

3RD NIDM-WBI ONLINE TRAINING PROGRAMME
on
COMPREHENSIVE NATURAL DISASTER RISK MANAGEMENT FRAMEWORK
(09 APRIL – 18 MAY 2007)

END OF COURSE REPORT

SUBMITTED
by
Col Alok Raj

(GROUP-3)

*“ We can see well into the past but we can only guess
shrewdly about what could happen in the future which is rolled
up and muffled in impenetrable folds”*

J F Kennedy

CONTENTS

| <u>Se No</u> | <u>Topic</u> | <u>Page No</u> | <u>Remarks</u> |
|---------------------|--|-----------------------|-----------------------|
| 1 | Background Information | 3 | |
| 2 | Selected Disaster Event – Gujarat Earthquake | 4 | |
| 3 | Overview of the India's Disaster Management System | 6 | |
| 4 | Strengths and Weaknesses of India's Disaster Management System | 9 | |
| 5 | Recommendations for Improvement. | 11 | |
| 6 | Conclusion | 13 | |
| 7 | National Crisis Management Committee and Crisis Management Group | 14 | Appendix |

NATURAL DISASTER RISK MANAGEMENT PROGRAM

(END OF COURSE PROJECT By COL ALOK RAJ -Group 3)

CRITICAL ASSESMENT OF INDIA'S NATURAL DISASTER MANAGEMENT SYSTEM:

A CASE STUDY OF GUJARAT EARTHQUAKE 2001

General

1. India supports one-sixth of world's population on just 2% of its landmass¹ and India has experienced some of the worst kind of disasters in recent past including the Gujarat Killer Earthquake in 2001 and Tsunami in December 2004 in the Andaman and Nikobar Islands. India faces a substantial number of disasters occurring in the Asia Pacific region, which itself accounts for nearly 60 % of the natural disasters that occur the world over². By and large, almost all the states in India are prone to some natural calamity or the other. However, there are some States, especially those located along the sea coast and in the Himalayan region which are more susceptible to natural calamities like cyclones, floods, earthquakes, land slides and avalanches. 24 out of our 34 states and Union Territories are disaster prone³.

2. India has however taken stock of the situation in this new century and the High Powered Committee put together a report in October 2001 on disaster management. Consequent to the HPC report National Disaster Management Authority was constituted under the chairmanship of the PM and National Disaster Management Act came in to force in December 2005. India having opened herself to the world markets in 1991 is undergoing rapid transformation and is on the path of major development. However, the major concern is that the bulk of developmental activities are in direct contravention to the theory of 'development with a human face' propagated by Shri Amartya Sen, the Noble Laureate. Disasters and development are linked intrinsically and therefore any developmental activity or project must only be executed if it is not likely to further own vulnerabilities to natural and manmade disasters.

Background

3. **Basic Data of India.** Located in the South Asia, India is the largest peninsula in the world with a total area of 3,287,590 sq km of which 2,973,190 km is the land area. With a population density of 323 per sq km, India is the most populous nation after China with a population of over 1,065,070,607. Nearly 70% of Indians stay in rural areas, though off late rural poor have migrated to cities and townships in big numbers putting extra population pressures in the urban areas. Though agriculture based economy, India embarked upon a path of industrialization in early 70s leading the developing nations in the world in the last century. India's GDP is growing at a staggering rate close to 9% annually with per capita income being over \$3000. With opening up of the Indian markets in 1991, both manufacturing and service industries got a major boost resulting in surge in the Indian economy.

Vulnerabilities to Natural Disasters

4. Most of the world's worst disasters tend to occur between the Tropic of Cancer and the Tropic of Capricorn. India is situated between the Equator and the Tropic of Cancer⁴. Thus, the Indian subcontinent is highly vulnerable to droughts, floods, earthquakes and cyclones. Other disasters like landslides, avalanches and blizzards occur frequently in the Himalayan region of northern and northeastern parts of India. The details are as follows:-

(a) **Floods.** Floods plague India every year, resulting in a seasonal and epidemic type of disasters. The primary cause of floods in India is a heavy and concentrated (75%) rainfall in the monsoon months. An average of 6.5 million hectare of land is flooded annually. In recent floods in Rajasthan, a desert state of India, an estimated 17,000 hectares of cultivable land in

¹ NIDM Journal ' Disaster & Development' Vol 1, No 1, Nov 2006, pp 1.

² Policy Approach and Role of Various Organisations in Disaster Management.

³ Professor Vinod K. Sharma. ' India's Disaster Management Profile.' p.1

⁴ Dissertation by Col A Anand CDM on Disaster management : A case study on Tsunami, pp 6.

more than 5,800 villages were damaged or destroyed and 45,000 cattle were killed in August 2006.

