

SYBBA (Semester- IV)

Subject: Disaster Management (UM04SBBA72)

Unit 4 Disaster Management in India

Geographical classification of India on the basis of natural disasters

Introduction

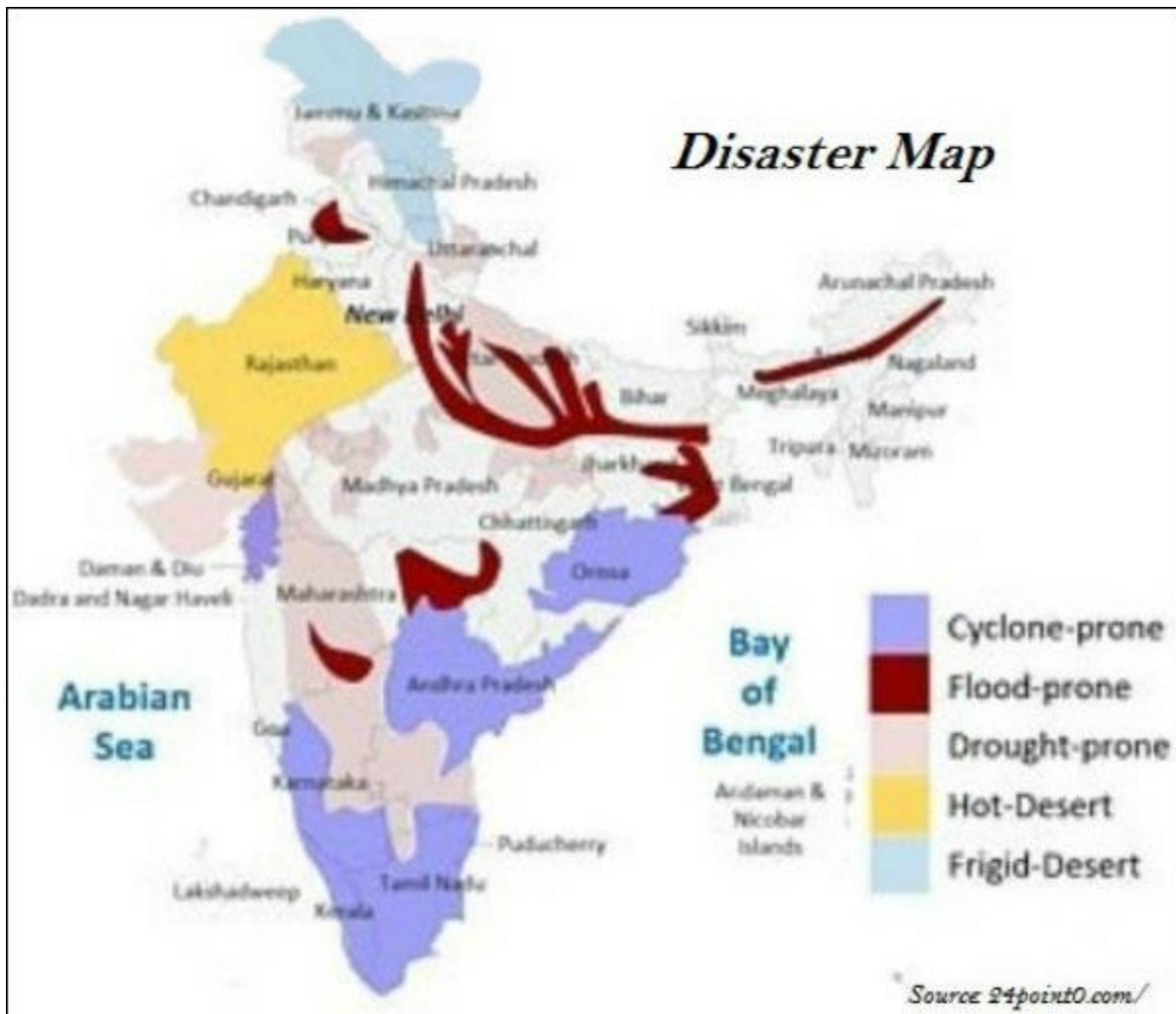
- Disaster is an undesirable catastrophe resulting from the forces that are largely beyond human control, strikes quickly with little or no warning, and causes or threatens serious disruption of life and property. For example, earthquake, tsunami, cyclone, flood, etc.
- Disasters are normally caused by nature (beyond human control); however, there are many human-induced disasters. For example, Bhopal Gas tragedy, Chernobyl nuclear disaster, wars, release of CFCs (Chlorofluorocarbons), releasing greenhouse gases, etc.
- Besides, some disasters are natural in occurrence, but those are indirectly caused by human activities. For example, landslides in hilly regions, droughts, and floods due to deforestation and other environmental damage.
- On the other hand, Natural Hazards are the elements of circumstances in the Natural environment that have the potential to harm people or property or both.
- The disasters are global in nature; hence, to combat with it, the United Nations made a systematic strategy at the World Conference on Disaster Management held in **May 1994 at Yokohama, Japan.**
- The Yokohama conference however, is popular as the ***“Yokohama Strategy and Plan of Action for a Safer World.”***

