home Affairs. The Eighth Plan allocation under the scheme was Rs 6.30 crore which was increased to Rs. 16.32 crore in the Ninth Plan and to Rs. 30.77 crores under the Tenth Plan. The allocations under various components of the scheme during the Tenth Five Year Plan are as under:

(Rs. in Lakhs)

Sl. No.	Head	2002-03	2003-04	2004-05	2005-06	2006-07	Total
1.	Grants-in-aid	300.00	320.00	476.00	500.00	600.00	2196.00
2.	Professional Services	60.00	94.00	95.00	107.00	150.00	506.00
3.	Machinery & Equipments	6.00	10.00	10.00	10.00	10.00	46.00
4.	Foreign Travel	26.00	40.00	40.00	50.00	50.00	206.00
5.	Contribution	10.00	10.00	10.00	20.00	20.00	70.00
6.	Office Expenses	2.00	2.00	2.00	2.00	2.00	10.00
7.	Advertisement & Publicity	1.00	1.00	1.00	1.00	1.00	5.00
8.	Other Charges	2.00	10.00	6.00	10.00	10.00	38.00
	<b>Total</b>	<b>407.00</b>	<b>487.00</b>	<b>640.00</b>	<b>700.00</b>	<b>843.00</b>	<b>3077.00</b>

3.10 Out of the eight components of the scheme, only two components namely 'Grants-in-Aid' and 'Professional Services' are developmental in nature, while the remaining components are in the nature of revenue expenses. The major activities undertaken under the Grants-in Aid include the setting up of the National Centre for Disaster Management (NCDM) at the Indian Institute of Public Administration, now upgraded as an autonomous statutory organization known as National Institute of Disaster Management (NIDM), creation of 29 disaster management Centres in 28 states, research and consultancy services and documentation of major

disaster events. Under the scheme, a grants-in-aid of Rs. 15.00 lakhs is given to the Disaster Management Centres in the States for payment of salaries to the faculty members. The life of the posts are extended on a year to year basis which does not motivate promising candidates to join and often most of the posts in the States remain vacant. The scheme does not have any provision for programme budget with the result that very few activities are undertaken by the Centres. The meagre allocations under the Grants-in-Aid are not fully utilized in most of the States. The allocation of Rs. 15.96 crores during the first four financial years of the Xth Five Year Plan have mainly been used on NIDM which has incurred an expenditure of Rs. 9.43 crore. But for this expenditure, the performance sheet would have looked even more unimpressive. Surely the entire scheme should be thoroughly revamped and reoriented for the implementation of the National Human Resource Plan on Disaster Management. The HR Plan has been prepared with an estimated budget of Rs.161.56 crores over a period of five years. This should be taken up as a separate Plan scheme for implementation during the XI<sup>th</sup> Five year Plan. Alternatively, this could be made a component of every major Disaster Mitigation Programme.

3.11 Another Plan Scheme under the nomenclature *National Cyclone Risk Mitigation Project with World Bank Assistance* has been introduced in 2006-07, initially to fund preparation of Detailed Project Reports for the project by the State Governments, and subsequently to provide for counterpart funding for the bank loan.

### **GoI-UNDP Disaster Risk Reduction Programme**

3.12 The Ministry of Home Affairs is also implementing Phase II of a Community based Disaster Risk Mitigation Programme with the support of UNDP under a multi-donor programme at a total estimated cost of Rs.153 crores (US\$ 34 million) during the Tenth Plan period (2002-07). This programme is, however, outside the framework of the Plan and is not reflected in the budget of the Ministry. Credited to be the largest community based disaster risk mitigation programme in the world, the programme covers 169 districts in 17 multi-hazard prone States of the country. The Phase I of the programme was implemented in three States of Gujarat, Orissa and Bihar during 2002-06 and has been rated well in a recent evaluation conducted by a team of consultants. While

the general feed back of Phase II of the programme is good, however, to draw the full benefit out of this, there is a definite need to increase the scope to cover other deficient areas too.

3.13 There is now a demand that the programme should be extended to all the States and Union Territories of the country. It is highly unlikely that the UNDP will be able to mobilize adequate donor assistance for continuing the programme beyond 2007. Therefore, the programme should be taken up by the Government as a Plan Scheme covering the entire country. However on the basis of the experiences gained during the implementation of the programme, the design and content should be modified to integrate this with the District Disaster Management Authority and the Panchayati Raj system of the country. The programme should also be made more flexible according to the specific local needs and conditions prevailing in different parts of the country. It is estimated that an amount of Rs 450 crores shall be required for the implementation of Community based Disaster Risk Management Programme throughout the country during the Eleventh Plan period. This scheme will have to be specifically run by the NDMA with close assistance of all stakeholders.

### **Other New Plan Schemes**

3.14 While the different Plan Schemes under various Central Ministries and Departments cover a large area of disaster mitigation, there are still wide gaps which are not covered under any of the existing programmes. One such area is the Cyclone Risk Mitigation which is proposed to be covered under the World Bank assisted National Cyclone Risk Mitigation Project. The XI<sup>th</sup> Plan must provide adequate provision for counterpart funding for the Project. Similarly a National Earthquake Risk Mitigation Project should be taken up, with focus on various structural and non-structural measures for mitigating the risks of earthquakes in different seismic zones of the country, including retrofitting of all life line structures in all urban areas located in seismic zones IV and V of the country. The estimated cost of the Project is Rs.1642 crores, which should also be provided in the XI<sup>th</sup> Plan. The other projects/programmes/schemes recommended are discussed in Part III of Chapter 6.

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## CHAPTER 4

### DISASTER MITIGATION FUND

4.1 The on going deliberations on Eleventh Five Year Plan provide opportunity to conceptualize the composition of Disaster Mitigation Fund at National, State and District levels, as provided in the Disaster Management Act. The Act authorizes the Central Government to constitute a Fund to be called the *National Disaster Mitigation Fund* for projects exclusively for the purpose of mitigation. This Fund shall be established after due appropriation by Parliament by law in this behalf. The Act further directs the State Governments to establish *State Disaster Mitigation Fund* and *District Disaster Mitigation Fund* immediately after the notifications constituting the State and District Authorities are issued. Therefore constitution of the Disaster Mitigation Fund at the State and the District levels are mandatory requirements of law immediately after the State and District Authorities are set up, but the National Disaster Mitigation Fund may come up as and when it is notified by the Central Government.

4.2 The Act defines mitigation to include '*measures aimed at reducing the risk, impact or effects of a disaster or threatening disaster situation*'. Thus, mitigation measures are essentially in the nature of developmental works which are normally funded out of the Plan Budget of the Ministries/Departments of the Government. Therefore, formulation of Eleventh Five Year Plan provides a good opportunity to integrate Disaster Mitigation Fund with the well established planning mechanism of the country.

4.3 As yet there does not seem to be any clear thinking, much less a consensus, on the nature, composition, scope and quantum of Disaster Mitigation Fund that would be established at National, State and District levels. The High Power Committee (HPC) on Disaster Management had recommended that at least 10 per cent of plan funds at the National, State and District levels should be earmarked and apportioned for schemes which would specifically address areas such as prevention, reduction, preparedness and mitigation of disasters. The Eleventh Finance Commission considered the issue at length and concluded that these can not be

funded either out of the *Calamity Relief Fund(CRF)* or *National Calamity Contingency Fund(NCCF)*. The Commission recommended that:

- a) Expenditure on restoration of infrastructure and other capital assets, except those that are intrinsically connected with relief operations and connectivity with the affected area and population, should be met from the plan funds on priority basis.
- b) Medium and long-term measures be devised by the concerned Ministries/Departments of the Government of India, the State Governments and the Planning Commission to reduce and, if possible, eliminate the occurrences of these calamities by undertaking developmental works.
- c) The Planning Commission, in consultation with the State Governments and concerned Central Ministries/Departments, should be able to identify works of a capital nature to prevent the recurrence of specific calamities. These works may be funded under the Plan.

Similar recommendations were made by the Twelfth Finance Commission.

4.4 Conceptually, there may be following three alternative approaches towards the constitution of the Disaster Mitigation Funds:

- a) First, the Disaster Mitigation Fund may comprise all existing and future Plan schemes which fulfil the definition of 'mitigation' under the Act. Different plan schemes under various Ministries and Departments of the Central and State Governments shall be scanned and the schemes that qualify for mitigation shall be listed and the total allocations under the schemes shall compose the total quantum of the Disaster Mitigation Fund at each level.
- b) The Fund may consist of a fixed percentage of total plan allocation which shall be spent only on such mitigation activities that are not covered under any of the existing plan scheme. This may typically comprise of a certain percentage of the plan allocation of a Ministry/Department. It is understood that Planning Commission has suggested that

0.5% of the total plan allocation of each Ministry/ Department may be earmarked for National Disaster Mitigation Fund. Considering that Tenth Plan had a total allocation of Rs. 487,448 crores under the central sector, an amount of Rs. 2437.24 crores shall be the quantum of National Disaster Mitigation Fund for a five year period. On the same analogy State Disaster Mitigation Fund shall comprise of Rs. 3162.28 crores. The quantum of fund shall be much less if the allocations of only the concerned Ministries/Departments shall be taken into account. Earmarking space as in the case of 'Special Component Plan' for Scheduled Castes and 'Tribal Area Sub-Plan' for Scheduled Tribes could be considered. Design of programmes for implementation should be in association with the Disaster Management Departments.

- c) The Fund may only consist of a small token amount which may be utilized for mitigation measures of an unforeseen nature. Most of the State Governments tend to think along this line to meet the statutory requirement since they would find it difficult to commit substantial amount for mitigation purposes over and above the funds allocated for various mitigation schemes.

4.5 Ideally, Disaster Mitigation Fund should comprise of allocations under all existing and new Plan Schemes which would qualify for 'mitigation' as defined under the Act. Such a composition of Disaster Mitigation Fund has a number of advantages:

- a) Firstly, it gives a total picture of the investments that the country is making on disaster mitigation.
- b) Secondly, it leads to identification of schemes of various Ministries/Departments which are related to each other and which should be converged for better planning and implementation and to avoid duplicities.
- c) Thirdly, it helps in identification of gap areas in the existing schemes on the basis of which existing schemes may be restructured and new schemes may be planned and designed for mitigation activities that are not covered by any existing scheme.

It may, however, be added that initially there may be difficulties in precisely segregating the fund requirements relating to mitigation elements of a project and the normal cost required for a development project. These finer issues will be debated while deciding the scope of Disaster Mitigation fund.

4.6 The constitution of National Disaster Mitigation Fund by way of inclusion of all planned schemes of disaster mitigation would not necessarily mean that the administrative and financial control of all the planned schemes would be transferred to the NDMA. While the NDMA shall be responsible for overall planning, many of the schemes would continue to be administered by the concerned Ministries/Departments.