(b) **Droughts.** This is a perennial problem in some parts of India esp in Rajasthan, Gujarat, Andhra Pradesh and Bihar states; 16 % of the country's total area is drought prone and affects adversely over 50 million people. Although the magnitude of destruction during droughts is very high, the calamity is extended over a longer period, giving sufficient time to the administration to organize relief.

(c) **Cyclones.** India has a long coastline of over 8000 km⁵. Coastal states of West Bengal, Orissa, Andhra Pradesh, Tamil Nadu, Kerala and Maharashtra are prone to cyclones. Cyclones normally occur from December to March in the Bay of Bengal. The eastern coastline is more prone to cyclones as 80% of the cyclones generated in the Bay of Bengal region strike there. A case in point is Orissa Super Cyclone of October 1999.

(d) **Earthquakes.** The Himalayan Mountain Ranges are the youngest in the world and hence highly prone to seismic disturbances. Gujarat and Maharashtra are two major states highly prone to earthquakes in the country. Two recent earthquakes were Latur in Maharashtra in Sept 1993 of magnitude of 6.4⁶ and Gujarat earthquake in 2001 of magnitude 6.7 on the Richter scale which caused substantial loss of lives and infrastructure.

(e) **Landslides and Avalanches.** The Himalayas, the Northeast hill ranges and the Western Ghats experience considerable landslide activity of varying intensities. Avalanches constitute a major hazard in the higher reaches of Himalayas esp in J & K, Himachal Pradesh and in UP.

Selected Disaster Event: Gujarat Killer Earthquake 2001

5. **Calamity and its Impact on the Community / Cities.** Gujarat is hit by an earthquake every 30 years. Accordingly, an earthquake measuring 6.9 on the Richter Scale occurred at 8:46 a.m on 26 January 2001 with its epicenter 20 km North East of Bhuj (Kutchh)⁷. Nearly 21 out of 25 distts were affected by the calamity including 7904 villages in 182 talukas. The most affected distts were Kachchh, Ahmedabad, Jamnagar, Rajkot and Surendranagar A staggering 15.9 million (42.06%) people were affected out of a total population of 37.8 million in Gujarat. Over 20000 people died in the disaster with adverse effect on more than 20000 cattle⁸. Over 1.87 lakh (Pucca) houses, 1.67 lakh (Kachcha) houses & 0.16 lakh (huts) were fully destroyed with partial destruction to 5.01 lakh (Pucca) houses, 3.87 lakh (Kachcha) & 0.34 lakh (huts).

6. **Impact on Economy.** The overall situation in Gujarat was considered as a multiple disaster, since the state had not recovered from the effects of a cyclone in 1998 and drought, which started in 1999 and continued through 2001. The persistent impact on the vulnerable population and economy of the state increased with multiple disasters. The impact on the economy was localized to the state of Gujarat with little or no impact on national economy. The total estimated loss stood at Rs 21262 crore and the fund in-flow in the state suffered for over a few following years. The state economy has, however, more than recovered from the setback of 2001 earthquake.

7. **Reliance on External Assistance.** The calamity which had befallen Kutch (Gujarat) was of unprecedented magnitude and intensity beyond the ability of local govt to handle. Hence, reliance on external agencies ie various agencies from outside Gujarat and even from overseas was only very natural and the response from the countrymen, NGOs and from overseas was overwhelming. Hence, external assistance in terms of rescue and relief personnel, relief material, special and heavy earth-moving equipment, supplies, funds, restoration of infrastructure, medical care and rehabilitation efforts were either sought or came automatically from various quarters. Some of the important aspects of external assistance are as follows:-

⁵ HPC report on Disaster Management , pp 36.

⁶ HPC Report on Disaster management, pp 37.

⁷ Disaster Management (Recent Approaches) by Arvind Kumar pp 334.

⁸ UN website www.un.org.in on Gujarat earthquake” The UN System Response to the Gujarat Earthquake Immediate Needs and Action Plan”.

(a) **National Govt Assistance.** The Central Govt immediately launched a massive rescue and relief operation by mobilizing available resources and personnel to mitigate the suffering of the victims. The initial relief effort was centrally coordinated by the Natural Disaster Management Control Room, which worked closely together with the State Govt. By 5th February 2001, the Central Government had announced financial assistance of Rs 500 Crores (USD 1 billion). In addition, the Central Govt made available close to 95,000 MT of food. Other relief items dispatched through the Central Govt included clothing and tents, medical supplies and personnel, fuel and communication equipments.

(b) **Assistance from Neighboring States.** The neighboring states of Rajasthan, Madhya Pradesh and Mahashtra provided food, blankets, medical supplies and personnel and a wide variety of other relief material.

(c) **Rescue and Relief Operations by Troops.** While the Armed Forces units in Bhuj and Gandhidham themselves suffered heavy losses, they sent out over 20 columns within 45 min of the earthquake. To boost the efforts of the local armed forces units and formations, army columns and Air Force components were mobilized from across the country. Truly the Army columns were the “first responders”, who took upon themselves immediate rescue and relief operations besides establishing temporary camps and restoration of essential services in Kutch and acquitted themselves with distinction.