Categories of Natural Disaster

- Natural Disasters are broadly categorized as –
 - Atmospheric Disasters
 - Terrestrial Disasters
 - Aquatic Disasters
 - Biological Disasters
- **Atmospheric disasters** include blizzard, thunderstorm, lightning, tropical cyclone, tornado, drought, hailstorm, frost, heat wave, cold waves, etc.

- **Terrestrial disasters** include earthquake, volcanic eruption, landslide, avalanches, subsidence, etc.
- **Aquatic disasters** include flood, tidal waves, storm surge, tsunami, etc.
- **Biological disasters** include fungal, bacterial, and viral diseases (e.g. bird flu, dengue, etc.).

Disasters' Zone



- **Tsunamis** can be observed frequently along the Pacific ring of fire, particularly along the coast of Alaska, Japan, Philippines, and other islands of Southeast Asia, Indonesia, Malaysia, Myanmar, Sri Lanka, and India etc.
- **Tropical cyclones** are intense low-pressure areas, confined between 30°N and 30°S latitudes.

- The center of the cyclone is mostly a warm and low-pressure, cloudless core known as '**eye of the storm**' (as shown in the image below) –
- The ideal location of the tropical cyclone in India is Bay of Bengal.
- **Cyclones** in the Bay of Bengal normally develop in the months of October and November.
- *Rashtriya Barh Ayog* (National Flood Commission) identified 40 million hectares of land as flood-prone in India.
- Assam, West Bengal, and Bihar are the high flood-prone states of India.
- About **30 per cent** of India's total area comes under drought prone area, which affects about 50 million people.
- The western part of Rajasthan is categorized as Extreme Drought Affected Areas.
- Parts of eastern Rajasthan; many parts of Madhya Pradesh; eastern parts of Maharashtra; interior parts of Andhra Pradesh and Karnataka Plateau; northern parts of interior Tamil Nadu; southern parts of Jharkhand; and interior parts of Odisha are categorized as **Severe Drought Prone Area**.
- Young mountainous areas of North and north-eastern India (the Himalayan regions), Andaman and Nicobar; high rainfall regions with steep slopes in the Western Ghats and Nilgiris; along with areas of frequent earthquakes, etc. are categorized as **Very High Landslide Vulnerability Zone**.
- A situation when there is a prolonged period of inadequate rainfall is known as **Meteorological Drought**.
- When soil moisture that is necessary to support the crops, is low or insufficient to support crop cultivation, it is known as **Agricultural Drought**.
- When the productivity of a natural ecosystem fails because of the shortage of water and as a consequence of ecological distress, damages occur in the ecosystem, it is known as **Ecological Drought**.

Disaster Management

- The **Disaster Management Bill, 2005**, defines disaster as "*a catastrophe, mishap, calamity or grave occurrence affecting any area, arising from natural or man-made causes, or by accident or negligence which results in substantial loss of life or human suffering or damage to, and destruction of, environment, and is of such nature or magnitude as to be beyond the coping capacity of the community of the affected area.*"

Disaster management policy of India: Significance, Main elements of national body.

Disaster management is a multi disciplinary activity involving a number of Departments/agencies spanning across all sectors of development. Where a number of Departments/agencies are involved, it is essential to have a policy in place, as it serves as a framework for action by all the relevant departments/agencies. A National Policy on Disaster Management has been drafted, and is in the process of being finalized. After inter ministerial consultations, it will be submitted to the Cabinet for approval. In the line with the changed focus, the policy proposes to integrate disaster mitigation into development planning. The policy shall inform all spheres of Central Government activity and shall enjoin upon all existing sectoral policies. The broad objectives of the policy are to minimize the loss of lives and social, private and community assets because of natural or man-made disasters and contribute to sustainable development and better standards of living for all, more specifically for the poor and vulnerable section by ensuring that the development gains are not lost through natural calamities/disaster. The policy notes that State Governments are primarily responsible for disaster management including prevention and mitigation, which the Government of India provides assistance where necessary as per the norms laid down from time to time and proposes that this overall framework may continue. However, since response to a disaster requires coordination of resources available across all the Departments of the Government, the policy mandates that the Central Government will, in conjunction with the State Governments, seek to ensure that such coordination mechanism is laid down through an appropriate chain of command so that mobilization of resource is facilitated.

