A Review of Disaster Management Capacity in India

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“...This paper will confine itself to examining the architecture of disaster management, decision making and coordination of disaster management in India and suggest means to improve it. ...”

Historically, in India droughts or famines were considered to be the primary disasters that needed to be attended to by the Government by providing relief. After Independence, disaster management did not get sufficient attention within the Government in spite of the fact that food crises became increasingly infrequent and the growth of population, increase in local housing stock and changing climatic conditions brought fresh types of disasters into focus. Change in disaster management only started in the early 21st century and the establishment of the National Disaster Management Authority (NDMA) in 2005 generated hope that this issue would finally be accorded the importance it deserved. However, for various reasons, which will be discussed in this paper, while the legislative and Governmental instruments for effective disaster management are now in place, the sum of the parts has yet to achieve its full potential. Disaster Management is an extensive subject influencing a wide range of activities at all levels of the functioning of the State, spanning the spectrum from disaster risk reduction, which is a part of development, to response and recovery. This paper will confine itself to examining the architecture of disaster management, decision making and coordination of disaster management in India and suggest means to improve it.

DISASTER VULNERABILITY

India is one of the most disaster prone countries in the world. The National Disaster Management Plan of May, 2016 states it very well and succinctly when it says:

“India, due to its physiographic and climatic conditions, is one of the most disaster prone areas of the world. Nearly 59 per cent of the landmass is prone to earthquakes of moderate to very high intensity. More than 40 million hectares (12 per cent of land) is prone to floods and river erosion.

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Ambassador Hemant Krishan Singh
Director General
Of the nearly 7,500 km long coastline, close to 5,700 km is prone to cyclones and tsunamis. Nearly 68 per cent of the cultivable area is vulnerable to drought. Large tracts in hilly regions are at risk from landslides and some are prone to snow avalanches. Vulnerability to disasters/emergencies of CBRN origin also exists. Heightened vulnerabilities to disaster risks can be related to expanding population, urbanisation and industrialisation, development within high-risk zones, environmental degradation, and climate change.  

This is a comprehensive overall description of the vulnerability profile of India. However, what is not accorded enough emphasis is the vulnerability of North India to earthquakes as the potential loss of life and devastation of a major earthquake in North India is enormous. The Bhuj earthquake of 2001 resulted in the loss of 20,085 lives. In the Pakistan earthquake of 2005, 73,320 lives were lost and in Sichuan earthquake of 2008 in China 87,476 lives were lost. Given the density of population of North India and the hundreds of thousands of badly constructed houses, a large, shallow earthquake would result in enormous human casualties and widespread destruction.

“India is rapidly urbanising with even small towns now having a population equivalent to Western cities. However, neither our emergency governance nor our response assets are keeping up with this changing reality. Construction standards across Uttaranchal, Delhi, UP, Bihar and Assam are substandard with very few buildings being earthquake resistant. The area is densely populated and casualties from a shallow earthquake of magnitude 7 as in Haiti, would be likely to run into the hundreds of thousands killed and injured”

In fact, an earthquake in North India has the potential to cause damage and casualties similar to a major nuclear strike on the country.

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In the National Capital Region (NCR) this may entail setting up a separate mechanism to undertake the required action. One possible model could be the California Seismic Safety Commission.

**RECOMMENDATION 1**

*The potential vulnerability of North India to a major earthquake should be addressed by the Government as a specific national vulnerability that needs to get immediate and sustained attention for risk reduction, contingency planning and response measures, particularly in urbanised areas with special emphasis on the NCR region.*

**ARCHITECTURE OF NATIONAL DISASTER MANAGEMENT**

**The Evolution of Disaster Management in India**

During British rule, disasters were managed in an ad hoc, event-specific, manner in which relief departments were set up to respond to emergencies such as the famine of 1943 or the Bihar earthquake of 1937. The hangover of this continued after independence with the nodal point in the Government of India being the Ministry of Agriculture which had a Central Relief Commissioner. Each State had a Relief Commissioner in the State Government. Their function was primarily to deliver relief materials and money after a calamity.