(d) **NGOs.** Over 300 NGOs including a very large No of NGOs from other countries joined hands with the state govt and provided much relief in all the phases of rescue, relief and rehabilitation.

(e) **International Assistance.** 22 Search and Rescue (SAR) teams made up of 399 rescuers and 26 rescue dogs equipped with technical and rescue equipment assisted in the search and rescue operation⁹. Medical and SAR teams from Denmark, France, Germany, Hungary, Israel, Italy/Spain, Japan, Mexico, Poland, the Russian Federation, South Africa, Switzerland, Turkey, USA, and the United Kingdom were involved in the Search and Rescue operations in the state.

(f) **UN Assistance.** The in-country UN System through the UN Disaster Management Team (UNDMT) led by the UN Resident Coordinator worked closely with Govt authorities and convened emergency meetings on a daily basis to review the situation and coordinate UN response. The UNDMT officer and the Rajasthan Coordinator were immediately redeployed to Gujarat. Staff from the UNDP Emergency Response Division was redeployed to boost assessment and coordination services.

(g) **Medical Assistance.** To prevent epidemics, team of experts from National Institute of Communicable Diseases fanned out in the earthquake affected areas to evaluate preventive measures and collect samples. Experts of WHO supplemented these teams¹⁰. Medical teams with large quantity of medicines came from France, Japan, South Korea, Mexico and other countries. The International Red Cross Society and Israel Army established field hospitals at Bhuj while Denmark set up a hospital at Gandhidham. Govt of Ukraine set up a hospital at Bhachau and Japan medical units worked at Madhapar and Kukma¹¹.

(h) **Telecom Networks.** The telecom networks in the earthquake affected areas were completely disrupted and hence the local Army and Air Force nets were put to use in the initial phases of relief operations. However, 12 teams from outside Kutch and outside Gujarat were deployed for restoration of telecom network in the affected areas. Optical fibre terminuses were procured from Bangalore and far off places.

⁹ UN website www.un.org.in on Gujarat earthquake” The UN System Response to the Gujarat Earthquake Immediate Needs and Action Plan”.

¹⁰ Disaster Management (Recent Approaches) by Arvind Kumar pp 338.

¹¹ Ibid, pp 338.

India's National Disaster Management System

8. **India's National Disaster Management System**. The administrative response to disasters has been by and large the responsibility of the states. Central intervention is sought in the event of disasters of uncontrollable proportions. The Union Govt supplements the state relief efforts by initiating supportive action. The national Crisis Management Committee (NCME) oversees all disaster related efforts at national level. When a situation is to be handled by the NCMC, it will give directions to the Crisis Management Group (CMG), of the Ministry as deemed necessary. The CMG deals with matters relating to relief in the wake of major natural calamities. The composition of both NCMC and CMG is given as at Appendix A.

9. **Charter of Ministries**. Various ministries have been assigned nodal responsibility for management of specific types of hazards. The Ministry of Home Affairs is now the nodal ministry for management of natural disasters. The nodal ministries for various disasters are as follows:-

| <u>Disaster</u> | <u>Nodal Ministry</u> |
|--------------------------------------|-------------------------------------|
| (a) Air Accidents | Ministry of Civil Aviation |
| (b) Civil Strife | Ministry of Home Affairs |
| (c) Rail Accidents | Ministry of Railways |
| (d) Chemical Disasters | Ministry of Environment and Forests |
| (e) Biological Disasters | Ministry of Health |
| (f) Nuclear Accidents | Ministry of Atomic Energy |
| (g) Natural Disaster (droughts only) | Ministry of Agriculture |

10. **Dimensions of the Response: National Level**. The dimensions of the response at the level of Central Govt are determined in accordance with the existing policy of financing the relief expenditure and keeping in view the following factors:-

- (a) The gravity of a natural calamity.
- (b) The scale of the relief operation necessary.
- (c) The requirements of Central assistance for augmenting the financial resources at the disposal of the State Government.

11. **Organizational Structure**

(a) **State Level**. At the state level the, relief was being handled by the Departments of Relief and Rehabilitation. This system is now being restructured to have a Department of Disaster Management, which will also look into preparedness and mitigation besides the present role in relief and rehabilitation. This system has already been introduced in 11 state and Union Territories of India.

(b) **Distt Level**. The same system is being followed at the district level with the district Coordination and Relief Committee being reconstituted as the disaster management committee, with officers from relevant department being added into the committee. The district magistrate would be the nodal officer to coordinate these activities. Moreover, the district heads of department engaged in development are being made a part of this committee to streamline disaster management plans into developmental plans.

(c) **Subdivision Level.** At the sub-divisional and taluka levels, disaster management committees are being constituted. At the village level there would be disaster management teams and committees.