The broad features of the drafted National Policy on Disaster Management are enunciated below:-

- i) Adoption of a holistic and pro – active approach towards prevention mitigation and preparedness.
- ii) Incorporation of mitigation measures in the on – going schemes/programmes.
- iii) Each Ministry/Department of the Central/State Government will set apart an appropriate quantum of funds under the Plan for specific schemes/projects addressing vulnerability reduction and preparedness.
- iv) Where there is a shelf of projects, projects addressing mitigation will be given priority.
- v) Each project in a hazard prone area to have mitigation as an essential term of reference and to include a statement indicating as to how the project addresses vulnerability reduction.
- vi) Community involvement and awareness generation, particularly the of the vulnerable segments of population and women has been emphasizes as necessary for sustainable disaster risk reduction. This is a critical component of the policy since communities are the first responders to disasters and, therefore, unless they are empowered and made capable of managing disasters, any amount of external support cannot lead the optimal results.
- vii) Interaction with the corporate sector, the non – governmental organization and the media in the national efforts for disaster prevention/vulnerability reduction.

viii) Building up institutional structures/appropriate chain of command and imparting appropriate training to disaster managers at various levels to ensure coordinated and quick response and development of inter – State arrangements for sharing of resources during emergencies.

ix) Inculcating a culture of planning and preparedness at all levels for capacity building measures.

x) Formulation of Standard Operating Procedures (SOPs) and disaster management plans at state and district levels as well as by relevant central government departments.

xi) Compliance with construction designs laid down in relevant India Standards.

xii) Evaluation and, where necessary, retrofitting of lifeline buildings in seismic zones III,IV & V – hospitals, railways stations, airports/airport control towers, fire station buildings, communication network, major administrative buildings.

xiii) Conversion of relief codes into disaster management codes for institutionalizing the planning process.

xiv) Promotion of internal cooperation in the area of disaster response preparedness and mitigation in tune with national strategic goals objectives.

National Disaster Management Authority (NDMA)

The NDMA, as the apex body for disaster management, is headed by the Prime Minister and has the responsibility for laying down policies, plans and guidelines for DM and coordinating their enforcement and implementation for ensuring timely and effective response to disasters. The guidelines will assist the Central ministries, Departments and States to formulate their respective DM plans. It will approve the National Disaster Management Plans and DM plans of the Central Ministries/Departments. It will take such other measures, as it may consider necessary, for the prevention of disasters, or mitigation, or preparedness and capacity building for dealing with a threatening disaster situation or disaster. Central Ministries/Departments and State Governments will extend necessary cooperation and assistance to NDMA for carrying out its mandate. It will oversee the provision and application of funds for mitigation and preparedness measures. NDMA has the power to authorize the Departments or authorities concerned, to make emergency procurement of provisions or materials for rescue and relief in a threatening disaster situation or disaster. The general superintendence, direction and control of the National Disaster Response Force (NDRF) are vested in and will be exercised by the NDMA. The National Institute of Disaster Management (NIDM) works within the framework of broad policies and guidelines laid down by the NDMA. The NDMA is mandated to deal with all types of disasters; natural or man – made. Whereas, such other emergencies including those requiring close involvement of the security forces and/or intelligence agencies such as terrorism (counter – insurgency), law and order situations, serial bomb blasts, hijacking, air accidents, CBRN weapon systems, mine disasters, port and harbor emergencies, forest fires, oilfield fires and oil spills will continue to be handled by the extant mechanism i.e., National Crisis Management Committee (NCMC). NDMA may, however, formulate guidelines and

facilitate training and preparedness activities in respect of CBRN emergencies. Cross – cutting themes like medical preparedness, psycho – social care and trauma, community based disaster preparedness, information and communication technology, training, preparedness, awareness generation etc., for natural and man – made disaster will also engage the attention of NDMA in partnership will also engage the attention of NDMA in partnership with the stakeholders concerned.

Resources available with the disaster management authorities at all levels, which are capable of discharging emergency support functions, will be made available to the nodal Ministries/Agencies dealing with the emergencies at times of impending disaster(s).

National Executive Committee (NEC)— The NEC comprises the Union Home Secretary as Chairperson, and the Secretaries to the Government of India, in the Ministries/Departments of Agriculture, Atomic Energy, defense, Drinking Water Supply, Environment and Forests, Finance (Expenditure), Health, Power, Rural Development, Science & Technology, Space, Telecommunication, Urban Development, Water Resources and the Chief of the Integrated Defence Staff of the Chiefs of Staff Committee members. Secretaries in the Ministry of External Affairs, Earth Sciences, Human Resource Development, Mines, Shipping, Road Transport & Highways, and the Secretary, NDMA will be special invitees to the meetings of the NEC. The NEC is the executive committee of the NDMA, and is mandated to assist the NDMA in the discharge of its functions and also ensure compliance of the directions issued by the Central Governmental. The NEC is to coordinate the response in the event of any threatening disaster situation or disaster. The NEC will prepare the National Plan for Disaster Management based on the National Plan for Disaster Management based on the National Policy on Disaster Management. The NEC will monitor the implementation of guidelines issued by NDMA. It will also perform such other functions as may be prescribed by the Central Government in consultation with the NDMA.