Consequent to the Latur earthquake of 1999 and the Bhuj earthquake of 2001, a High Powered Committee chaired by Shri J.C. Pant was set up to review disaster management in India. Based on its recommendations, in 2002, disaster management was transferred from the Ministry of Agriculture to the Ministry of Home Affairs (MHA), where a Disaster Management Division was formed. The Disaster Management Division was responsible for developing and implementing disaster management policies and strategies at the national level. It also coordinated with state governments and other stakeholders to ensure effective disaster preparedness and response actions. The Division worked closely with various government departments, non-governmental organisations, and international partners to strengthen disaster preparedness and response capacities.

**Damage to urban areas - the Bhuj Earthquake 2001. (Source: USGS)**
Management Act was passed in 2005 creating the current architecture dealing with disaster management at Central and State levels, with the National Disaster Management Authority (NDMA) envisaged as being the primary instrument. As stated in an exhaustive report prepared by MHA in 2011, “disaster management in India has evolved from an activity-based reactive setup to a proactive institutionalized structure; from single faculty domain to a multi-stakeholder setup”. However, the present structure still has problems which prevent it from functioning in an optimal manner. These will be discussed subsequently.

The Disaster Management Act 2005

The Disaster Management Act of 2005 (DM Act 2005) was perceived as a modern piece of legislation that would revolutionise disaster management in India. However, it has some lacunae that have contributed to the disaster management framework of the country not being able to achieve results commensurate with the aim of the drafters. There are three major issues with the DM Act 2005, which are discussed below.

NDMA and MHA. NDMA, chaired by the Prime Minister, was perceived to be the overarching, independent authority for disaster management in the country. The Disaster Management Act of 2005 refers to it throughout as ‘The National Authority’. However, the Act also created dual centres of authority by vesting coordinating functions and authority in the Central Government whose nodal Ministry is the Ministry of Home Affairs. The resulting tension and turf issues between the Disaster Management Division of the MHA and NDMA have adversely affected effective disaster management in the country and reduced NDMA to an adjunct of the Disaster Management Division of the MHA, which is a far cry from the vision of the drafters of the DM Act. The situation is made worse by the fact that the Disaster Management Division of MHA has a very rapid turnover of staff and consequent lack of continuity and domain knowledge. Added to this is the downgrading by the current Government of the levels of NDMA Members and Vice Chairman and indeed the failure to appoint a Vice Chairman of NDMA. This has eroded whatever autonomy NDMA had enjoyed. It has also led the Disaster Management Division of MHA to encroach upon the NDMA’s supervisory authority over the National Disaster Response Force (NDRF) and the National Institute of Disaster Management (NIDM) that has been enshrined in the DM Act 2005. That being so, perhaps one way to resolve this situation is to appoint the Minister of State in MHA responsible for disaster management as ex-officio Vice Chairman of NDMA and merge the redundant Disaster Management Division of MHA with the NDMA. The Member Secretary of the NDMA could then be nominated as an ex-officio Special Secretary of MHA. This will eliminate the dual power centres and clearly demarcate a single channel of control for NDMA through the MHA.

RECOMMENDATION 2

To eliminate duplication and clarify the lines of control between NDMA and MHA, it is suggested that the Minister of State of MHA be also appointed as Vice Chairman, NDMA and the Disaster Management Division of MHA be merged with NDMA. Additionally, the Member Secretary NDMA should be appointed an ex-officio Special Secretary of MHA.