12. **National Response Approach.** Although the Centre plays a crucial role in managing disasters it only plays a supportive role to the State and District authorities. The Centre has to maintain and concentrate on monitoring, warning activities and step into action when a disaster situation exceeds the capacity of the State authorities. In order to formalize and give meaning to these procedures, new concepts of Trigger Mechanism, L concept, etc. have been developed as an integral part of the National Disaster Response Plan. Although active assistance to an affected State/District will be provided only after the declaration of a national level disaster (L3), the National response mechanism has to be prepared and any impending State or District disaster has to be monitored in order to provide immediate assistance whenever required.

13. **Levels of Handling the Disasters.** L1, L2, L3 levels of each disaster have to be predetermined, to layout the 'Standard Operating Procedure. This involves a 'Trigger Mechanism', which would set off the basic initial response without formal orders from anywhere. 'L1 denotes a disaster that can be handled effectively at the district level. Normally L2 level of the district will be the L1 level at state headquarters: L3 level of state headquarters would normally be the L1 at the centre. L0 has been designated as the preparatory level prior to L1¹².

14. **Role Players.** Other than the Govt framework there are a large No of entities who play a vital role in disaster management in India. These include the community, NGOs, Indian Red Cross Society, Media, fire services, Police and Para-Military Forces, Civil Defence and Home Guards, Armed Forces, PSUs and private sectors. The role played by these in brief is as given below:-

(a) **Community.** It has now been revealed that the community as an institution in itself is emerging as the most powerful among the entire mechanism of disaster administration. In event of actual disasters, the community, if well aware of the preventive actions it is required to take, can substantially reduce the damage caused by the disaster. Awareness and training of the community is particularly useful in areas that are prone to frequent disasters. Many villages, towns have their own voluntary committees called Village Task Force etc.

(b) **NGOs.** There a large No of NGOs which operate at regional and national level viz, Disaster Mitigation Institute, Ahmedabad, Care India, SEWA etc. These have made significant contribution in disaster management across entire country. The only problem is that the NGOs role is not clearly defined and they are not integrated with the national disaster management system resulting in ill-coordinated efforts and loss of synergy.

(c) **Indian National Red Cross.** In India, we have Red Cross Society at the national, state and district level. From 1996 onwards, the International Federation of Red Cross shifted its focus from relief to disaster preparedness and started developing community-based disaster preparedness etc. Accordingly, the INRC are also working on the same lines ie development of community-based disaster preparedness.

(d) **Media.** The role of the electronic media has during recent times emerged as a major component of disaster management, as amply demonstrated in the aftermath of the Gujarat earthquake in January 2001. Special emphasis has been laid on the role of electronic media and information technology by the HPC and it was felt that this sector needs to be integrated with not only the disaster response but overall disaster management strategy.

(e) **Fire Services.** Unlike what is generally understood, the role of Fire Services in India is not just limited to being a fire fighting Service but they also play the role of a disaster preventive agency especially in urban areas. It can provide basic search and rescue service and can also coordinate in event of a disaster situation with other agencies like the police and health services.

¹² Dissertation by Col A Anand CDM on Disaster Management: A case study on Tsunami, pp 16.

(f) **Police and Para-Military Forces.** Police and the Para-Military Forces play a critical role in disaster situations. Police and Para-Military forces are mobilized to reach the site of disaster immediately with a view to carry out relief and rescue operations in coordination with other agencies. It is also the responsibility of the police to maintain security and law and order at disaster locations where there might be chaos.

(g) **Civil Defence and Home Guards.** It is primarily a voluntary organization, whose resources are mobilized at the time of need through an activation procedure. Civil Defence organization requirements are based on the vulnerability analysis by the States themselves and are equipped accordingly. Their primary work areas include; communication, rescue casualty, depot, transportation and supply service, salvage and corpse disposal along with basic welfare services.

(h) **Armed Forces.** Aid to civil authorities is the secondary role of the Armed Forces, primary role being defence of the nation against external threat. Notwithstanding that the Armed Forces have always been the 'First Responders' in nearly all disaster situations in the country and in our neighborhood. Indian Armed Forces are one of the most dedicated and professional organizations with a rich tradition of being involved in the socio-developmental roles of nation building. They have invariably played an important role in all major disasters in the country¹³.

(i) **PSUs and Private Sector.** Various PSUs and Corporate Groups have played a crucial role in the aftermath of the recent major disasters including the Orissa Super Cyclone and the Gujarat Earthquake. PSUs are in a position to extend specialized support in their area of operation expeditiously, and this needs to be built into the disaster response plans, particularly at State level. The role of the private sector is still an emerging one, and though a major role was played by a number of corporate organizations in recent disaster situations, though not much has been documented or is available in a consolidated form in this area. The corporate bodies and Public Private Partnerships play a major role in creating infrastructure for disaster risk reduction¹⁴.