Nodal Agencies: State, district and local authorities.

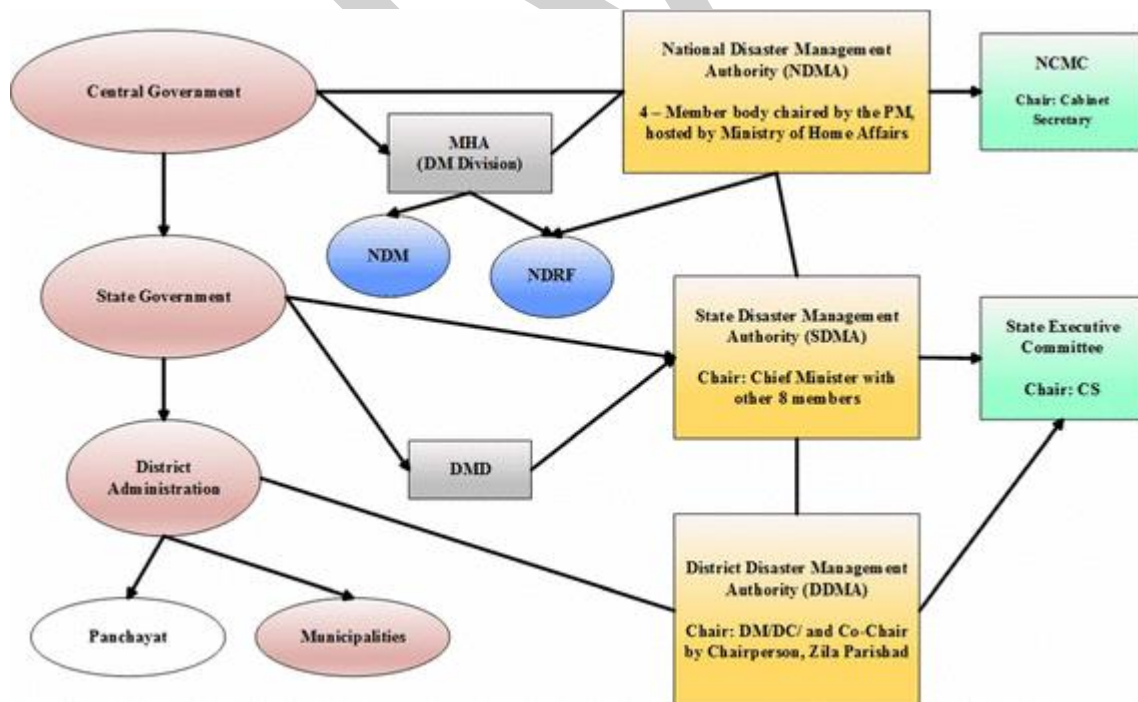
State Disaster Management Authority (SDMA)—

At the State level, the SDMA, headed by the Chief Minister, will lay down policies and plans for DM in the State. It will, inter alia approve the State Plan in accordance with the guidelines laid down by the NDMA, coordinate the implementation of the State Plan, recommended provision of funds for mitigation and preparedness measures and review the developmental plans of the different Departments of the State to ensure the integration of prevention, preparedness and mitigation measures. The State Government shall constitute a State Executive Committee (SEC) to assist the SDMA in the performance of its functions. The SEC will be headed by the Chief Secretary to the State Government and coordinate and monitor the implementation of the National Policy, the National Plan and the State Plan. The SEC will also provide information to the NDMA relating to different aspects of DM.

District Disaster Management Authority (DDMA)→

The DDMA will be headed by the District Collector, Deputy Commissioner or District Magistrate as the case may be, with the elected representative of the local authority as the Co-Chairperson. The DDMA will act as the planning, coordinating and implementing body for DM at the District level and take all necessary measures for the purposes of DM in accordance 218 with the guidelines laid down by the NDMA and SDMA. It will, inter alia prepare the District DM plan for the District and monitor the implementation of the National Policy, the State Policy, the National Plan, the State Plan and the District Plan. The DDMA will also ensure that the guidelines for prevention, mitigation, preparedness and response measures laid down by all the Departments of the State Government at the District level and the local authorities in the District.