4.7 All these issues should be debated and a national consensus should be developed regarding the composition and size of Disaster Mitigation Fund at each level. Eleventh Five Year Plan provides the opportunity for building this consensus through consultations among the Ministries and Departments in the Government of India and between the Central and State Governments.

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## CHAPTER 5

### DISASTER MANAGEMENT : ISSUES AND CONCERNS

5.1 The XI<sup>th</sup> Plan's shift in focus from response-centric disaster management to disaster mitigation brings with it an obligation to give impetus to projects and programmes that develop and nurture both, the culture of disaster safety and integration of disaster prevention and mitigation into the development process. The guidance and direction to achieve this paradigm shift will need to flow from the National Disaster Management Authority, and in the true spirit of the Disaster Management Act, to all stakeholders including State Governments and Union Territories, right upto the Panchayati Raj institutions. Communities at large will need to be mobilized to achieve this common objective. Even the best of isolated efforts will not bear fruit unless they are part of an overall well considered approach and responsibilities of all stakeholders are clearly spelt out and accountability and sustainability factored in.

5.2 Projects and programmes undertaken may be such that they address the felt national needs and their prioritisation is based on what NDMA catalogues as vital, essential and desirable, both in the short and the long run. Since demands will be overwhelming and resources meagre, it will be imperative to put in place suitable mechanism which will facilitate systematic project and programme appraisal. Support will have to be lent to programmes and projects that will lead to sustainable development, with assurance of disaster risk reduction built in. The question of vulnerability will also have to be considered not only in the physical sense but in a comprehensive sense; vulnerability could also be social, ecological, organizational, educational, attitudinal, political, cultural and economical.

5.3 For an objective screening and scrutiny of development projects in a speedy manner, it is essential that professionalism in project formulation is insisted upon. Well considered and well drafted need-based project proposals with inbuilt disaster prevention and mitigation features, as brought out above, should usually sail through the decision making process. However, the real difficulty will be faced in dealing with projects based on

insufficient studies, questionable assumptions, and disregard to latest advances in science and technology. Such projects, if approved, just because they are vital or essential, would invariably require several mid-course corrections, besides resulting in time and cost over-runs. It is also a fact that such past experience often breeds anxiety to be too careful in taking up any new development project and scrutiny procedures are prescribed that are too rigid which in turn delay decisions and halt other development works. This must be guarded against.

5.4 To ensure thoroughness at the very stage of project formulation, all expected requirements need to be clearly articulated and project appraisal procedure kept simple and straightforward. One set of standard guidelines may not be adequate in addressing all the complex set of issues and there is clearly a need to evolve a multi-pronged approach to address a host of interlinked issues. Since Planning Commission does not have a multi-disciplinary expertise to judge the soundness of a development project, independent peer-reviews of all major projects by a multi-disciplinary team and the recommendation of such a review should be considered an essential input to the decision making process.

5.5 In the light of the above, the following aspects are to be kept in view while finalizing the guidelines for clearance of proposals: -

- (a) For any objective assessment of impact of any major development scheme in a given zone of hazard, it is imperative that the proposal takes in to its stride what all could go wrong (damage scenarios) and show as to how the project design is fashioned to counter that likely damage scenario. Conceptualization of damage scenarios will require quality scientific studies in a multi-disciplinary environment, and generation of new data besides filling data gaps. The present level of our knowledge base, the developmental pressures, the economic impact of delays and the absence of trained multi-disciplinary expert teams will combine to frustrate initiatives to generate and systematically integrate new data, though highly desirable. It will, therefore, be more practical to insist on an objective analysis of the available data, clear identification of data gaps despite all the related project studies and data

quality. There will, thus, be a need to have a statement on the degree of soundness of the design assumptions, and how the data gaps are sought to be filled and assumptions validated.

- (b) For scientific assessment of development efforts and its impact in any given hazard zone, be that from natural or man made disasters, the projects must relate to large scale single or multi-hazard maps and micro-zonation studies. Maps which usually form the basis for disaster management are of various kinds. For instance the so called large scale hazard map of a given area will be of little use if a corresponding infrastructure and human settlement maps are not available to pinpoint elements at risk. Moreover, hazard maps themselves will call for integration of several factor maps. For instance, production of a landslide hazard map will not be possible unless maps of topography, geology and geo-morphology, land use and land management, old and dormant landslides and earthquake-induced landslide potential are available to the same scale. What is more, for maps to be useful, they must necessarily be user friendly, especially to architects, engineers, planners, builders etc. Production of the various maps at large scale and their objective interpretations are beyond the capacity of any single agency. Multi agency projects with proven multi-disciplinary expertise should, therefore, be encouraged, with an appropriate coordination mechanism.
- (c) Survey of India will need to be entrusted with the responsibility of generating large scale maps which will form the basis for disaster management studies. They will also need to generate a Digital Elevation Map (DEM) of high resolution (1/2m interval along vertical) for the purpose of 3D terrain modeling. There will be a need to carry out prioritisation of the areas on which Survey of India will carry out the 1:10,000 mapping for the whole country and map all towns and cities on 1:2000 scales. Coastal Zone and flood prone areas of the country will need to get priority in the preparation of DEM.

- (d) Early warning systems are different for different types of disasters. In the recent times, because of the unprecedented devastation unleashed by tsunami, often early warning gets linked with tsunami only, masking the importance of early warning against other forms of disasters. For example, early warning against a great variety of landslides is possible but we do not yet have even one example. The sky is the limit for improvement in flood and cyclone, and storm surge warnings. Such projects will need encouragement.
- (e) Even with the best of early warning systems, results will still be catastrophic if early warning signals are not properly interpreted and communities are not educated and trained to respond to the early warning signals in real time. India has reportedly launched a technology wherein for the first time in the world, we can simultaneously translate an SMS into 14 languages. Since technology can be used by disaster management authorities, projects linking the technology to early warning, on the one hand, and, community response to early warning, on the other, will need encouragement.
- (f) The basic communications and IT support requirements for disaster management will correspond to the following three levels:
- Decision makers and disaster managers at all levels.
  - Real-time dissemination of warnings and information to local authorities and threatened community.
  - Last-mile connectivity at the disaster site for control and conduct of rescue and relief operations.

The national emergency communication network, involving the contemporary space and terrestrial-based technologies in a highly synergistic configuration and with considerable redundancy, will be developed and deployed countrywide. With almost a hundred per cent reliability, this network will ensure real-time dissemination of warnings and information direct to the affected community and local authorities. It will also be ensured that the information disseminated is user-friendly. The variety of

ICT-enabled, community-level resource/information centres/kiosks being set up in India by various Governmental agencies as well as NGOs will be strengthened and utilized for developing preparedness and resilience of disasters at the grassroots level.

- (g) High Altitude Airstrip project will provide the capability for not only establishing communication network but also carry out continuous imaging with different sensors of the affected areas. With large footprint of 500 km diameter, this project will have immense potential for use in post disaster monitoring.
- (h) Research Studies will need to be encouraged on all aspects of disaster mitigation, which carry potential to save lives and property. NDMA could provide the necessary policy direction to science Ministries and Departments both at the Central and State levels to foster, promote and sustain research and development work through need based disaster mitigation and management projects.
- (i) Efficient Disaster Management demands data in useable form which varies from situation to situation. In view of huge uncertainties, often subjective judgment becomes inevitable. Equally important is, therefore, the strategy for management of data quality and information demand. Data sharing amongst the various data generators is an even more important aspect and needs to be addressed. All such schemes getting plan funds will be treated as national asset and would be made available without any pre-condition for use for disaster management authorities and others. This will not only ensure that critical data will be available at the time of any disaster but also ensure that there is no avoidable duplication of the effort.
- (j) National Spatial Data Infrastructure approved by the Government in 2006 could form the hub of data integration and it may set up a dedicated cell for disaster management.

- (k) Allocation of plan funds to State Governments for schemes for hazard identification and risk assessment will need to be given priority once they have prepared the project paper, completed preliminary work and details of the scheme, etc. Hazard identification and risk assessment across the country must be bound by uniformly followed procedures, fine-tuned to local conditions. In the absence of such procedures, any sporadic activity based on some adhoc procedure carry the potential of doing more harm than good.
- (l) Emphasis in the XI<sup>th</sup> Plan will need to be given to capacity building in all areas of disaster management. Priority will have to be given to highly vulnerable areas for generating database for mapping as well as hazard vulnerability and risk assessment related to disasters like cyclone, flood earthquake, chemical, industrial, etc. While building databases, availability of qualified and trained manpower will be equally important as this will ensure quality of data and facilitate proper implementation of rules/regulations and codes which are either already in existence or are likely to be evolved.
- (m) Investments in Disaster Education, Public Awareness, Community Leadership Development, Disaster Education of unemployed youth, physically challenged, elderly, women and school children are essential. A large number of professionals require training and retraining for which we will have to generate quality teachers, quality text books, quality training kits, etc. This will call for innovation in disaster education, effective use of multi-media and self education in different vernacular languages. All knowledge based institutions may be encouraged to give priority to such initiatives.
- (n) It will be essential that while clearing plans for State Governments, there is an integrated approach particularly for creation of adequate capacity for relief and rescue operations.

5.6 To address these issues, the following approach may be needed:

- (a) Evolve a broad classification of anticipated projects that would come up for clearance by the Planning Commission. One classification could be (1) Projects specifically designed in response to the NDMA Strategy, Guidelines and Action Plan, and (2) Development projects with built-in environmental preservation and disaster mitigation features in tune with the philosophy of mainstreaming mitigation measures into development projects.
- (b) Develop and publicise project formulation guidelines underscoring the essentiality of mainstreaming disaster mitigation features in development projects and insisting on submission of well considered and peer-reviewed projects with clear statements on how disaster mitigation features are woven in to the fabric of the project and what limitations or data gaps continue to exist either because of insufficiently developed knowledge base or complexities and uncertainties associated with a given situation.
- (c) Evolve an appropriate mechanism of project appraisal from a holistic and multi-disciplinary angle, keeping in view the national priorities as set out by the NDMA and the Government of India.
- (d) Strengthen project appraisal unit at the Planning Commission by inducting disaster management specialists in the team.
- (e) Evolve prioritisation criteria. Accord the highest priority to National level comprehensive disaster mitigation projects undertaken in mission-mode. For example: Large Scale single or Multi-hazard Mapping intimately coupled to disaster management; Projects promising innovation in Disaster Education at all levels to meet the huge national demands, including focus on community leadership development, public awareness, gender mainstreaming, training of quality trainers and writing of quality books and Manuals. Projects involving national capacity building in highly specialized, but hitherto neglected areas, etc., should get priority. Projects which have multiplier effect

and lead to visible goods and services or projects aiming at generation of new basic data will deserve preference.