15. **Existing Legislation and Constitutional Framework.** The subject of disaster management does not find mention in any of the three lists in the 7 th Schedule of the Constitution. However, the State Governments are provided financial assistance for meeting expenditure on identified natural calamities on the basis of the recommendations of the Finance Commissions in order to ensure that the assistance is used only for calamity relief. Based on HPC recommendations the Indian Disaster Management Act has come into existence in Dec 2005 bringing much needed reforms into the whole system¹⁵. With that a National Disaster management Authority has also been formed with Prime Minister as its Chairman and Gen NC Vij as its Vice Chairman (Retd). The nation's thrust now is shifting to the culture of Prevention and Reduction of disasters rather than Response.

16. **India's Strategies and Culture.** Indian strategy and approach to disasters in past couple of decades has been rather reactive, more of a passive response to a crisis / calamity. There had been a virtual lack of any kind of strategy to deal with disasters be it drought, floods or cyclones although these occurred quite frequently and periodically in our country. However, there has been a paradigm shift from 'Response to Prevention and Reduction' in past couple of years. Subsequent to submission of HPC Report, there is a growing shift in our approach to disaster management in terms of prevention and preparedness rather than relief. Relief is a temporary provision and does not guarantee any future devoid of disasters.

17. **Distribution of Power, Responsibilities and Liabilities.** Till last year the distribution of power, responsibilities and liabilities was without a specific framework resulting in ambiguous situations and crisis followed by mudslinging on occurrence of disasters. However, the Indian Disaster Management Act has come into existence in Dec 2005 and has brought a lot of reform into the whole system. The Act provides for establishing a National Disaster Management Authority, with the Prime Minister as

¹³ HPC Report on Disaster Management 2001, pp 168.

¹⁴ Week 3 Summary of CDRM Programme, Mr Umesh Nayak.

¹⁵ Disaster Management Process by Prabhat C Sinha, 'Preface'.

the Chairman and nine other members. This body along the advisory board will lay down the disaster management policies, approve National Plan, and lay down guidelines. This system is being replicated in the states and districts too with the formation of State and District Disaster Management Authorities. At the district level the ex officio chairperson would be the District Magistrate or the Commissioner, and he would be complemented by a team consisting of Chief Executive Officer of the District Authority, the Superintendent of Police, the Chief Medical Officer of the district, and three other district level officers who would be appointed by the State government. State specific and district specific disaster management plans would be prepared by the respective committees.

18. **Funds and Financial Aspects.** It is the Finance Commission of India that decides on the expenditure on disaster relief. The bulk of the money comes from two sources, the Calamity Relief Fund (CRF) and National Calamity Contingency Fund (NCCF). The CRF is used for meeting the expenditure for providing immediate relief to the victims of cyclone, drought, earthquake, fire, flood and hailstorm. Other than these there is PM Relief Fund at centre and respective states have CM's Relief Fund. Both these funds are also tapped for provision of relief to disaster struck victims.

19. **Integration of Elements of Disaster Risk Management in the National System.** Disaster Risk Management includes risk identification, risk mitigation and risk transfer¹⁶. Risk management then calls for disaster preparedness and emergency response followed by rehabilitation and reconstruction. Due an age old culture of passive response and relief the aspect of risk management was virtually absent in the disaster management system in India. If at all, vulnerabilities of some of the region to cyclones, floods and droughts got identified more by default and over the years rather than by design. This resulted in some efforts by certain state govts to take a few elementary steps / measures in the beginning of monsoon seasons to cater for floods and cyclones, primarily to reduce the damage / losses caused by the calamity. There has never been a significant effort to prevent a disaster. While the NGOs have played a major role in risk reduction by way of launching of awareness campaign and taking up causes of disaster reduction, PSUs like LIC and some other insurance sector companies took upon themselves the task of risk transfer. The role of private sector is still emerging one. They have not played any significant role in disaster preparedness. Yes they have normally joined in relief effort after a disaster. The community however has a major role to play in disaster risk management being the biggest stake holders and first responders. The scene has however been quite dismal in the past.

Strengths and Weaknesses of National Disaster Management System

21. **General.** India's Disaster management System suffers from a large number of weaknesses, though the same is not without some strengths. In fact at the time of Gujarat Earthquake in 2001, the HPC report had not been submitted nor was the NDMA act existing and hence the disaster management in India was quite dismal. Much water has flown since then and many of the weaknesses have been addressed in some measure. However, some of the major weaknesses and strengths are covered in the subsequent paragraphs.

22. **Weaknesses of India's Disaster Management System.**

(a) **Political Interference and Myopic View.** Our political system is dominant in all our policies and programmes. The policy makers look for short term gains to keep their vote banks intact, resulting in myopic view of entire disaster management system. Policies and programmes requiring long term planning and implementation take back seat.