Local Authorities→ For the purpose of this Policy, local authorities would include Panchayat Raj Institutions (PRI), Municipalities, District and Cantonment Boards, and Town Planning Authorities which control and manage civic services. These bodies will ensure capacity building of their officer and employees for managing disasters, carry out relief, rehabilitation and reconstruction activities in the affected areas and will prepare DM Plans in consonance with the guidelines of the NDMA, SDMA and DDMA. Specific institutional framework for dealing with disaster management issues in mega cities will be put in place.



Stakeholders in disaster management

An effective and successful community-based approach in reducing disaster risks is often attributed to the spontaneous participation and involvement of the following stakeholders:

There is a need for coordination in the Community-Based Approach among all the stakeholders. The parameters for participation by each of the stakeholders need to be clearly outlined at the national level to avoid overlap and confusion. The focus for all of the stakeholders should be the local people, who are at risk of being potential victims and who should also assume responsibility in managing that risk. The stakeholders must:

- develop a strong governance framework through legislation and policies;
- mainstream disaster risk management and capacity building into decision making, the budget process, and sector, provincial and community development plans;
- strengthen, empower and support local and national structures; and
- understand and recognize that disaster management and disaster risk reduction are environmental, humanitarian and developmental issues, so there is a need to coordinate the implementation, monitoring and evaluation of the approach.

Government

To have an effective and sustainable impact on the community-based disaster programmes, policy makers should consider incorporating community-based disaster programmes into their drafting of appropriate acts and regulations in order to implement them effectively. The governments have a prime responsibility for managing disasters and for taking into consideration the roles taken by different people in the community in terms of developing and providing approaches and strategic actions which can be used to manage the consequences of disaster within the community. Community-based disaster initiatives produce results so long as there is also government support.

Regional and International Organisations / Donor Agencies

Selected donor agencies, regional and international organisations assist the communities in terms of initiating the community-based disaster programmes and providing financial assistance and sometimes resource people for the programmes.

Island Councils / Local Government

The most common elements of the community-based disaster involvement are partnership, participation, empowerment and ownership by the local people. Thus, it is the responsibility of the local government and/or island council to ensure there is an effective partnership in place, plus participation, empowerment and ownership by local people in their communities towards disaster reducing initiatives and programmes.

Community Workers

Community workers are the most reliable arms of the local government/island council in the implementation stage of the disaster policy and reduction initiatives. They have experience in handling disasters, hazards, emotional problems and coping mechanism and uncertainties. They assist the local government/island council in establishing a strong cooperation and understanding among diverse stakeholders including the local government, local NGOs, government, regional and international organisations. If this cooperation is effective, every person involved in all community-based disaster programmes is benefited, but the actual ownership still remains with the concerned community. This will be considered as a successful model for sustainable community-based disaster recovery, especially when the regional and international agencies leave. The community workers should also know that the timing of any activity is important. Therefore their responsibility is to make sure the timeframe of any community-based disaster reduction activity is followed otherwise the involvement of the people in the community will be reduced.

National/Local Organisations

National and local organisations such as women's committees, youth groups, schools, religious groups, etc. should consider adapting the community-based disaster initiatives provided by the government, regional and international organisations as part of their overall disaster risks management. They are the main bodies in the community that can assist in the implementation of the community-based disaster programmes effectively.

National and Local Disaster Managers

Disaster Managers are the disaster professionals and technical people in the national government, who are responsible for the implementation of the disaster management initiatives of the country. Since the communities are important parts of the national government, these disaster professionals and managers should be aware that the key aspect of community-based disaster initiatives is its sustainability. Therefore, it is the trainers, local managers and/or national managers' roles and responsibilities to train people in the community to understand the basic community-based disaster mitigation practices. While people in the community should own the problems, consequences, challenges of disaster mitigations and preparedness initiatives, it is still necessary for the trainers, local disaster managers and /or national disaster managers to take people's involvement further by training them to be aware of disaster policy and strategy. One of the roles and responsibilities is to empower all concerned stakeholders through awareness training to involve them in decision making. They work together with local government on the development of schemes to ensure the sustainability of disaster initiatives is always in place at the individual, community and island levels. They are responsible for the implementation of local disaster management initiatives. These include island, city, province, department officers and practitioners.

Trainers

Trainers provide training to the community leaders and agents. Through the facilitation process, the trainers provide awareness training which includes activities that aim at assessing the people's capacity and vulnerability in relation to community-based disaster happenings. Trainers' responsibility is also to develop and provide proposals about possible awareness activities aimed at the improving the assessed capacity and decreasing the vulnerability rate of the community residents. The other important responsibility for the trainers is to make sure that their training content is visible within the community and through the daily contacts with the residents. Training is a very important channel for the community, and ensuring that the whole community can better react to future disaster happenings.

Policy Makers

The policy makers are the ministers, permanent secretaries of the ministries and heads of the national disaster management units. There are also policy makers at the local government level, including island council presidents, city mayors and local politicians who prepare the island and/or city policies.