- (f) Assisting State level mitigation projects, especially drafting of State, District and Panchayat Level Disaster Management Plans and in continuous sustenance, modernization and upgradation of disaster management capacity.
- (g) Since now the focus is on disaster mitigation, projects in the following categories will need encouragement:
  - (i) institution building, aiming at training of a new breed of disaster managers; and
  - (ii) Establishment of centres fully equipped to carry out specialized investigations and post-mortem studies.

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## CHAPTER 6

### RECOMMENDATIONS

6. Recommendations of the Working Group are in three parts, each part dealing with each of the three terms of reference of the Working Group.

#### **Part I [Term of Reference (a)]**

*'To examine the manner in which measures for disaster mitigation, preparedness and capacity building should be enhanced and integrated into the development plans of the Centre and the States'.*

During the deliberations of the Group, a number of specific suggestions regarding measures to be taken for integrating disaster mitigation, preparedness and capacity building in the development planning emerged. Recommendations of the Group are enumerated below: -

6.1 Mainstreaming disaster management into the development planning process essentially means looking critically at each activity that is being planned, not only from the perspective of reducing the disaster vulnerability of that activity, but also from the perspective of minimizing that activity's potential contribution to the hazard. Every development plan of each Ministry and Department should incorporate elements of impact assessment, risk reduction, and the 'do no harm' approach. A few examples to illustrate the approach are given below:

- (a) *Urban Planning and Zoning:* This sector has generally not been adequately linked to flood or earthquake disaster mitigation in India so far, even though these issues have been mentioned repeatedly at different fora by administrators, practitioners and NGOs working in the area of disaster management. Human settlements must be viewed not only from the perspective of their vulnerability, but also from the perspective of the hazards that they create or that they exacerbate.

- (b) *Building Codes and Enforcement:* Building codes are adhered to only in engineered structures, and not in the huge majority of houses across rural and urban India. The codes that apply to engineered structures are often quite adequate. The building codes have to be upgraded constantly as new information becomes available. The greatest challenge, however, is in respect to enforcement of the building codes. The methodology can be worked out by the concerned Ministry.
- (c) *Housing Design and Finance:* Since individual houses do not usually follow the building codes in India, it is necessary to find alternative ways to encourage and facilitate individual home builders to use disaster-resilient designs, materials and techniques in the construction of their homes. There is a need to publicise these, making people aware of the appropriate designs and the cost difference. Probably, there also needs to be some financial incentives that would assist people, particularly poor people or first-time homeowners, to incorporate safety features into their house.
- (d) *Flood Proofing:* This is an approach to reduce flood vulnerability that has been used in parts of Bihar, Uttar Pradesh and few other flood prone states of the country. Flood proofing involves constructing earthen mounds to raise entire homesteads—the house, the vegetable garden, livestock pen, grain stores, toilets and water wells above the flood level. The households (or small clusters of households) and their important assets are safe from floods as long as they plan properly. Funds can be provided under the existing schemes of the Ministry of Rural Development.
- (e) *Response preparedness planning:* India has initially constituted eight battalions of National Disaster Response Force (NDRF) for rendering effective response to any threatening disaster situation or disaster, both natural and man made. Similarly, State Disaster Response Forces (SDRF) will be trained by the four designated training institutions of the Para Military forces. The 'Programme for Enhancement of Emergency Response' can be continued and extended to the training of the fire and rescue services, civil defence and ultimately to the community.

- (f) *Insurance:* Insurance distributes disaster risk among the broader society, and makes great sense when risk has been reduced to some acceptable level. The vulnerable States should take lessons from Gujarat in using insurance as measure for disaster risk reduction/transfer.
- (g) *Urban Settlements and Housing:* There is need to look closely at settlements, which are being developed by private builders and developers and are increasing flood vulnerability in urban and rural areas of many states. If they continue to build new settlements in polders and low lying land reclaimed from lakes and riversides through the construction of levees, more and more areas will become prone to floods and consequently related disasters like epidemics. The settlements in the hilly areas need special attention. Planned urban settlements and housing is required for disaster risk management that leads to sustainable development, particularly in ecologically sensitive regions, high risk locations and high population density pockets such as urban centres.
- (h) *Agriculture and Aquaculture:* These projects should be assessed from the perspective of the flood hazard. Much of the flooding that affects large rural habitats and agricultural lands is because of reduced drainage as a result of the expansion of agricultural activities into wetland areas that previously served an important drainage function. Mainstreaming disaster risk management into the development planning process would have assured that compensatory drainage was factored into the agricultural expansion plans.
- (i) *Roads and Infrastructure:* Standards are generally set to protect roads, railways and power and communication infrastructure from being damaged or destroyed by a 10 or 20 or 50 year flood, depending on the infrastructure element's importance. Any new infrastructure project should study the disaster impact analysis by the competent agency and ensure that construction does not impede water flow and cause deeper or prolonged floods. Designing the road to that higher standard originally requires thinking not only in terms of the vulnerability of the road to the floods, but also in terms of the road's contribution to the hazard. Mainstreaming disaster risk

reduction in planning the road would protect gains in the agriculture, production and other economic sectors and would lead to sustainable development.

- (j) *Logging activities:* These activities in the hilly areas destabilize slopes, cause landslides and increase mudflow and silting in the nearby rivers. The revenue generated by logging is far lesser than the losses incurred due to the serious problems of landslides, silting and ecological disturbance caused. There should be a plan for afforestation in the logging area before or just after the logging. Some of the hazard prone areas should be identified and notified as 'reserve forests'. Mainstreaming disaster risk reduction into the planning process would at least ensure that calculations of potential situations help determine logging extraction rates, to the ultimate benefit of downstream communities and sustainable economic development. Ministry of Environment and Forest can plan more afforestation in the coastal areas prone to cyclones or sea erosion. They can set a target of about 25% plantations in the cyclone/landslide/ erosion prone areas.
- (k) *Design and construction of critical facilities (schools/hospitals):* This is currently an area of emphasis in Government of India. It has been observed in past disasters that schools and hospitals, which are the critical facilities at the time of disaster, were themselves badly affected. Therefore construction of all new schools and hospital should ensure that they have taken all necessary measures so that the buildings will be resilient during earthquakes, cyclones and floods. The levels of schools should be raised in accordance with the flood history of a place. A holistic disaster risk management design would suggest that a wider verandah (so that cooking can be done outside the classrooms), an increased number of toilets and a water source (also above the flood level and accessible from the school) are essential elements in such a school. Mainstreaming disaster risk reduction in this way would assure not only that the school serve a disaster reduction function, but also that they are protected against the consequences of a disaster and this development asset is preserved.

6.2 There is need to identify and establish appropriate institutional arrangements for mainstreaming disaster risk management. A major challenge is to develop the skills, capacities and tools necessary to change the current focus on disaster response (which relies mainly on competencies related to logistics, commodity management, communications, etc.) to one of disaster reduction (which requires competencies relative to risk assessment, cost-benefit analysis, project planning, advocacy, networking, etc.). There is need to strengthen some of the existing facilities, which have given good results and reduced risk substantially in the past, such as weather forecasting, flood forecasting, river flow monitoring, flood zone mapping and watershed management. Similarly, efficient 'early warning systems' should also be in place permanently, so that useful information flows round the year, that is trusted and understood by the local community, and that also disseminates emergency early warning when required. Early warning systems are different for different types of disasters. In the recent times, because of the unprecedented devastation unleashed by tsunami, often early warning gets linked with tsunami only, masking the importance of early warning against other forms of disasters. For example, early warning against a great variety of landslides is possible but we do not yet have even one example. The sky is the limit for improvement in flood and cyclone, and storm surge warnings. Such projects will need encouragement and have to be accorded high priority.

Even with the best of early warning systems' results will still be catastrophic if early warning signals are not properly interpreted and communities are not educated and trained to respond to the early warning signals in real time. India has reportedly launched a technology wherein for the first time in the world, we can simultaneously translate an SMS into 14 languages. Since technology can be used by disaster management authorities, projects linking the technology to early warning, on the one hand and, community response to early warning on the other, will need encouragement.

*6.3 Possible steps by Ministries concerned:* The ministries of Rural Development, Urban Development, Environment and Forests, Science and Technology, Water Resources, etc., should identify their development schemes that can be directly linked with the disaster mitigation. There is a need to introduce a methodology to

identify and quantify disaster impact in socio-economic terms, to implement some pilot socio-economic studies of disaster impact, and to present the findings and implications of these studies to the concerned Ministries/Departments and development agencies.

6.4 In order to address the issue of earthquake safety, actions that lead to improvement of construction on the ground need to be initiated. For this, specific actions which should be undertaken by different Ministries/Departments are enumerated below: -

- (a) *Community Awareness:* Due to three major earthquake events in last six years (2001 Gujarat, 2004 Sumatra and 2005 Kashmir), there is now a very considerable mass awareness amongst the public about earthquake risk. The CBSE too has now introduced some coverage about this in schools which is a very welcome step. However, what is lacking is a system by the government and the society to canalize this awareness into concrete actions in terms of safer constructions. Investments in Disaster Education, Public Awareness, Community Leadership Development, Disaster Education of unemployed youth, physically challenged, elderly, women and school children are essential. A large number of professionals require training and retraining for which we will have to generate quality teachers, quality text books, quality training kits etc. This will call for innovation in disaster education, effective use of multi-media and self education in different vernacular languages. All knowledge based institutions may be encouraged to give priority to such initiatives.
- (b) *Legal Framework:* The Ministry of Law & Justice may take up the issues on legal responsibilities in case of unsafe constructions and non-compliance with codes. As a first step, a white paper could be developed clarifying provisions of laws that may be applicable in connection with constructions (safety of structures in general terms and not just against earthquake; earthquake is just one of the issues). The white paper should also study the legal provisions of other countries and identify areas that require new laws or modifications in existing laws. In parallel, one of the Ministries (perhaps Finance Ministry) should engage *the insurance companies* to develop better insurance system for new constructions. As of now, the insurance

premium in our country does not depend on whether the construction complies with the safety codes and hence insurance is not being an effective tool to encourage safe contractions.