(b) **Culture of Relief rather than Prevention.** We are yet to overcome the culture of relief than prevention. All our efforts and programmes are geared to respond to disasters rather than prevention or reduction of disasters.

(c) **General Awareness and Community Participation.** The community needs to be well-informed about the physical features of their location / settlement and the hazard events they are likely to experience. Such a social consciousness about disasters leads to building an

¹⁶ Learning Module; Introduction to Natural Disaster Risk Management Framework Course, Slide 6 (Transcript).

organization / network within the community for risk reduction¹⁷. But due to lack of concerted efforts, the masses are still quite ignorant of the linkages between development and disasters, nature conservation and role of community in prevention, reduction and relief in case of disasters. A case in point is the tragedy wherein over 400 school children who were parading out in the open in Vill Anjar (Gujarat) were taken inside the school building on occurrence of the earthquake. Nearly all the children died when the school building collapsed.

(d) **Lack of Role Clarity and Integration of Role Players.** Disaster Management is an exercise which involves a large No of players eg Central and State Govts, Armed Forces, Paramilitary Forces, Police Forces, NGOs, PSUs, Private Sector, Community and so on. The integration of disaster risk management functions within local institutions is key to achieving urban risk reduction¹⁸. Their role has to be clearly defined during various stages of disaster management to avoid ambiguous situations. During the relief and rehabilitation stage post Gujarat Earthquake, a No of tasks were getting duplicated by various NGOs, State Govt and the army columns, resulting in wastages of efforts and confusion.

(e) **Sub-Optimal Outcomes.** Due to lack of integration of efforts, our disaster management system suffers from lack of synergy at various levels.

(f) **Early Warning System, Forecasting and Communication Infrastructure.** Not all disasters can be forecasted but areas vulnerable to disasters can be identified and measures taken in advance to reduce own losses to minimum eg in spite of knowing that Gujarat was in seismic Zone V, a large No of high-rise buildings were allowed to be built in Ahmedabad in the areas where water bodies existed a couple of years ago. Most of the buildings which collapsed were those which had not complied to the Code of construction in earthquake prone areas.

(g) **Disaster Management Training.** The training culture in India leaves much to be desired. In the case of Gujarat earthquake, while the rescue equipment / heavy equipment eg iron & concrete cutters, excavators were provisioned, not many locals knew how to operate these. There is dearth of personnel who are trained in rescue and relief operations. Most are trained in elementary techniques.

(h) **Absence of Strategic Thinking and Infirmities in Decision Making Process.** There is an overall lack of strategic thinking and swift decision making in our system owing to bureaucracy and politicization of all issues. The care taken will enhance our preparedness to a large extent.

(j) **Financial Support and Corruption.** One there is a deficiency of funds to plan and implement disaster Prevention and Reduction Programmes eg linking up of all the rivers, construction of dams etc. Two, of whatever funds get allotted only a small % gets to reach the grass roots level owing to rampant corruption in the system.

(k) **Inadequacy of Specialized Equipment.** A major weakness is the inadequacy of state-of-the-art equipment required for rescue and relief operations. A lot of equipment is requisitioned from foreign countries on being hit by a calamity.

(l) **Lack of Systemic Thinking.** Our system lacks systemic thinking, much needed for disaster management. There is a clear disconnect between the measures / efforts being made by the Centre and the state govts. In fact the as both development and disasters are linked, there is need to put systemic thinking in place to synergize efforts of centre and states and the neighboring states for the cause of disaster management.

(m) **Lack of Knowledge Management.** We hardly from the past, every time a disaster strikes, we start from a scratch and end up re-inventing the wheel. The knowledge Management in India is not institutionalized resulting in loss of wealth of knowledge on

¹⁷ CDRM Course Learning Module on Local Actors, Transcript by Krishna vatsa.

¹⁸ Ibid, Summary.

matters of disaster management. There is an urgent need to establish Disaster Knowledge network to cover all types of disasters in all their varied dimensions¹⁹.

(n) **Poor Implementation of Disaster Management Plans at Ground Level.** While we have the best plans and programmes conceived and worked out to last detail, the implementation suffers from poor execution and drive to achieve optimum results. There is a culture of sub-optimal performance and mediocrity when it comes to implementation of disaster management programmes.

23. **Strengths of India's Disaster Management System.**

(a) **Systemic Study at National Level by HPC in 2001.** HPC has been able to view the disaster management scene in India holistically using systemic thinking approach, resulting in creation of NDMA, NIDM, Disaster Management Act, 2005 and culture of Prevention & Reduction much needed to deal with disasters in India.

(b) **Constitution of NDMA.** With the constitution of NDMA, the country is assured of an apex body to take charge of disaster related issues which hitherto fore got neglected in past. The NDMA will be able to coordinate the efforts of all the role players and ensure synergy in all our endeavours to deal with disasters.

(c) **Promulgation of Disaster Management Act, December 2005.** The Disaster Management Act is in place and that will help institutionalize the best practices and provides for states to draft their own disaster management policies and rules²⁰.