Grass-roots people

People at the grass-roots should understand their own disaster risks and be well versed in taking actions against such risks.

NGO

NGOs are organizations registered under various Indian laws such as the Societies Registration Act, 1860, Section 25(1) of Companies Act, 1956 meant for non- 248 profit companies, or State-specific Public Charitable Trust Acts. NGOs work on a variety of areas like humanitarian assistance, sectorial development interventions and sustainable development. NGOs play important roles in different stages of the Disaster Management Cycle. Volunteerism and social service has deep roots in India, since time immemorial, even though it received special significance during the freedom struggle through the Gandhian concept of Shramdaan, implying the offering of free labour for some noble cause like rural development, construction of social assets and public infrastructure and amenities, etc. In post-Independent India, the Non-Governmental Organisations (NGOs) have been providing support in critical sectors like health, education, water supply and sanitation, shelter and infrastructure, restoration of livelihoods, food security and nutrition, environment, etc. Given India's multihazard risk and vulnerability to natural and man-made disasters, NGOs have been playing a significant role in providing humanitarian assistance to disaster-affected people in most of the severe disasters like the Latur earthquake in 1993, Orissa super cyclone in 1999, Bhuj earthquake in 2001, Indian Ocean tsunami in 2004, Kashmir earthquake in 2005, Barmer floods in 2006, Kosi floods in 2008, cyclones Aila and Laila and the more recent cloud burst in Leh in August 2010, apart from participating in providing relief to disaster affected communities in various other localised disasters.

In the recent past, the role of NGOs in disaster management (DM) has started changing from providing post-disaster relief to strengthening pre-disaster preparedness and mitigation through capacity building,

public awareness campaigns, mock exercises, workshops and conferences, etc. NGOs have also started to collaborate with corporate entities in Public-Private Partnership (PPP) projects and Corporate Social Responsibility (CSR) initiatives in the field of DM at 249 State, District and Sub-district levels. Till recently, the work of NGOs in the field of DM has been mostly sporadic, reactive, responsive and driven by local level compulsions in the geographic areas where they are implementing development projects and very often they faced enormous challenges in coordinating with the government machinery and even among NGOs themselves. In line with its mandate as envisaged in the Disaster Management Act 2005 (DM Act 2005), the National Disaster Management Authority (NDMA) has circulated National Disaster Management Guidelines on Role of NGOs in Disaster Management defining the role of NGOs in disaster management. NGOs are organizations that are non – profit making, voluntary and independent of government, engaged in activities concerning various societal and developmental issues. The NGO sector has always been very vibrant in India, and is based on the concept of volunteerism and care for the fellow citizens. Many organizations also undertake DM activities, as a core area of ongoing work in the case of some agencies while some others participate only in post – disaster response when the communities they work with face sudden emergencies.

A very large number of NGOs, both international and national, have significantly large field presence that often extend across a number of States. They are well organized in terms of operations, administration and finances. Their work is complemented by local and community based organizations, which are most spontaneous and informal in nature, and work at the grassroots levels often from within communities. Several NGOs have access to significant resources in the form of money, material, equipment, human resources, knowledge and skills to deal with disaster related situations through various communities – centric processes and approaches. Many have very systematic and time – tested arrangements for accessing 250 international humanitarian resource. Many of these humanitarian players have significant sectoral competencies with proven track records and demonstrated results by virtue of their work in various parts of India and also in other countries. NGOs work in the sectors of women and child care, health, education, livelihood promotion, water and sanitation, shelter and habitat promotion, advocacy and various other aspects of disaster preparedness, mitigation and response. NGOs play a significant role in slow onset disasters such as droughts, through work that is developmental and at the same time reduces risk as well as responding to the relief needs.

The strong field presence of many NGOs at the national, state, district and sub – district levels, even extending to remote settlements in far flung areas indicate the high credibility and acceptability that they enjoy with local communities. The strong contact with local community groups like Self Help Groups (SHGs), farmers groups, youth groups, women’s groups, village health committees, watershed committees, etc. and their participation in the local level implementation of government’s flagship programmes and their innovative approaches in employment generation, income generation, poverty alleviation and natural resource regeneration and climate change adaptation/mitigation projects make them ideal partners in mainstreaming disaster risk reduction (DRR) in development plans at various

levels. NGOs not only work on their own but also work in partnership with other national and international organizations, UN agencies, community based organizations, local governments, and self help groups and government bodies. Over the years NGOs have also come together through networks, coalitions and alliances so as to offer value added humanitarian services, notable examples being Voluntary Health Association of India (VHAI), Voluntary Action Network India 251 (VANI), Sphere India, Alliance for Adaptation and Disaster Risk Reduction (AADRR), and Confederation of Voluntary Associations (COVA).