Integrating the Armed Forces. The Armed Forces in India are the mainstay of disaster response in the country, as is the case in most countries around the world. Inexplicably, this reality is ignored in the DM Act 2005 and the only point
in which they are formally represented in the disaster management architecture is the National Executive Committee at the Centre. This committee is barely functional. The Armed Forces are not formally represented in the NDMA, the State Disaster Management Authority (SDMA), the State Executive Committee (SEC) or the District Disaster Management Authority (DDMA). The reality of the dependence on the Armed Forces was recognised in the 10th Five Year Plan document which states “The Indian Armed Forces are supposed to be called upon to intervene and take on specific tasks only when the situation is beyond the capability of civil administration. In practice, the Armed Forces are the core of the government’s response capacity and tend to be the first responders of the Government of India in a major disaster due to their ability to organize action in adverse ground circumstances, speed of operational response and the resources and capabilities at their disposal”12. This is true not only in India but all over the world. Recent examples in Asia itself include the Great Tohoku earthquake in Japan of 2011 when the Japanese Self Defence Forces formed the bulk of the response, the Pakistan earthquake of 2005, Cyclone Nargis in Myanmar of 2008, and the Nepal earthquake of 2015. In all of these, the Armed Forces were the core of the national response. Not integrating the Armed Forces into the formal decision making structure at all levels deprives the National and State Governments of the input of the major responder in the planning of risk reduction measures as well as contingency and response planning prior to a disaster striking. Having them participate in pre disaster planning is also essential for State and District administrations to be familiar with the capabilities and methods of working of the Armed Forces that leads to a smoother response. Again, the 10th Five Year Plan document is clear on this issue recommending “Integrated planning for disasters, including the integration of relevant Armed Forces formations into disaster management planning at all levels from District to State and Central Government.”13 Therefore, it is essential that the Armed Forces be formally and directly incorporated into the disaster management architecture at all levels.

“The Armed Forces in India are the mainstay of disaster response in the country, as is the case in most countries around the world. Inexplicably, this reality is ignored in the DM Act 2005. ...”

RECOMMENDATION 3

The DM Act 2005 should be amended to ensure the Armed Forces are formally represented at all levels, and in all bodies of the Central and State Government dealing with disaster management.

Indian Army soldiers evacuate villagers during floods in Kashmir, 2014
(Source: rediff.com)

The Central Role of Communities in Disaster Management.

Finally, the DM Act 2005 does not acknowledge the centrality of Communities for effective disaster management. It is the Community, whether it is a village, small town or municipality, where people live that has to cope with a disaster. They are the ones most affected, as well as the ones that respond immediately, but the lowest level that the Act mandates is the District (DDMA). In India, some Districts are larger than European countries e.g. Kachh district, Gujarat is 45,652 sq. km and Leh district, J&K is 45,510 sq. km. The District being the lowest formal structure makes participation of people, who are the ones affected, quite difficult. Without their informed participation in decision making, disaster management is yet another hierarchical, paternalistic, Government activity with very little input from those most affected by the event. One only has to look at the successful programmes for cyclone mitigation in Bangladesh14 and earthquake risk reduction in Istanbul, Turkey15 to realise that enlightened and empowered community participation is the key to successful disaster management. In India, the success in Odisha of cyclone mitigation and response activities in which communities have been intimately involved has once again highlighted the absolute necessity for community involvement.

“Therefore, it is essential that the Armed Forces be formally and directly incorporated into the disaster management architecture at all levels. ...”
DM Act 2005 should be amended and linked with the Panchayati Raj programme to give Communities a decisive say in all disaster management decision making and activity.

**RECOMMENDATION 4**

*Amend the Disaster Management Act 2005 to acknowledge in law the centrality of Communities in disaster risk reduction and response and the absolute necessity to ensure their being part of decision making and contingency planning in disaster management. This should also entail creation of a funding mechanism to support community level disaster risk management efforts.*

The National Disaster Response Force (NDRF)

The DM Act of 2005 created the NDRF as a specialised disaster response force. NDRF currently has 12 battalions drawn from the Central Police Paramilitary Forces i.e. BSF, CRPF, CISF, ITBP and SSB located in different parts of the country. Each battalion is expected to be able to deploy 18 teams of 45 persons each specialised in disaster response. NDRF has performed creditably in many emergencies after its creation, most notably during the Nepal earthquake of 2015. A recent MHA Task Force report stated, “The NDRF has done quite well under the existing legal framework.” There is no doubt that prepositioning specialised detachments of disaster responders at places around this large country is a sensible thing to do and the NDRF has proved its usefulness. However, it has started becoming a political panacea for all disaster ills. Announcing that it is sending one or two detachments of NDRF to a flood, cyclone or other disaster is now a default Government reaction after which the news cycle moves on. A major weakness in the NDRF are its personnel policies. Disaster response is a specialised function and skills such as urban search and rescue or nuclear, biological or chemical accident response take time and effort to acquire. Currently, NDRF personnel policies mandate a return back to the parent Central Armed Police Force (CAPF) after 5 years. This needs to be changed. Either NDRF personnel should be directly recruited or permanently transferred to NDRF to ensure continuity. NDRF should also expand its recruitment base to all Central Services including the Armed Forces and ex-Servicemen rather than the current five CAPFs above.