(d) **NIDM, New Delhi.** With raising of NIDM, the research and training efforts have got a boost at national level. NIDM will also promote the culture of Disaster Prevention and Reduction.

(e) **Indian Armed Forces.** The Indian Armed Forces are a major strength of nation. Being highly trained and motivated, they do full justice to disaster management esp in rescue and relief operations. Even though disaster management is their secondary role, they usually become the first responders on occurrence of calamities and do a professional job out of it.

(f) **Raising of Disaster Management Reserve Battalions.** Subsequent to promulgation of DMA, 2005, eight battalions of ITBP, CRPF, CISF and BSF have been raised. These units are custom structured and trained to handle disasters and are a major asset to India's Disaster Management System.

(g) **NGOs.** We have strong presence of NGOs who are making a significant contribution in the field of disaster awareness, culture of disaster reduction, sustainable development and capacity building.

(h) **Collaboration with UN and Other Allied International Agencies.** India have been able to collaborate with UN and allied agencies world over to boost own disaster management efforts be it funding, training, relief or rehabilitation of disaster victims.

(j) **National Communication Plan.** A National Communication Plan has been drawn up harnessing the modern systems of communication for information flow, dissemination of warnings etc. A web- based inventory of specialist resources required for disaster management support has been operationalised.

Recommendations for Improvement

24. (a) **Systemic Thinking at Various Levels.** While the HPC carried out a system's thinking at national level, a similar effort is required at state level to organize holistic effort to ensure preparedness for disasters specific to the region.

¹⁹ HPC Report on Disaster Management 2001, pp 25.

²⁰ Disaster Management Process by Prabhat C Sinha, Preface

(b) **Organizational Structure.** Disaster management needs a dedicated political commitment at all levels of national and local government. A structure with clearly defined authority and appropriate budget to maintain an effective disaster plan is needed. Preparedness plans should be comprehensive in scale and operational, ideally through a nominated national body.

(c) **Constitutional Framework.** India has an elaborate system of constitutional, legal, and tiered organizational framework. It works with a defined team of role players that now need to have their roles redefined or realized to full capacity. Human resource development, information systems, health and medical facilities, communications, youth movements etc all need to be revamped to support the cause of developing a Disaster Free India.

(d) **Effective Utilization of Ex-servicemen.** Every year nearly 60,000 defence personnel including approximately 3,000 officers join the ranks of ex-servicemen in our country. Majority of them retire at a young age between 32 to 50 years to enable a youthful profile of the Armed Forces. Their total number is estimated at about 5.5 million out of which over 1.5 million are registered. They constitute a national asset - a vast human reserve that is disciplined, trained and developed to exacting standards. This potential force needs to be brought into the national disaster management structure and assigned an appropriate role in the overall response mechanism. Their untapped energy must be tapped and they need to be included in the national / state / distt disaster management plans from the very stage of inception.

(e) **Implementation of Best Practices from the International Environment.** The HPC reviewed select global best practices, and others, with a view to identifying salient features and adapt and appropriately incorporate in the disaster management systems proposed for India²¹. The following best practices be implemented and incorporated in the Indian Disaster management System:-

- (i) Incident Command System.
- (ii) Supplies Management System.
- (iii) Emergency Operations Centre.
- (iv) Emergency Support Functions.
- (v) Field Operations Guides.
- (vi) Information Network Systems.
- (vii) Media Management Guidelines.
- (viii) Search and Rescue Teams.
- (ix) Mobile Hospitals.
- (x) Disaster Medical Assistance Teams.
- (xi) Help lines.
- (xii) Urban Assessment Tools.
- (xiii) Earthquake Safety Initiative.

(f) **Culture of Prevention.** The thrust now should be to build a culture of Prevention and Reduction of disasters and boost own efforts of Risk Management.

(g) **Knowledge Management (KM).** There is an urgent need to capitalize on the wealth of knowledge available within our country and abroad in how to prevent and reduce disasters besides how to handle disasters. KM must get institutionalized in all our endeavours and must get translated into disaster manuals at various levels down to talukas and villages.

(h) **Capacity Building.** An all out effort is required to empower the masses and build capacity of the community vulnerable to disasters. This cannot be done in isolation and hence the same has to get linked to the govt policies and plans of poverty alleviation, development, nature conservation and needs to be done in terms of resources, skills and information availability²².

²¹ HPC Report on Disaster Management, pp 95.

²² Ibid, pp 121

(j) **Link Development to Disaster Reduction / Prevention**. Integration of development plans with disaster-mitigation is the key for successful disaster management²³. The enactment of Disaster Management Act 2005 must ensure that development be done with human face and it must not aid disasters. Promote developmental activities which will help reduce disasters and positively not generate new disasters.