- (c) *Technical Competence*: The Ministry of Human Resource Development (MHRD) is already operating a hugely successful *National Programme in Earthquake Engineering Education (NPEEE)*. This programme has enabled substantial capacity building of our engineering and architectural colleges, but much remains to be done. Hence, this programme must operate for longer period to have its full impact. Moreover, the programme should include some means to keep the teachers trained in earthquake engineering to remain engaged with the subject through a variety of outreach activities. Another area needing intervention is training of professional engineers and architects. Ministry of Home Affairs has already undertaken some efforts in this direction: these may be reviewed and strengthened/ modified, if needed. Perhaps the Ministry of Urban Development also needs to be engaged towards capacity building of professional engineers and architects. Emphasis in the XI<sup>th</sup> Plan will need to be given to capacity building in all areas of disaster management. Priority will have to be given to highly vulnerable areas for generating database for mapping as well as hazard vulnerability and risk assessment related to disasters like cyclone, flood, earthquake, chemical, industrial, etc. While building databases, availability of qualified and trained manpower will be equally important as this will ensure quality of data and facilitate proper implementation of rules/regulations and codes which are either already in existence or are likely to be evolved. Similar action will be required to impart training to health experts particularly in bio terrorism (security) as this has still remained totally uncovered area.

- (d) *Professional Ambience: Competence based licensing of engineers and certification of masons* are two of the most important and critical areas that our country has deferred for too long. Even though the State of Gujarat is moving ahead on both these issues, most State Governments are not in a position to take up and sustain such efforts (Gujarat being an exception). Hence, it is very important that these be taken up by the Central Government. While it is relatively easy to take these up, it is more difficult to ensure effectiveness through quality control in the process of licensing and certification. These steps will be useless if adequate safeguards are not provided to ensure that only competent persons receive license/ certification. In the past, there has been some discussions about the appropriate ministry taking up licensing of engineers (MHRD versus Ministry of Urban Development; Engineering Council of India versus Institution of Engineers versus AICTE). In the long term it really does not matter which Ministry does it as long as it is done effectively. In the long term, licensing of other professionals associated with building industry (contractors, developers, etc) also must be taken up, and, hence, licensing of engineers by the Ministry of Urban Development may have some advantages.
- (e) *Enforcement*: This is another area that has been ignored for too long. After the 2001 earthquake, many (perhaps most; it will be interesting to verify this) States have made earthquake code compliance mandatory but none has seriously enforced these. Some towns/states now ask for a certificate from the engineer/architect/developer. But, this will not be effective as municipalities merely ask for code compliance certificates and do not even carry out random checks whether the certificates are genuine. In the next three years a robust system of enforcement of codes in new constructions should be implemented. This basically means that the municipalities will be doing for structural safety what they currently do for fire safety: review building drawings before giving building permission and ensure that the work at site does not violate these plans. It will be facilitating the enforcement agencies to enforce the codes if the building codes to be followed are made user

friendly. Suitable steps will need to be taken in this direction.

- (f) *Research and Development*: The current state of research in engineering aspects of earthquake safety in the country is totally inadequate for a variety of reasons, even though a lot of money is being spent by DST on seismic instrumentation and seismic microzonation. Very important research problems critical for earthquake safety agenda of the country must be taken up in a focused manner, for instance: (a) developing new building typologies and technologies that are inherently better in responding to earthquakes (this was done in 1897 in Assam, and in 1935 in Quetta), (b) research on design aspects and codal issues, (c) development of codes of practice, the next generation model-codes, supporting explanatory handbooks, etc, (d) technology verification tests on full-scale and large-scale models, (e) development of seismic retrofitting technologies and technology verifications on full-scale models, (f) geotechnical earthquake engineering aspects such as site effects, seismic design of well foundations, etc. (g) seismic hazard assessment including development of attenuation relations appropriate for our geological conditions, development of modern zone maps, etc.

The Department of Science and Technology must initiate a National Initiative on Research in Earthquake Engineering.

6.5 Efficient Disaster Management demands data in useable form and this demand varies from situation to situation. In view of huge uncertainties, often subjective judgment becomes inevitable. Equally important is, therefore, the strategy for management of data quality and information demand. Data sharing amongst the various data generators is an even more important aspect and needs to be addressed. Ideally all such schemes engaged in data generating, getting plan funds should be treated as national asset and be made available without any pre-condition for use for disaster management authorities and others. This will not only ensure that critical data will be available at the time of any disaster but also ensure that there is no avoidable duplication of the effort. There is need to prepare a **white paper** on this entire

issue, in particular about the sharing of data already available/to be made available. Such a paper needs to bring out an action plan and mechanism as to how the data sharing is to be done, who will be ensuring that there is awareness about the availability of data and what will be mechanism to disseminate this knowledge to all concerned.

6.6 The Jawaharlal Nehru National Urban Renewal Mission, envisaging an investment of Rs.55,000 crores, covering 63 cities, inter-alia, provides a great opportunity for improving safety of our cities with respect to natural hazards which often tend to become disasters as experienced in recent part. It needs to be considered that each project, when sanctioned particularly in disaster prone region should include a component for the assessment of impact of natural hazards that may occur in the area, and the likely damage it may cause to life and assets to be built in to the scope of the project to address mitigation schemes.

6.7 Scientific assessment of development efforts and its impact in any given hazard zone, be that from natural or manmade disasters, would require that the projects must relate to large scale single or multi-hazard maps and micro-zonation studies. It will be essential that all maps are integrated maps. For instance, production of landslide hazard map will not be possible unless maps of topography, geology and geo-morphology, land use and land management, old and dormant landslides and earthquake-induced landslide potential are available to the same scale. What is more, for maps to be useful, they must necessarily be user friendly, especially to architects, engineers, planners, builders, etc. Production of the various maps at large scale and their objective interpretations are beyond the capacity of any single agency. Multi agency projects with proven multi-disciplinary expertise should, therefore, be encouraged, with an appropriate coordination mechanism.

6.8 The Survey of India will need to be entrusted with the responsibility of generating large scale maps which will form the basis for disaster management studies. They will also need to generate a Digital Elevation Map (DEM) of high resolution (1/2m interval along vertical) for the purpose of 3D terrain modeling. There will be a need to carry out prioritization of the areas on which Survey of India will carry out the 1:10,000 mapping for the whole country and map all towns and cities on 1:2000 scales.

Coastal Zone and flood prone areas of the country will need to get priority in the preparation of DEM.

6.9 The national emergency communication network, involving the contemporary space and terrestrial-based technologies in a highly synergistic configuration and with considerable redundancy, will need to be developed and deployed countrywide. With almost a hundred per cent reliability, this network will ensure real-time dissemination of warnings and information direct to the affected community and local authorities. It will also be ensured that the information disseminated is user-friendly. The variety of ICT-enabled, community-level resource /information centres /kiosks being set up in India by various governmental agencies as well as NGOs will need to be strengthened and utilized for developing preparedness and resilience of disasters at the grassroots level.

6.10 The Government seeks to sustain and augment the mangrove forests in the country by both regulatory and promotional measures. The Coastal Regulation Zone Notification (1991) under the Environmental Protection Act (1986) recognizes the mangrove areas as ecologically sensitive and categorizes them as CR-I (i) which implies that these areas are afforded protection of the highest order. Under the promotional measures, as said before, the Government has identified 38 mangrove areas on a country-wide basis for intensive conservation and management. Only promotional measures will not do. States have to review & strengthen their extant legislative measures and ensure that pristine mangrove areas are not dismantled /diverted to other developmental activities.

6.11 Allocation of plan funds to State Governments for schemes for hazard identification and risk assessment will need to be given priority once they have prepared the project paper, completed preliminary work and details of the scheme etc. Hazard identification and risk assessment across the country must be bound by uniformly followed procedures, fine-tuned to local conditions. In the absence of such procedures, any sporadic activity based on some adhoc procedure carry the potential of doing more harm than good. It will be essential that while clearing plans for State Governments, there is an integrated approach particularly for creation of adequate capacity for relief and rescue operations, e.g., for funding projects for construction of school buildings, some of the school buildings need to be identified which

will be used as relief centres and building designed so that they withstand the impact of disaster and also have adequate capacity to provide space as relief centres. Such schools should be equipped with essential services which become important at the time of disaster.

6.12 State Governments have to be asked to make comprehensive Management Action Plans for achieving long-term results in a phased manner. To make these plans more meaningful, workshops, training programmes are to be organized at local/regional/national levels under which capacity building and awareness generation/community participation, which includes livelihood activities for the villagers, are the areas which are given emphasis.

6.13 As brought out in para 3.8, discussion will be required with various Ministries/Departments regarding the status of implementation of the relevant projects/schemes being undertaken by them and the manner in which the schemes may be restructured for better convergence and implementation and for further mainstreaming disaster risk reduction in the process of their implementation during the XI<sup>th</sup> Plan. Across the board, disaster risk reduction measures can straightway be incorporated into all infrastructure projects and other development programmes involving construction of buildings etc., such as *Sarva Shiksha Abhiyan, Indira Awas Yojana, Jawaharlal Nehru National Urban Renewal Mission* etc. This exercise may have to be completed very quickly, say in the next two months.

6.14 *Important activities suggested for the First Year of the XI<sup>th</sup> Plan:*

There is need to broad base the National Afforestation Programme(NAP) of MoEF by changing guidelines to give a renewed impetus to coastal shelterbelt plantations in the country in view of the increased vulnerability and changing vulnerability profile of the coastal zones. This will entail preparation of Shelterbelt Working Schemes in each of the coastal States/Union Territories and to this effect existing guidelines need to be amended to ensure implementation of these schemes in NAP during XI<sup>th</sup> Plan so that no planting season is wasted on account of procedural formalities.

Raising coastal shelterbelts to mitigate the adverse impacts of cyclone winds is one of the short-term objectives of NAP but there is no specific component aimed at coastal shelterbelt plantations alone. The regeneration of degraded forest and adjoining areas in the coastal zones may also be covered under NAP as per the plantation design and guidelines.

Funding of green belt creation and conservation of mangroves, most of which are on common property land, will have to continue to receive budgetary support. Such Support today is inadequate and must be enhanced in the interest of creating life and livelihood security in the coastal zones.

*Launch of exclusive Programme initiatives by MoEF for*

- Identification and development of new Mangrove sites in coastal zones.
- Coastal Wetlands Conservation (to fully cover existing threat from drainage and conversion for agriculture and human settlements, besides pollution)

Setting up of Eco-system monitoring Network(FLUX NET) to study impacts of changing climate getting manifested in various sectors by Department of Science & Technology jointly with other Ministries (Department of Space; Ministry of Environment & Forests, Council of Scientific & Industrial Research and Ministry of Earth Sciences). Indian sub-continent is the major gap area in the global Flux Networks.

- Monitoring of coastal and marine eco-systems with the help of greenhouse flux gases measurement on a continuous basis involving S&T institutions and /or Universities.
- The establishment of similar monitoring systems over land eco-environment is absolutely essential for long-term planning of adaptation strategies pertaining to climate change manifestations (in respect of Agriculture; Forests, Water Quality and Quantity etc.) in the coastal zones.