NDRF is also not at present supervised by NDMA as the DM Act 2005 stipulates. It has defacto started dealing directly with the Disaster Management Division of the MHA because of the dual control issues discussed in para 8 above, resulting in a lack of domain supervision. This needs to be rectified as suggested in Recommendation 2 above.

**RECOMMENDATION 5**

*The current policy of rotating NDRF personnel back to the parent CAPF after 5 years needs to be done away with to ensure continuity of specialised functions. NDRF should also widen its recruitment base beyond the current CAPFs to include Armed Forces personnel, ex-Servicemen and other Central Services.*

Disaster Management Architecture at the State level

The DM Act of 2005 mandates the setting up of a disaster management architecture at State level which is on similar lines as that at the National level. Each State and Union Territory has to establish a State Disaster Management Authority (SDMA), a State Executive Committee (SEC), as well as District Disaster Management Authority (DDMA) in each District. Almost all of them have done so. However, except in some States (mostly those which are disaster prone such as Odisha and Bihar), these Authorities and Committees exist on paper and are yet another bureaucratic function for the State Chief Secretary or Deputy Commissioner in a District to perform.

The DM Act 2005 also makes no mention of a disaster management structure for Metropolitan areas and Municipalities which now house a large part of the country’s population living in significant numbers in substandard housing and shanty towns..."
structure for Metropolitan areas and Municipalities which now house a large part of the country’s population living in significant numbers in substandard housing and shanty towns. This is a major lacuna resulting in a situation where a plethora of local laws, rules and procedures, or none at all, are followed.

The DM Act 2005 mandates each State to create a State Disaster Response Force (SDRF) on the lines of the NDRF. However, eleven years later, only a few States have established their SDRF units. This needs to be pursued by both the Central and State Governments as the local knowledge and languages of people from the same State is invaluable in disaster risk reduction and response. The Bihar example of recruiting primarily ex-servicemen for SDRF should be emulated.

**RECOMMENDATION 6**

*State and District Disaster Management structures should be established in all States at the earliest and laws enacted to enable Metropolitan areas and Municipalities formal participation in disaster management decision making and preparedness.*

**RECOMMENDATION 7**

*All States must raise SDRF battalions at the earliest.*

**DISASTER MANAGEMENT DECISION MAKING AND COORDINATION**

**Inter-Ministerial Coordination**

Inter-Ministerial coordination in the disaster management framework is based on the principle of nominating Nodal Ministries for different aspects of disaster management. Stakeholders then feed their expertise into the framework through the Nodal Ministries. e.g. The Ministry of Earth Sciences, the Indian Meteorological Department, The Central Water Commission and Department of Space all provide inputs to different Nodal Ministries for different aspects of flood management. According to the Ministry of Home Affairs, “the role to be performed by each stakeholder is in the evolving stage and needs to be defined within different SOPs. Thus, while the involvement of stakeholders in the interface is mandated and permanent, the nature of interface is guided by the expertise or relevance of the stakeholder to the disaster management framework.” 21 Considering that there are 15 different Nodal Ministries and at least 6 ‘national level decision making bodies’ 22 involved in decision making in the National Disaster Management Plan, this is a confusing and complicated system with no one really in charge. Disaster management is a field that requires accountability and a clear control structure and therefore the decision making structure needs to be radically streamlined. It is suggested that NDMA be made the sole nodal organisation for all kinds of disaster management and all other Ministries and departments work in support of it. Since the Prime Minister is the Chairman of NDMA, the functions of all the various Committees at the national level dealing with disaster management i.e. CCS, NCMC, NEC should be subsumed into one Disaster Management Committee serviced by NDMA. A similar unification of decision making should be implemented at State level.