(k) **Utilization of Media to Advantage**. The media in today's time is all powerful because of its wide reach amongst the masses. There is need to integrate the media in our disaster management plans from providing training through various programmes to provide early warnings of disasters. Media must be used effectively for campaigning against haphazard development and enhance mass awareness towards disasters²⁴.

(l) **Training Policy**. We need to identify our training needs specific to our requirements without applying the template of other countries mindlessly. Also our training programmes must be designed to be compatible with and give support to counter-disaster plans²⁵.

(m) **Multi-Hazards Handling Approach**. Our approach has to be to empower our disaster management apparatus to be able to address a number of hazards simultaneously or in succession which is what going to be the scenario in times to come.

(n) **Legislation of Tough Codes of Construction**. There is an urgent need to ensure the land laws and constructions laws are followed in letter and spirit. The govts must keep a check on proliferation of illegal construction esp fragile structures be it bridges, dams or buildings.

Conclusion

25. The Himalayas, the river systems and the coastal regions form the varied terrain of India, each beset with varying typologies of disaster vulnerabilities. The vastness of India and its unique regional features require a comprehensive approach to managing Disaster Scenarios. Perspectives and ideologies for calamity management need to be in terms of constitutional, legal, and administrative systems of response, recovery, development, prevention, and preparedness. One of the many lessons learnt by victims of various natural disasters is that the aftermath of the disaster can be even worse than the disaster event itself. Thus there is need to acknowledge the need for preparedness towards disaster reduction.

26. Natural occurrences such as floods, earthquakes, cyclones, etc. simply cannot be avoided altogether; they are a part of the environment we live in. What can be done, however, is to take preventive measures at various levels within the society in order to minimize the impact of such natural hazards as much as possible for the people. The impact of a natural hazard can be reduced. We need to create a Disaster Free India, through the confluence of cultures of Preparedness, Quick Response, Strategic Thinking and Prevention.

References

- a. NIDM Journal 'Disaster & Development' Vol 1, No 1, Nov 2006.
- b. Policy Approach and Role of Various Organisations in Disaster Management.
- c. India's Disaster Management Profile by Professor Vinod K. Sharma.
- d. Dissertation by Col A Anand CDM on Disaster management : A case study on Tsunami.
- e. HPC report on Disaster Management 2001.
- f. Disaster Management (Recent Approaches) by Arvind Kumar.
- g. UN website www.un.org.in on Gujarat earthquake" The UN System Response to the Gujarat Earthquake Immediate Needs and Action Plan".
- h. Disaster Management Process by Prabhat C Sinha.
- J. Learning Module; Introduction to Natural Disaster Risk Mgt Framework Course (Transcript).
- K. Disaster Management Recent Approaches by Arvind Kumar.

²³ Ibid, pp 24.

²⁴ Disaster Management Recent Approaches by Arvind Kumar, pp 92.

²⁵ Disaster Mitigation (Preparedness, Recovery and Response) by Prabhat C Sinha , pp 20.

Appendix A
(Refers to Para 8 the End of Term Report)

NATIONAL CRISIS MANAGEMENT COMMITTEE (NCMC) &
CRISIS MANAGEMENT GROUP (CMG)

1. **Composition of the NCMC.** The composition of the NCMC is as under:-

- | | | |
|-----|-----------------------------------|--------------------|
| (a) | Cabinet Secretary | - Chairman. |
| (b) | Secretary to Prime Minister | - Member. |
| (c) | Secretary (MHA) | - Member. |
| (d) | Secretary (MOD) | - Member. |
| (e) | Director (IB) | - Member. |
| (f) | Secretary (RAW) | - Member. |
| (g) | Secretary (Agri) | - Co-opted Member. |
| (h) | An Officer of Cabinet Secretariat | - Convener. |

2. **CMG.** The CMG deals with matters relating to relief in the wake of major natural calamities. It consists of the following :-

- | | | |
|-----|--|-------------|
| (a) | Relief Commissioner | - Chairman. |
| (b) | OSD, Cabinet Secretary or a Representative of Cabinet Secretariat. | |
| (a) | A Representative of Prime Ministers Office. | |
| (d) | Joint Secretaries in the Ministries/Departments of Finance, Food, Civil Supplies, Power, Urban Development, Rural Development, Health, Petroleum, Planning Commission and Department of Women & Child Development. | |
| (e) | Director General, India Meteorological Department. | |
| (f) | Senior Officers of the Ministry of Railways and Ministry of Water Resources. | |
| (g) | Senior Officer from the Ministry of Transport (If Required). | |
| (h) | Director General, Civil Defence (If Required). | |
| (j) | Senior Officer of Ministry of Communications (If Required). | |
| (k) | Joint Secretary of Ministry of Defence (If Required). | |
| (l) | Joint Secretary (SR) & Additional Relief Commissioner | - Convenor. |

3. The Resident Commissioner of the States affected by natural calamity may be co-opted on the CMG during the period of crisis.