### 6.15 *Other Innovative Measures:*

Outside the framework of plan schemes many innovative measures can be adopted to encourage disaster risk reduction measures by the corporate sector, non-government organizations and individuals. Fiscal measures like rebates on income and property tax for retrofitting unsafe buildings, compulsory risk insurance for bank loan on all types of properties, etc., shall definitely help to mobilize resources for safe constructions and retrofitting of existing constructions in all disaster prone areas. Similarly many innovative measures may be taken for promoting public-private-community partnership for disaster risk reduction. The XI<sup>th</sup> Plan should take the lead in advocating some such initiatives which may be announced in the Budget Speech of the Hon'ble Finance Minister.

### **Part II [Term of Reference (b)]**

*'To draw up guidelines that need to be followed by the Planning Commission while according approval to programmes and projects, so as to ensure integration of disaster management principles in planning and plan implementation'.*

6.16 The Working Group recommends a set of guidelines to assist the Planning Commission in appraisal of projects and schemes on Disaster Management for allocating funds. The guidelines have been prepared keeping in view the issues brought out in Chapter 5 of the report, especially the following factors and ground realities: -

- (i) The guidelines are broad and generic and not disaster or theme specific. This is only natural because in the Indian context, the list of disaster types is long and, therefore, disaster specific approach may become unwieldy.
- (ii) Conceptualization of hazard scenarios and associated vulnerability and risk assessments in a given situation will necessarily have to depend on whatever maps and information is available at this point of time. The limitations associated with the Vulnerability Atlas of India in terms of its scale and with (very limited spread of) large scale hazard maps in terms of their unverified nature, will apply until large scale hazard mapping projects begin to yield results.

- (iii) Master Plans and building and land use regulations and guidelines, although at different levels of evolution in different parts of the country, will apply until superseded by their revised and updated versions.
- (iv) The planning and designs of disaster mitigation features and elements will have to depend on the National Building Code of India and the various safety Standards and Codes of the Bureau of Indian Standards extant, and their revisions, from time to time.
- (v) The ground reality that Techno-Legal and Techno-Finance regime is not yet in place has to be accepted.
- (vi) NDMA is in the process of making disaster/theme specific guidelines and action plans. As and when these are ready, they will need to be dovetailed into the set of guidelines now being proposed. The work on these projects will, however, have to start now without awaiting the entire process in a linear manner

6.17. The guidelines suggested are as under:

- (i) The proposed project or scheme (a) is to be need based and demand driven; (b) must fall within the high priority bracket, linked with the development plan of the area; (c) should have well stipulated goals, clearly identified stakeholders and beneficiaries; (d) should be fully backed with analyses of risks and quantified benefits in terms of disaster safety; and (e) should clearly reflect implications of not taking up the project in terms of disaster related risks, environmental protection and economic development.
- (ii) Priority is to be given to projects/schemes located in well known disaster hotspots and multi-hazard prone areas/districts recognized by the NDMA if these are related to hazard risk mitigation project. Multi-hazard prone districts are reported in the latest National Building Code of India of the Bureau of Indian Standards. The listing has been revised by the Building Materials Technology Promotion Council of India, currently under the consideration of NDMA.

- (iii) The project/scheme should be based on a detailed hazard and risk assessment; wherever required environmental clearance will also be taken. The risk assessment will usually involve the following factors:
- a) Assessment of degree of hazard, based on high resolution single/multiple hazard maps interpreted in the light of all available historic records, publications, site-specific information and studies. For all major projects/ schemes, where such maps are presently unavailable, the project/scheme should be supported by adequate site-specific seismo-tectonic, geological, geo-physical and geotechnical studies and analyses. Data gaps, assumptions made and their implications should be brought out. Where high resolution multi-hazard maps are not available, multi hazard assessment is to be made by coalescing the information on single hazards.
  - b) All such site specific risk assessment studies should be referenced to a national high resolution geospatial database so as to facilitate temporal analysis of future assessment impact studies in the area and also enable integration of all other assessment studies carried out in the vicinity. Through such a process it will be possible to evolve a National Database of assessment studies which in turn will facilitate refinement of National Hazard and Vulnerability Mapping.
  - c) Assessment of vulnerability against hazard of a given magnitude should be carried out. The vulnerability of an individual or a group of individuals or of any element or an infrastructure like a flyover or a bridge, for a hazard of a given magnitude, will vary from 0 to 1 depending on the degree of preparedness. For example, an earthquake of magnitude 7 on the Richter scale may render very unsafe school children in a poorly built school (vulnerability=1) whereas the residents of an earthquake-resistant neighboring house for the same magnitude of earthquake (vulnerability=0), may be safe. This distinction is essential because existence of hazard does not automatically mean vulnerability, and vulnerability does not mean necessarily have to be 100. The question of vulnerability has to be considered not only in a physical sense but also in a

comprehensive sense. Vulnerability could be physical, social, ecological, organizational, educational, attitudinal, political, cultural and economical. Vulnerability assessment may also take note of medical care and casualty management that would be possible in the vicinity in case of natural or man made disaster.

- d) Assessment of risk against a given hazard will be a function of hazard and vulnerability.
  - e) Identification of elements at risk like population, properties, economic activities, public services, is to be brought out. By overlaying infrastructure map of an area on the corresponding hazard map of the same scale, elements at risk are to be identified.
  - f) Particularly while carrying out Hazard Identification and risk assessment for industrial estate, issues like release scenario, consequences in terms of heat generation over pressure and toxicities, identification of hazardous chemicals, processes and operations, identification of important receptors both environment and physical, classification of units which have potential for creating an off site emergency need to be addressed.
- (iv) The reliability of hazard, vulnerability and risk assessments will depend upon the quality of maps and other investigational data and various uncertainties involved due to inadequacy of data and other factors. It is therefore important that all major stages of project/scheme development, namely, planning, site investigations, designs, etc., are subject to a process of rigorous peer review and accordingly certified.
- (v) Projects/schemes which yield multiplier effect for the greatest good of the largest number will deserve priority. For example, a well drafted practical disaster emergency plan for a school or disaster management plan for a district can inspire other schools and districts to yield the snow-balling (multiplier) effect. Similarly development of a knowledge based, multi-media disaster mitigation product when translated in different vernacular languages may at once multiply benefits.

- (vi) Project merit rating should also depend on the following factors:
- a) Breaking new ground in terms of scientific, technological or management innovation, including peoples' participation. For instance development of an innovative early warning system against a particular type of disaster using simple, readily monitored indicators.
  - b) Delivering 'Best Practices' for others to emulate and get inspired by. For example, best practice of engineered constructions in a given earthquake-affected hilly area.
  - c) Choice of appropriate technology. For example, partially prefabricated construction technology will be more appropriate than the cast-in-place construction technology in a post disaster reconstruction programme in a given situation.
  - d) Employment Generation. For example a judicious men-machine mix in construction of flood prevention works may help generate employment in an area without unduly compromising on efficiency of work.
  - e) Sustainable capacity building. It is the key to empowering a village, district, state or a region so that each one of them can, as far as possible, manage their own affairs, in the event of a disaster. For example, water sampling and testing capacity at local level when post-disaster situations threaten epidemics.
  - f) Pro-active engagement of communities and spreading culture of safety in communities and other levels. Disaster education and community leadership development, public awareness development, gender mainstreaming, special focus on the needs of women and children, vocational training of unemployed youth, and concern for physically challenged persons will add weight to the project/scheme.
- (vii) Since disasters know no district or state boundaries, projects of interest to two or more Districts or States may score over those yielding localized benefits. By the same logic, national level mission-mode projects/scheme should get preference over others.

6.18. These guidelines could also be made mandatory for the State Disaster Management Authority to adhere to. Release of plan funds to State Governments for disaster mitigation related schemes could be linked with their adhering to such norms.

### **Part III [Term of Reference (C)]**

*'To develop guidelines for ensuring that appropriate financial provisions to provide for disaster management are built into the cost estimates of programmes and projects'.*

6.19. It is important that a certain portion of the Plan funds is earmarked for use for schemes/projects which directly or indirectly add to the efforts of disaster management. It is suggested that 2% of plan funds both of the Central Ministries/Departments as well as State Governments are exclusively utilized for this purpose. Once the Mitigation Fund is created in terms of the Disaster Management Act 2005, a provision to the extent of 2% of the XI<sup>th</sup> Plan could be provided in this Fund.

The projects to be taken up will be of the following types:

- (a) All schemes related to generating foundation and basic input data hazard and vulnerability impact analysis.
- (b) Stand alone Disaster Management projects such as Mitigation projects, Awareness programmes, Capacity Building Projects, Community Based Disaster Management Projects, Upgrading Early Warning System, Failsafe Disaster Management Communication Network, Micro-zoning etc.
- (c) Mainstreaming Disaster Reduction into already approved Project in sectors of Education, Housing, Infrastructure, Urban Development etc. For example, projects already under implementation such as the Sarva Shiksha Abhiyan, which cater to the construction of school buildings etc., could be reviewed. The design of the school building under the programme could include hazard resistant features, at least in multi- hazard prone (earthquake, cyclone, flood etc.) high risk areas so that these are safe. Similarly, existing infrastructure like bridges, roads, etc., will need to be strengthened and upgraded to mitigate disaster at a subsequent stage.

6.20. As far as new development projects are concerned, additional cost, if any, on account of disaster mitigation related features will be a part of the new project cost in future.

6.21. Projects to be taken up during the XI<sup>th</sup> Five Year Plan for Disaster Management, as given below, have been put into two broad categories: (i) **Category 'A'** includes projects/programmes/schemes to be undertaken by NDMA for implementation, and (ii) **Category 'B'** consists of projects/programmes/schemes to be undertaken by concerned Ministries/Departments of the Govt. of India under the overall assistance, supervision and close monitoring of both design and implementation by NDMA.