**RECOMMENDATION 8**

*The decision making structure for disaster management should be drastically streamlined. It is recommended that NDMA be the sole nodal Agency in Government on this issue, which all others support it. It is also recommended that the functions of the current multiple decision making committees be subsumed into one Disaster Management Committee chaired by the PM and serviced by NDMA. A similar reorganisation should take place at State levels.*

**How and When to Respond – Defining levels of Disasters**

Currently, there are no standard operating procedures on how and when the State or Central Governments should respond to a disaster event. Disaster events require different scales of intervention at different levels depending on their intensity. In 2001 the J.C Pant High Powered Committee on...
disaster management, which was one of the most comprehensive studies carried out by the Government, suggested the following levels:

**Level 0/A ‘no-disaster’ situation.** This is the level at which surveillance, preparedness and mitigation activities must be focused on.

**Level-L1:** The level of disaster that can be managed within the capabilities and resources at the District level. However, the State authorities will remain in readiness to provide assistance if needed.

**Level-L2:** This signifies the disaster situations that require assistance and active mobilization of resources at the State level and deployment of State level agencies for disaster management. The central agencies must remain vigilant for immediate deployment if required by the State.

**Level-L3:** This corresponds to a nearly catastrophic situation or a very large-scale disaster that overwhelms the State and District authorities.

These levels are practical and logical. They are mentioned in the National Disaster Management Plan but only for information and not linked to any action. They need to be implemented and linked to standard operating procedures clearly enunciating who has the authority to declare each level of disaster and what actions different Governmental entities in the District, State or National level are expected to undertake if a particular disaster level is declared.

**RECOMMENDATION 9**

**Government of India should adopt the concept of different disaster levels and enunciate Standard Operating Procedures with specific response required and actions to be taken for different levels of disasters by different entities at the District, State or National levels.**

**Integrating NGOs and Civil Society**

Currently, disaster management in India is a hierarchical Government activity solely run by the civil administration. The DM Act 2005 reinforces this perception. There is hardly any attempt at integrating some of the major stakeholders who should be involved in planning and response including NGOs, Civil Society and the Private Sector. India has a tradition of ‘sewa’, especially during times of distress. It also has the largest Red Cross Society in the world and amongst the largest number of NGOs working with communities in various fields that have an impact on disaster risk reduction and response. However, there is no mechanism by which these local stakeholders are integrated into disaster management planning and response. This needs to be rectified at all levels from the Community, District, State and National level.

**RECOMMENDATION 10**

**The DM Act 2005 and the National Disaster Management Plan should be modified to include Civil Society representatives, including NGOs in disaster management planning and response at all levels.**

**Strengthening First Responder Capacity**

One of the major weaknesses in disaster response management in India lies in its First Responder capacity. It is well established that most lives are saved by the actions of the community as well as those present at the site in the first hours after a disaster. Thus First Responders who are part of the community fabric i.e. Fire Brigades, Civil Defence volunteers, Home Guards, NCC etc. are the most important assets available. In most countries with a well-developed disaster response capacity, the First Responder system is largely based on Community based volunteers. This is not the case in India. Even more worrisome is the fact that Fire Brigades and urban search and rescue capacity are extremely neglected by States. In most places, Fire Brigades report to the Police that have very little interest in them except in their power to issue fire safety clearance certificates for high-rise buildings. A multiplicity of confusing State and Municipal laws do nothing to encourage citizen or Private Sector participation in creating First Responder capacity. Madhya Pradesh has made an attempt to rationalise this issue by passing progressive legislation dealing with Fire and Emergency Services. Perhaps NDMA could develop a model law for States to enact to encourage and promote the development of First Responder capacity including Fire Brigades, Civil Defence, Home Guards and NCC networks.

"It is well established that most lives are saved by the actions of the community as well as those present at the site in the first hours after a disaster..."
A small step in the right direction has been taken by the Government in 2010 with the Civil Defence Act 1968 being amended to allow the Civil Defence organisations to be utilised for disaster management. Also, programmes such as the Indian Red Cross run first responder programme Social Emergency Response Volunteers (SERV) that targets community level response capacity building should be emulated and scaled up.