There is also need to strengthen public awareness, capacity building and knowledge management. Institutional mechanisms for the advocacy and engagement of NGOs with government agencies on DM concerns requires to be strengthened. Replication and scaling up of community level good practices has to be promoted. Humanitarian advocacy needs to be carried out for public policy/system reform, awareness on entitlement and grievance redressal. There is need to promote quality, accountability and do no harm principles and standards. Promotion of the principle of collaborative, consultative and unified action to complement and supplement government action in DM is of critical importance. The sector also needs to work concertedly for promoting community participation, good governance, accountability and transparency.

Police

Man-made disasters such as bomb explosions and arson cause a sense of vulnerability. Natural disasters such as hurricanes, floods, tornadoes and fires all cause specific damage and chaos. A strong police presence in both situations may help ease fears and help prevent others from taking advantage of the situation.

1. Crowd Control

Disaster situations draw crowds. There are people hoping for a glimpse of the unfolding drama. Family members and friends of the victims show up, hoping to glean information about their loved ones. The people involved in the situation also mill around, sometimes while injured or in shock. The police cordon off areas and work to keep crowds under control.

2. Public Safety

Officers might go from house to house searching for the injured or those who need help. They can offer transportation, emergency medical care and be a bridge between citizens and rescue personnel. They can check credentials and identification to see if someone really needs to be in the area. They may warn people when electric wires are on the ground, when dangerous pests are lurking or when unstable people are nearby.

3. Directing Traffic

Many disasters wipe out infrastructures such as electricity, making an unsafe situation for traffic and pedestrians. The police can close unsafe roads where downed wires, trees or flood situations might make travel unsafe. They direct citizens through nonworking traffic lights. They reroute random traffic to safer roads and try to keep out all unnecessary traffic. They can put roadblocks in the areas where the crisis is underway.

4. Organizing Search Teams

Disaster situations often lead to family members being separated. Elderly and single people are at risk if they have no one to check on them. If these citizens wander around, problems may result. The police can set up search teams and put together systems where loved ones can check on one another. They can set up command centers where the victims and family may be reunited. They work with emergency personnel to list the various medical facilities used for treating sick or injured people.

5. Looters

There are those who take advantage of a chaotic situation. When people are evacuated from homes or neighborhoods, houses are unsupervised and opportunities to commit crime may be rampant. Police presence may help to deter looting. If looting does occur, the police are ready to apprehend suspects.

Education Institutes

To integrate disaster risk reduction into sustainable development policies and planning, to develop and strengthen institutions, mechanisms and capacities, to build resilience to hazards and to systematically incorporate risk reduction approaches into the implementation of emergency preparedness, response and recovery programmes, it is imperative to strengthen disaster preparedness and mitigation strategies at all levels. Disaster preparedness can play in saving lives and livelihoods particularly when integrated into an overall disaster risk reduction approach. The goal of developing 'disaster-resilient communities' rests heavily upon the success of disaster risk reduction education. In India, we have the Tata Institute of Social Sciences, University of Delhi, University of Pune, University of South Gujarat and other educational institutions which have taken up the task of strengthening government's efforts in conducting research on impacted communities, designing rehabilitation initiatives, disaster preparedness and mitigation strategies. Although knowledge does not guarantee power over natural catastrophe, it is a prime requisite of disaster preparedness and prevention. The integration of disaster risk education both formal and informal educational means at schools and universities is the one way to ensure that these messages reach into every home and community and that learning is sustained into future generations.

To highlight this aspect there is plethora of research material available at the global level as well as national level. Major studies in this area have been carried out by ISDR (2007, 2008), UNDP (2004, 2005, 2006) and World Bank. It is because of the efforts of the activists connected with nongovernmental organizations, scientific, academic and research institutions disaster risk education has been prioritised both at the grassroots and 42National Institute on Disaster Management. (n.d.). Vision. For instance the 2006-07 UNISDR campaign "Disaster risk reduction begins at school" aimed to promote the integration

of disaster risk reduction into government plans for school curricula and to ensure that school buildings are safe from the impacts of natural hazards is an outcome of UNISDR 2006 study. Similarly based on the global research studies on climate change awareness and environmental education, Ministries of Education in developing economies like India, China, Bangladesh and others are taking on the challenge of disseminating disaster risk reduction education. The current International Decade of Education for Sustainable Development led by UNESCO, provides a long-term focus for taking this agenda forward. Early efforts in disaster education focused exclusively on hazards. More recent efforts have begun to engage children and youth in discovering and recognizing the myriad local hazards that they face, and introduce primary disaster risk mitigation: physical protection of people and property, environmental stewardship, and recognizing underlying vulnerability connected with tenuous livelihoods (Petal 2007, 2008).