### CATEGORY A :

(Rs in crore)

<i>Sl. No.</i>	<i>Name of the Project/Programme/Scheme</i>	<i>XI<sup>th</sup> Plan (2007-12) Proposed Outlay</i>	<i>Annual Plan (2007-08) Proposed Outlay</i>
1	Strengthening of Fire Services	3636	50
2	National Cyclone Risk Mitigation Project (with World Bank Assistance )	1642	100
3	National Earthquake Risk Mitigation Project	1132	15
4	National Flood Mitigation Project	2000	20
5	National Landslide Mitigation Project	200	5
6	Expanded Disaster Risk Mitigation Project	450	5
7	National Disaster Communication Network (NDCN)	450	15
8	Information, Education & Community (IEC) Programme	100	15
9	Micro Zonation of Major cities	250	10
10	Project Preparation Facility/ Research Programme Studies	50	5
11	Vulnerability Assessment Schemes	50	5
12	International Cooperation	10	01
	<b>Total</b>	<b>9970</b>	<b>246</b>

A brief outline of the projects indicated above is at **Annexure IV.**

## CATEGORY B :

(Rs in crore)

<i>Sl. No.</i>	<i>Name of the Project/Programme/Scheme</i>	<i>xi<sup>th</sup> Plan (2007-12) Proposed Outlay</i>	<i>Annual Plan (2007-08) Proposed Outlay</i>
1.	Medical Preparedness for Mass Casualties Management	10000	10
2.	National School Safety Project	1000	10
3.	Programme for Upgrading Capabilities and Dissemination of Early Warning to Communities	250	10
4.	Detection, Early Warning System and Preparedness & Response for Nuclear Emergencies	100	05
5.	National Standing Mechanism (Science & Technology)	8	1
6.	Upgradation of NIDM and other Institutes	60	15
	<b>Total</b>	<b>11418</b>	<b>51</b>

A brief outline of the projects indicated above (except those at Sl. Nos.3,4 and5) is at **Annexure V**.

6.22. The projects to be taken up by the State Governments, based on their respective vulnerability, will be included by the State Governments in their respective State Plans.

6.23. It is relevant to mention here that no separate outlay had been provided for Disaster Management in the X<sup>th</sup> Five Year Plan although the Planning Commission had addressed the concerns for taking requisite steps for Disaster Prevention, Mitigation and Preparedness in the X<sup>th</sup> Plan document. In fact, no allocation was provided in the X<sup>th</sup> Plan for Disaster Management as the work relating to Disaster Management was in the process of being transferred from the Ministry of Agriculture to the Ministry of Home Affairs. Therefore, the outlay was provided on a year to year basis from within the overall approved annual plan outlays of the MHA.

6.24. With the enactment of the Disaster Management Act, 2005, and establishment of the National Disaster Management Authority, under the Chairmanship of Hon'ble Prime Minister, several initiatives have been taken for Disaster Risk Reduction, addressing the components relating to Prevention, Mitigation and Preparedness. The NDMA, since its constitution about a year ago, is engaged in the process of developing several disaster specific projects/programmes, which are proposed to be taken up during the XI<sup>th</sup> Five Year Plan.

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**ANNEXURE -I**

**No.M-12016/1/2006-SP-Co.**  
**Government of India**  
**Planning Commission**

....

Yojana Bhavan, Sansad Marg,  
New Delhi -1, 24<sup>th</sup> August, 2006

**ORDER**

**Subject : Constitution of Working Group on Disaster Management.**

In the context of preparation of the Eleventh Five Year Plan (2007-2012), it has been decided to set up a Working Group on Disaster Management with the following composition:

1.	Dr. Mohan Kanda, Member, National Disaster Management Authority, New Delhi.	Chairman
2.	Shri B. S. Lalli, Secretary, Border Management, Ministry of Home Affairs	Member
3.	Dr. P. K. Mishra, Secretary, National Disaster Management Authority, New Delhi	Member
4.	Shri A. P. N. Sinha, Adviser, Housing & Urban Development (HUD), Planning Commission	Member
5.	Shri Mukesh Khullar, Joint Secretary, Drought Management (DM), Ministry of Agriculture, Department of Agriculture & Cooperation, Krishi Bhavan.	Member
6.	Shri Ashim Khurana, Joint Secretary (DM-I), Ministry of Home Affairs	Member
7.	Shri R. Sridharan, Joint Secretary (State Plans), Planning Commission	Member
8.	Dr. A. S. Arya, Seismic Adviser, National Institute of Disaster Management, IIPA Campus, New Delhi.	Member
9.	Shri S. K. Agrawal, Central Water Commission, New Delhi	Member
10.	Dr. K. P. Mishra, Head, Radiation Biology and Health Science Division, Bhabha Atomic Research Centre, Trombay, Mumbai-400085	Member
11.	Prof. R. K. Bhandari, Chairman, Centre for Disaster Mitigation and Management, Vellore Institute of Technology, Vellore.	Member
12.	Prof. C.V.R. Murthy, Deptt. of Civil Engineering, Indian Institute of Technology, Kanpur-205016.	Member
13.	Prof. K. Ganesh Babu, Director, Central Building Research Institute, Roorkee-247667.	Member
14.	Dr. Rakesh Dubey, DMI, Bhopal	Member
15.	Dr. U. C. Mohanty, Indian Institute of Technology, Delhi	Member

16.	Dr. G. S. Mandal, Addl. Director (Retd.), India Meteorological Department, 248, Aravali Apartments, Alaknanda, New Delhi.	Member
17.	Dr. K. J. Ramesh, Scientist-F, Department of Science & Technology, New Delhi.	Member
18.	Mr. D. K. Goel, Director, Narora Atomic Power Station, Narora	Member
19.	Maj. Gen. M. Gopal Rao, Surveyor General of India, Dehradun.	Member
20.	Prof. Vinod K. Sharma, Chief of Party, PEER (Founded by USAID), Nepal	Member
21.	Mr. S. R. Kalsi, Addl. Director General (Services), India Meteorological Department, Lodhi Road, New Delhi-11003.	Member
22.	Lt. Gen. D. Raghunath, Principal Executive, Sir, Dorabjee Tata Centre for Research & Innovation, Indian Institute of Science, Bangalore-560012.	Member
23.	Secretary (Disaster Management)/Relief Commissioner, Government of Assam	Member
24.	Secretary (Disaster Management)/Relief Commissioner, Government of Andhra Pradesh	Member
25.	Secretary (Disaster Management)/Relief Commissioner, Government of Bihar	Member
26.	Secretary (Disaster Management)/Relief Commissioner, Government of Gujarat	Member
27.	Secretary (Disaster Management)/Relief Commissioner, Government of Maharashtra	Member
28.	Secretary (Disaster Management)/Relief Commissioner, Government of Orissa	Member
29.	Secretary (Disaster Management)/Relief Commissioner, Government of Tamil Nadu	Member
30.	Secretary (Disaster Management)/Relief Commissioner, Government of West Bengal	Member
31.	Shri J. B. Sinha, Joint Secretary, National Disaster Management Authority	Convenor

2. Terms of Reference of the Working Group will be as under:

- a) To examine the manner in which measures for disaster mitigation, preparedness and capacity building should be integrated into the development plans of the Centre and the States.
- b) To draw up guidelines that need to be followed by the Planning Commission while according approval to programmes and projects, so as to ensure integration of disaster management principles in Planning.
- c) To develop guidelines for ensuring that appropriate financial provisions to provide for disaster management are built into the cost estimates of programmes and projects.

3. The Chairman of the Working Group may include any additional Term(s) of Reference if needed.

4. The Chairman of the Working Group may co-opt any other expert as Member of the Working Group.

5. The Working Group will submit its report latest by 31<sup>st</sup> October, 2006. The Working Group will be serviced by the National Disaster Management Authority.

6. The expenses towards TA/DA of the official members will be met by their respective Government Departments/Institutions to which they belong as per the rules of the entitlement applicable to them. The TA/DA of non-official Members will be borne by the Planning Commission as admissible to Class-I officers of the Government of India as per SR 190(a).

7. Director (SP-Coordination), Room No.306, Yojana Bhavan, Sansad Marg, New Delhi (Telefax : 23096540) will act as the Nodal Officer and any further communication in this regard may be made with him.

Sd/-  
( Avtar Singh Sahota )  
Director (SP-Coord.)

Copy to: Chairman and all Members (including Convenor) of the Working Group.

Copy for information to:

1. PSs to Deputy Chairman/MOS(Planning)/Members/Member-Secretary, Planning Commission.
2. Prime Minister's Office (Shri Jawed Usmani), South Block, New Delhi.
3. Cabinet Secretariat, Rashtrapati Bhavan, New Delhi.
4. Principal Advisers/Advisers, Planning Commission.
5. PC Division, Planning Commission.

Sd/-  
( Avtar Singh Sahota )  
Director (SP-Coord.)

## ANNEXURE -II

**No.M-12016/1/2006-SP-Co.  
Government of India  
Planning Commission**

....

Yojana Bhavan, Sansad Marg,  
New Delhi -11001,  
9<sup>th</sup> October, 2006

### **ORDER**

**Subject : Working Group on Disaster Management.**

In supersession of Planning Commission's Order of even no. dated 24<sup>th</sup> August, 2006 on the above subject, the composition of the Working Group is modified by including the following as Members of the Working Group:

- [i] Ms. Somi Tandon, Retired Secretary [Def./Fin.], Consultant, National Disaster Management Authority, Centaur Hotel, Near IGI Airport, New Delhi- 110037.
- (ii) Ms. Dipali Khanna, Financial Adviser, National Disaster Management Authority, Centaur Hotel, Near IGI Airport, New Delhi- 110037.
- [iii] Shri Naveen Verma, Joint Secretary (DM-II), Ministry of Home Affairs, North Block, New Delhi-110001.
- [iv] Shri P.G. Dhar Chakrabarti, Executive Director, NIDM, IIPA Campus, Ring Road, New Delhi.
- [v] Prof. Sudhir Kumar Jain, Deptt. of Civil Engineering, IIT, Kanpur, Uttar Pradesh.

2. The Terms of Reference of the Working Group at para 2 of the Order are revised as under :

- a) To examine the manner in which measures for disaster mitigation, preparedness and capacity building should be enhanced and integrated into the development plans of the Centre and the States.
- b) To draw up guidelines that need to be followed by the Planning Commission while according approval to programmes and projects, so as to ensure integration of disaster management principles in Planning and plan implementation.
- c) To develop guidelines for ensuring that appropriate financial provisions to provide for disaster management are built into the cost estimates of programmes and projects.

3. The other terms and conditions of the Order remain unchanged.

Sd/-  
( Rajat Sachar )  
Director (SP-Coord.)

Copy to: Chairman and all Members of the Working Group.

Copy for information to:

1. PSs to Deputy Chairman/MOS(Planning)/Members/  
Member-Secretary, Planning Commission.
2. Prime Minister's Office (Shri Jawed Usmani), South Block,  
New Delhi.
3. Cabinet Secretariat, Rashtrapati Bhavan, New Delhi.
4. Principal Advisers/Advisers, Planning Commission.
5. PC Division, Planning Commission.

Sd/-  
( Rajat Sachar )  
Director (SP-Coord.)

**ANNEXURE -III**

**No.M-12016/1/2006-SP-Co.**  
**Government of India**  
**Planning Commission**

....