Developing a Culture of Preparedness Academic institutions have a key role to play in developing new disaster management curricula for the next generation, as well as providing short courses for policy makers and a wide range of other professionals whose daily decisions influence the level of disaster risk we all live with. Disaster risk reduction and sustainable development cross all disciplines, from Engineering, where work is being done on clean and renewable energy systems, to Architecture, which houses a 'Design Centre for Sustainability' by using holistic and synergistic approaches to sustainability, to Chemistry, where students are working on green materials. In these and other disciplines, we see a much greater emphasis on new concepts of intervention involving community consultation and partnership, a recognition that the kinds of problems we now face must be approached collectively and collaboratively, through partnerships that engage diverse range of stakeholders in creating a culture of disaster preparedness and mitigation. Artificial barriers between scientific disciplines and other faculties need to be bridged and disaster management should be imparted in a more holistic fashion. This will not only progressively enhance acceptability of DRR as an academic and professional domain but also boost knowledge management in India.

Government of India, Ministry of Human Resource Development in its Tenth Five Year Plan emphasized the need for integrating disaster management in the existing education system in India. One of the important initiatives taken by GOI includes recommending various Boards to incorporate disaster management in the curriculum of school and professional education and design disaster management plans for their institutions. In addition to this GOI has specially created around 15 institutes that offer courses on Disaster Management across India. Notable amongst them being the National Center for Disaster Management (NCDM) set up by the Indian Institute of Public Administration, the Centre for Disaster Management set up by Y S Chavan Academy of Development Administration, and Disaster Management Institute, Bhopal. NCDM is also the nodal agency for coordinating relief and rehabilitation work during natural calamities. GOI, Ministry of Human Resource Development has recommended the different school boards to incorporate Disaster Management in the school curriculum.

In case of integration of disaster management in the higher education, only two hours training programme is conducted every year for students of NSS. United National Center for Regional Development. (2008). As per the data available with the UGC 402 academic institutions all over the country imparting post graduate studies have incorporated courses on 'Emergency Management/

Disaster Management/ Crisis Management in their post graduate programmes. There are around 419 public and private universities⁴⁴ (Avoid general referencing and refer to authentic source of information such as government, UN agencies, prominent institutions etc.) and 6014 colleges⁴⁵ providing higher education in India, this clearly indicates huge gap in the educational sector to integrate emergency management as part of formal educational system.

Private Organizations

Where does the role of the private sector lie in disaster management? It is obvious that this is a multi-faceted and multi-disciplinary one, including those listed below and more:

- In defining, assigning and implementing clear and coherent institutional roles? In training, equipping and achieving proficiency for effective response capacity for high risk communities
- In assessing institutional needs, developing and implementing programmes to assist key organizations with sustainability issues and measures
- In improving disaster consciousness of the general population
- In improving access to accurate information and basic communication, energy and water systems for high-risk communities by facilitating appropriate technology alternatives on credit to qualifying communities.

At the same time, local authorities need to provide a more effective framework for unleashing the full potential of private sector contribution. This framework can include policies that contribute directly to safer industrial operation, and incentives for business to become more involved in disaster management programmes. Mechanisms whereby businesses and the authorities meet to discuss their respective roles and contributions to national disaster security need to be set up and operationalized on a regular basis.

In a session organized as a part of the World Conference on Disaster Reduction (WCDR, January 2005, Kobe, Japan), a number of interesting viewpoints were put forth:

1. It appears that the private sector plays both vital and varied roles in emergency management. In fact, it is not an exaggeration to state that the contributions of businesses in mitigation, preparedness, response, and recovery activities have been woefully underestimated.
2. The private sector interacts frequently with the public sector to fulfill necessary community disaster functions. Therefore, the lines between the public and private sectors appear to be disappearing, blurring, or even artificial.
3. The public sector relies heavily upon the goods and services provided by the private sector. Many functions, such as public information, debris removal, and emergency medical care, could not be adequately performed without the assistance of the private sector.

4. Numerous factors facilitate coordination among the private and public sectors. Planning meetings, communications capability, and cooperation were mentioned as variables that promoted close collaboration.
5. Much more needs to be known about the roles of businesses in disasters. For example, are there functions performed by the private sector beyond those mentioned here.
6. Additional research on coordination will be required, focussing on the interaction of the public and private sectors in emergency management.
7. Methods of educating and involving businesses in emergency management must be promoted. Public officials and agencies should include, where possible, the private sector in all types of disaster prevention and planning activities.
8. Practitioners must continue to emphasize networking and partnering. The performance of emergency management is increasingly a result of successful collaboration among government agencies and the private sector.
9. The factors that hinder and help coordination must be explored by academia. Practitioners should familiarize themselves with the lessons provided by scholars in order to augment future emergency management capabilities.

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