Yojana Bhavan, Sansad Marg,  
New Delhi -11001,  
8<sup>th</sup> November, 2006

**ORDER**

**Subject : Working Group on Disaster Management.**

In partial modification of Planning Commission's Order of even no. dated 9<sup>th</sup> October, 2006 on the above subject, the composition of the Working Group, as in para I of the said Order, is modified as under:-

- [i] Shri Prabhanshu Kamal ..... Member  
Joint Secretary (DM-II), Ministry of Home Affairs,  
North Block, New Delhi-110001.

In place of

- [ii] Shri Naveen Verma ..... Member  
Joint Secretary (DM-II), Ministry of Home Affairs,  
North Block, New Delhi-110001.

2. The other terms and conditions of the Order remain unchanged.

Sd/-  
( Rajat Sachar )  
Director (SP-Coord.)  
Tele/fax :23096540

Copy to: Chairman and all Members of the Working Group.

Copy for information to:

1. PSs to Deputy Chairman/MOS(Planning)/Members/  
Member-Secretary, Planning Commission.
2. Prime Minister's Office (Shri Jawed Usmani), South Block,  
New Delhi.
3. Cabinet Secretariat, Rashtrapati Bhavan, New Delhi.
4. Principal Advisers/Advisers, Planning Commission.
5. PC Division, Planning Commission.

Sd/-  
( Rajat Sachar )  
Director (SP-Coord.)  
Tele/fax :2309654

## Projects/Programmes/Schemes to be undertaken by the NDMA for implementation

### (1) Strengthening of Fire Services

1. Aims and objectives of the Programme : There is a huge requirement of funds to the tune of approximately Rs.30,000 crore to meet the shortage of Fire Services in the country. The aim and objective of this proposal is to create minimum infrastructure in fire fighting and rescue equipment at the State Capitals, Metropolitan Cities, District Hqrs and Sub-Divisional Hqrs to enable Fire Services to perform Multi-Hazard Response Role in Disaster Management.
2. Component-wise activities indicating structural and non-structural measures(e.g. Infrastructure, Equipment and Stores, Capacity Building, etc.):

i) Items-wise Break-up of Non-Recurring Expenditure :

Sl. No.	Item	No.	Rs. in Crore
1.	Fire Station	1566	391.50
2.	Water Tender	1052	210.40
3.	Rescue Tender	1841	1104.60
4.	Advance Rescue Tender	1220	1220.00
5.	Hazmat Van	35	140.00
6.	Flood & Rescue Van	37	18.50
7.	Upgradation of Existing Trg. Centre	12	36.00
8.	Opening of new Trg. Centre	23	115.00
<b>Total</b>			<b>3236.00</b>

ii) Items-wise Break-up of Recurring Expenditure :

<b>Sl.No.</b>	<b>Item</b>	<b>No.</b>	<b>Rs. in Crore</b>
1.	Salary of Firemen	8370	
2.	Salary of Driver	4185	
3.	Salary of Chief Fire Adviser	1	
4.	Salary of Fire Adviser	1	
5.	Salary of Dy. Fire Adviser	2	
6.	Trg. of First Responders	12000	
<b>Total</b>			<b>400.00</b>

3. Number and Names of States/UTs involved:

The scheme covers the entire country to provide minimum infrastructure at the State Capitals, Metropolitan Cities, District Hqrs and Sub-Divisional Hqrs to enable Fire Services manage natural and man made disasters

4. The requirement of funds during the XI<sup>th</sup> Five Year Plan is estimated to be Rs. 3636 crore. The allocation proposed for the year 2007-08 is Rs. 50 crore.

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## **(2) National Cyclone Risk Mitigation Project (NCRMP) (with World Bank Assistance)**

1. Aims and Objectives of the Project: In line with the policy of the Govt. of India, MHA launched multifaceted initiatives and projects aiming at mitigating hazard risks in the country and enhancing capabilities at various levels to effectively deal with emergencies. With this in view, the National Cyclone Risk Mitigation Project was drawn up with a view to address multiple hazard risks in the country, with World Bank Assistance. The main aim and objective of the Project is to strengthen the structural and non-structural cyclone mitigation efforts and reduce the cyclone risk and vulnerability in the coastal districts prone to cyclones. NCRMP will assist States/UTs which are prone to cyclone and will go a long way in building capacities for cyclone risk mitigation in those places. National Guidelines have been prepared to help the participating States/UTs in prioritising, preparing and submitting their proposals for cyclone mitigation investments.
2. Component-wise activities indicating structural and non structural measures (e.g. Infrastructure, Equipments and Stores, Capacity Building, etc.):

The following four components have been identified -

Component A: Up-gradation of the Cyclone Forecasting, Tracking and Warning System.

Component B: Cyclone Risk Mitigation Investment.

Component C: Technical Assistance for Hazard Risk Management Capacity Building.

Component D: Project Management and Monitoring

3. Number and Names of States/UTs involved: 13

Category I: (Higher Vulnerability)  
Andhra Pradesh, Gujarat, Orissa, Tamil Nadu, and West Bengal.

Category II: (Lower Vulnerability)  
Andaman & Nicobar Islands, Daman & Diu,  
Goa, Karnataka, Kerala, Lakshadweep,  
Maharashtra and Pondichery.

4. The requirement of funds during the XI<sup>th</sup> Five Year Plan is estimated to be Rs. 1642 crore (World Bank assistance : Rs.1350 crore). The allocation proposed for the year 2007-08 is Rs. 100 crore.

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### **(3) National Earthquake Risk Mitigation Project**

1. Aims and Objectives of the Project: To strengthen the structural and non-structural earthquake mitigation efforts and reduce the earthquake risk and vulnerability in the high risk districts prone to earthquakes.
2. Component-wise activities indicating structural and non structural measures (e.g. Infrastructure, Equipments and Stores, Capacity Building, etc): Structural Safety Audit of Lifeline Structures, Seismic Strengthening and Retrofitting of Critical Structures; Training of Trainers; Development of Training Materials; Video Films; Documentation of Case Studies; etc.
3. Number and Names of States/UTs involved : 13 (Andaman & Nicobar Islands, Arunachal Pradesh, Assam, Chandigarh, Delhi, Gujarat, Haryana, Himachal Pradesh, Jammu & Kashmir, Punjab, Sikkim, Uttar Pradesh and Uttranchal).
4. The requirement of funds during the XI<sup>th</sup> Five Year Plan is estimated to be Rs. 1132 crore. The allocation proposed for the year 2007-08 is Rs. 15 crore.

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## **(4) National Flood Mitigation Project**

### 1. Aims and objectives of the project:

- (i) Mitigation or reduction in risk, severity or consequences of floods;
- (ii) improve capability to deal with floods;
- (iii) effective preparedness to deal with floods;
- (iv) improve promptness in response to the impending threat of floods or actual occurrence;
- (v) assess the risk and vulnerabilities associated with various flood disasters;
- (vi) ensure that arrangements are in place to mobilize the resources and capability for relief, rehabilitation, reconstruction and recovery from disasters;
- (vii) create awareness and preparedness and provide advice and training to the agencies involved in flood disaster management and to the community; and
- (viii) strengthen the capacities of the community and establish and maintain effective systems for responding to flood disaster.

### 2. Component-wise activities indicating structural and non structural measures (e.g. Infrastructural, Equipments & stores, Capacity-building, etc.)

- Setting up of Flood Disaster Relief Centres.
- Carrying out special studies on Threat Perception/ Vulnerability Analysis/Flood Disaster Risk Assessment of the Flood Prone areas.

- Studying problem of urban flooding in major metropolitan areas and suggesting measures to overcome the problem of urban drainage.
- State level training institutions for imparting training for flood disaster preparedness/mitigation etc.: creating awareness of flood disaster, training and educating people to cope up with problem of floods at district/block levels.
- Creating and maintaining flood disaster response force, consisting of Army, Paramilitary Forces, Home Guards and Self Help Groups, to be adequately trained and keeping them in readiness before/during the flood season.
- Establishing dedicated communication network that can remain functional during flood disaster.
- Identifying road transport/rail/communication network that connects flood disaster relief/supply centres to flood prone areas and constructing new rail/road infrastructure that may be reliably used during flood disaster.
- Suitably locating flood disaster relief centres/basic infrastructures like hospitals, stores, etc., on high grounds, so that they remain functional even at high floods.
- Identifying, procuring and keeping in readiness requirements of flood fighting equipments such as boats, motarboats, buoys, inflatable boats, life saving equipments, etc., before the flood season.
- Identifying suitable high grounds where people can be shifted during floods.
- Ensuring arrangement of safe drinking water, sanitation, basic health facilities at relief camps during floods.
- Strengthening flood forecasting and warning network.
- Prompt and people-friendly dissemination of information to the public.

- Proper planning, flood risk assessment, identifying supply lines, alternate means of transport/communication, identifying responsibilities/duties of various Departments. of Government, course of action to be followed by Govt. administrative machinery and proper coordination during floods disaster, mitigation and relief operations, are some of the basic steps to ensure effective flood disaster management.
  - Emergency operation centres to be developed/established to monitor the situation round the clock. These centres will keep the administration informed about the current situation. Such centres may be established in major urban centres which are flood prone. These centres will mainly cater for floods in monsoon season in flood prone areas. These centres can even be used for providing assistance during other type of disasters. Emergency call centres/helpline may also be established which could guide the general public about the current situation and provide advisories to public to follow certain course of action.
3. Number and Names of States/UTs involved: 10 (Andhra Pradesh, Assam, Bihar, Gujarat, Karnataka, Maharashtra, Orissa, Tripura, Uttar Pradesh and West Bengal.
4. The requirement of funds during the XI<sup>th</sup> Five Year Plan is estimated to be Rs. 2000 crore. The allocation proposed for the year 2007-08 is Rs. 20 crore.

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## **(5) National Landslide Mitigation Project**

1. Aims and Objectives of the Project: To strengthen the structural and non-structural landslide mitigation efforts and reduce the landslide risk and vulnerability in the hilly districts prone to landslides and mudflows.
2. Component - wise activities indicating structural and non structural measures (e.g. Infrastructure, Equipments and Stores, Capacity Building, etc.): Microzonation, Gulley Plugging, Nalla bunding, Social Forestry Plantations, Biomass Reserves, Livelihood Support.
3. Number and Names of States/UTs involved : 10 (Arunachal Pradesh, Assam, Himachal Pradesh, Manipur, Meghalaya, Nagaland, Sikkim, Tripura, Uttar Pradesh and Uttarakhand).
4. The requirement of funds during the XI<sup>th</sup> Five Year Plan is estimated to be Rs. 200 crore. The allocation proposed for the year 2007-08 is Rs. 05 crore.

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## **(6) Expanded Disaster Risk Mitigation Project**

1. Aims and Objectives of the Project : To strengthen the structural and non-structural disaster preparedness and mitigation efforts to reduce the risk and vulnerability in the disaster-prone districts with community participation.
  
2. Component-wise activities indicating structural and non structural measures (e.g. Infrastructure, Equipments and Stores, Capacity Building, etc): Public Awareness, Capacity Building, Training, Education, Campaigns, Exhibitions, Workshops, Applied Research Studies.
  
3. Number and Names of States/UTs involved : 35
  
4. The requirement of funds during the XI<sup>th</sup> Five Year Plan is estimated to be Rs. 450 crore. The allocation proposed for the year 2007-08 is Rs. 05 crore.

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## **(7) National Disaster Communication Network(NDCN)**

1. Aims and objectives of the Project : Communication & IT support is absolutely basic to disaster management. In fact communications are the first causality during disaster. Vertical as also horizontal communications support need considerable infrastructure for routine functioning and during live disaster management. NDMA requires dedicated Communication & IT support for pro-active disaster support functions including for early warning & forecasting. The support has to be Converged (Voice, Video& Data), Adequate as also Responsive. It also has to be multilayered-both for command & control as also for execution and early warning/ forecasting.
2. Component-wise activities indicating structural and non structural measures (e.g. Infrastructure, Equipments and Stores, Capacity Building, etc):

The key components are as under -

- (a) Basic network including Standby; satellite based.
- (b) Network Control Centres.
- (c) Mob equipment for NDRF.
- (d) Equipment for Emergency Operations Centres at National, State & District levels.

3. Number and Names of States/UTs involved : All the States and District Headquarters are involved.
4. The requirement of funds during the XI<sup>th</sup> Five Year Plan is estimated to be Rs. 450 crore. The allocation proposed for the year 2007-08 is Rs. 15 crore.

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## **(8) Information, Education & Community (IEC) Programme**

1. Aims and Objectives of the Programme: To create public awareness on disaster risk and vulnerability reduction, disaster preparedness, structural and non-structural mitigation efforts and disaster response by developing ICT materials, print and electronic media products, campaigns, exhibitions, etc.
2. Component-wise activities indicating structural and non structural measures (e.g. Infrastructure, Equipments and Stores, Capacity Building, etc): Training of Trainers; Development of Training Materials; Video Films; Documentation of Case Studies; Manuals and Guidelines; Street Theatre; Workshops, Exhibitions, etc.
3. Number and names of States/UTs involved : 35, but with emphasis on high disaster risk States.
4. The funds required during the XI<sup>th</sup> Five Year Plan is estimated to be Rs. 100 crore. The allocation proposed for the year 2007-08 is Rs. 15 crore.

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## **(9) Micro Zonation of Major Cities**

1. Aims and Objectives of the Programme: To carry out the Micro Zonation of High Risk Cities in Seismic Zones IV and V to prepare strategies to reduce the earthquake risk and vulnerability in the high risk districts.
2. Component-wise activities indicating structural and non structural measures (e.g. Infrastructure, Equipments and Stores, Capacity Building, etc): Micro Zonation of Districts; Training of Trainers; Development of Training Materials; Video Films; Documentation of Case Studies; etc.
3. Number and names of States/UTs involved : 13 (Andaman & Nicobar Islands, Arunachal Pradesh, Assam, Chandigarh, Delhi, Gujarat, Haryana, Himachal Pradesh, Jammu & Kashmir, Punjab, Sikkim, Uttar Pradesh and Uttaranchal).
4. The requirement of funds during the XI<sup>th</sup> Five Year Plan is estimated to be Rs. 250 crore. The allocation proposed for the year 2007-08 is Rs. 10 crore.

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## **(10) Project Preparation Facility/Research Programme Studies**

In order to take up Mitigation Projects for Disaster Risk Reduction and also undertake special studies and research programmes, it is necessary to provide a plan scheme for Project Preparation Facility / Research Programme Studies. Accordingly, Rs. 50 crore has been provided in the XI<sup>th</sup> Five Year Plan and Rs. 5 crore in 2007-08.

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## **(11) Vulnerability Assessment Schemes**

Gujarat has undertaken Vulnerability Analysis of different parts of the State to different forms of disasters. Such an analysis is urgently required to be carried out by other States too. Accordingly, Rs.50 crore has been provided in the XI<sup>th</sup> Five Year Plan and Rs. 5 crore in 2007-08.

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## **(12) International Cooperation**

India has put in place necessary institutional, coordination, legal and policy mechanism, covering all facets of Disaster Management. There is a large technical expertise available in the country for Disaster Risk Reduction, including Earthquake, Flood, Cyclone, and Landslide, etc. The community level preparedness has been taken up as a key programme. India has already made a commitment through regional forum to share the information base, experience and expertise with the neighbouring countries. India needs to adopt a proactive approach for providing necessary support to the neighbouring countries through multilateral cooperation and involvement of regional organizations. A provision of Rs. 10 crore has been proposed for this purpose during the XI<sup>th</sup> Five Year Plan. The proposed outlay in 2007-08 is Rs 01 crore.

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**Projects/Programmes/Schemes to be undertaken  
by the Central Ministries/Departments.**

**(1) Medical Preparedness for Mass Casualties  
Management.**

1. Aims and Objective of the Programme: To build infrastructure required for medical preparedness and emergency medical response across the country to manage the mass casualties efficiently and to decrease morbidity and mortality.
2. Component-wise activities indicating structural and non structural measures (e.g. Infrastructure, Equipment and Stores, Capacity Building, etc):
  - a) Creation of ambulances services: There is no concept of ambulance services in our country for evacuation of victims from disaster site to hospital. Presently, ambulances are available for transportation of patients within the hospital only. Therefore, there is need to develop dedicated system for making ambulances available 24 hours on a telephonic call. CATS, Delhi, and EMRI, Hyderabad, have started such kind of system. Provision of heli-ambulances need to be made for air evacuation.
  - b) Creation of special infrastructure for NBC casualties: Facilities for NBC agents detection equipment, personal protection equipment and decontamination material along with antidotes are required to be created. Designated Hospitals also need to have a Radiation Injury Treatment Centre, Poison Control Centre, Burn Centre & Biosafety Lab. Financial powers need to be delegated to the Medical Superintendents of the Hospitals to buy emergency medical stores.
  - c) Trauma Centres: Major Cities in each State and all Metros should have Trauma Centres with 200 beds capacity. Other major Hospitals should have 50-100 Trauma beds in Orthopaedic Departments.

- d) Enhancement of Trained Manpower: Medical and Paramedical staff in Primary Health Centres & Government Hospitals are grossly inadequate. There is an urgent need to fill the vacancies and to create more human resources through public-private partnership. Medical resources of private medical centres are required to be pooled for purpose of disaster management. An understanding in the form of an MOU at all levels, covering the financial compensation to the private medicals centres need to be explored.
  - e) Training : Regular training of Doctors and Paramedical Staff with structured syllabus should be carried out as Continuing Medical Education (CME).
3. Number and Names of States/UTs involved :  
All States/UTs.
  4. The requirement of funds during the XI<sup>th</sup> Five Year Plan is estimated to be Rs. 10,000 crore. The allocation proposed for the year 2007-08 is Rs. 10 crore.

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## **(2) National School Safety Project**

1. Aims and Objectives of the Project: To strengthen the structural and non-structural earthquake preparedness and mitigation efforts in schools in high seismic risk districts and reduce the earthquake risk and vulnerability in the high risk districts prone to earthquakes.
2. Component-wise activities indicating structural and non structural measures (e.g. Infrastructure, Equipments and Stores, Capacity Building, etc): Structural safety Audit; Seismic Strengthening and Retrofitting; Training of Trainers; Development of Resource Materials; Workshops; Seminars and Training programmes; Documentation; etc.
3. Number and Names of States involved : 13 (Andaman & Nicobar Islands, Arunachal Pradesh, Assam, Chandigarh, Delhi, Gujarat, Haryana, Himachal Pradesh, Jammu & Kashmir, Punjab, Sikkim, Uttar Pradesh and Uttaranchal).
4. The requirement of funds during the XI<sup>th</sup> Five Year Plan is estimated to be Rs. 1000 crore. The allocation proposed for the year 2007-08 is Rs. 10 crore.

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## **(6) Up-gradation of National Institute of Disaster Management**

A National Centre for Disaster Management (NCDM) was set up by the Ministry of Agriculture in the Indian Institute of Public Administration in 1995. The Centre was upgraded as National Institute of Disaster Management (NIDM) in 2003. The Institute got the status of a statutory organization under the Disaster Management Act, 2005.

The Institute is the apex body for training, capacity building, research, documentation and networking on various aspects of disaster risk reduction and management. The Institute is collaborating with 47 National level and 29 State level Institutes. The Institute has recently hosted the SAARC Disaster Management Centre in its premises.

However, the Institute is very poorly equipped in terms of basic infrastructure facilities. The Institute still functions in a rented building, at I.P. Estate, which is owned by the Indian Institute of Public Administration. The Institute does not have any hostel building of its own and has to depend on the IIPA Hostel for the accommodation of trainees. On any given point of time not more than 20 rooms are available with the result that not more than one training programme can be conducted at a time. The required space for state-of-the-art Emergency Operations Centre, Disaster Mitigation Workshop, Mock Drill Exercise, Library, GIS Laboratory, etc., is not available. Therefore, it is extremely important that the Institute is equipped with all these facilities so that it is able to discharge its responsibilities properly.

It is proposed that the Institute shall develop a campus of its own. The tentative estimated cost of land and the campus would be as under:

S. No.	Item	Area/Nos.	Cost (Rs. in crores)
1	Acquisition of land	20 acres	8.50
2	Office and Training Halls	5030 sq. mts.	4.52
3	SAARC Disaster Management Centre	5000 sq. mts	4.50
4	Library and Computer Centre	5000 sq. mts	4.50
5	Emergency Operations Centre	3000 sq. mts	2.70
6	Practical Workshop	3500 sq. mts	3.15
7	Hostel	1600 sq. mts	1.44
8	Recreation Centre	3000 sq. mts.	2.70
9	Residential Block	5120 sq. mts	4.60
10	Centralized Air conditioning and Fire Fighting Systems		1.00
11	Furniture , Vehicles & Equipments		5.00
12	Satellite & Remote Sensing Centre		10.00
	Total		52.61

This amount may be allocated during the XI<sup>th</sup> Plan period, with annual break up as under: -

I year	Rs. 15.00 cr.
II year	Rs. 10.00 cr
III year	Rs. 15.00 cr.
IV year	Rs. 12.61 cr.
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Total	Rs. 52.61 cr.
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