RECOMMENDATION 11

A sustained effort needs to be put in to strengthen community based First Responder capacity all over the country. This should incorporate the Fire Brigades, Civil Defence, Home Guards and NCC networks as well as the Private Sector. NDMA should develop guidelines for States to deal with this issue.

Coordination of Disaster Response on Site

When a disaster strikes in India, the management of response is through the District Administration. This implies that a young Deputy Commissioner, with no previous experience of disaster management, has to suddenly coordinate the rapid influx of thousands of responders from dozens of different organisations including the Armed Forces, NDRF, domestic and foreign NGOs and civil society volunteers as well as a flood of donations in kind. This is not a recipe for efficient response and the resulting confusion is repeated every time a disaster strikes. There is no national system by which experienced civil servants and Armed Forces personnel can be flown in as a team to assist in setting up a coordination centre at the site of the disaster. Yet, a model exists in the world of international emergency response that can easily be adopted by India internally. This is the UN Disaster Assessment and Coordination team system. The 10th Five Year Plan document also recommended this over a decade ago by suggesting the “establishment of a national standby, quick reaction team composed of experienced professionals, both military and civilian, drawn from Central and State Government staff to respond immediately by flying in, in a matter of hours an experienced response team to the locations when a disaster strikes”.

NDMA can be tasked to establish and operate such a system similar to the UNDAC team.

RECOMMENDATION 12

NDMA should be tasked to create a rapidly deployable national team of experienced disaster managers to support District and State administrations in establishing on site coordination in the event of major disasters. The team should be modelled on the UN Disaster Assessment and Coordination team system.

Disaster Management Funding

The DM Act 2005 provides for the setting up of a National Disaster Response Fund and a State Disaster Response Fund for disaster relief. These have by and large been established. It also provides for the setting up of National and State Disaster Mitigation Funds. These have not been established. Funding for relief is provided from the Disaster Response Funds while funding for preparedness and disaster risk reduction is provided through normal Government financial channels. This means that despite talk of ‘mainstreaming disaster risk reduction’ there is no incentive for States to spend money on disaster risk reduction and preparedness measures and also no means for NDMA to ensure such funding is spent for the purpose it was intended. In the US, this problem is dealt with by channelling all funding to States for preparedness through the Federal Emergency Management Agency (FEMA) thus enabling FEMA to be able to ensure funding is spent for the purpose it is meant for by being able to link funds to results. It is recommended that a similar system be adopted in India and all funding for disaster preparedness and risk reduction allocated by the Centre to States be channeled through NDMA thus enabling NDMA to ensure proper preparedness and risk reduction measures are implemented.
**RECOMMENDATION 13**

All funding for disaster preparedness and risk reduction measures provided by the Central Government to States should be channelled through NDMA to ensure proper implementation of such projects.

**Media Coordination**

In the present day world, with the rapid reach of social and visual media, getting a timely and accurate message out is essential to prevent rumours and ensure accurate reporting of the situation. Even 10 years ago the media had started having a major influence on disaster management. “Television coverage has now evolved to a point where the local media is sometimes present at the disaster site even before the first responders have arrived. Powerful images of people buried under rubble or stranded on rooftops and in trees are immediately broadcast to the world.”

For Governments, this can apply enormous pressure on them and shape public perception of their competence or otherwise while responding to a disaster. Therefore, real time media coordination is absolutely essential. The days of relying on sporadic Press conferences and tours are long gone. There is a need for the National Disaster Management Plan to include the rapid establishment of Media Coordination cells both on site and at the Capital which are manned by trained, knowledgeable people with access to the latest situation. They will have to manage both social media platforms as well as the traditional Press, TV and print media.

**RECOMMENDATION 14**

The National Disaster Management Plan should include the establishment of Media Cells, manned by competent, knowledgeable staff with real time access to the situation on ground at the disaster site and at the Capital to manage and coordinate social media as well as Press and TV coverage.

**IMPLEMENTATION OF THE RECOMMENDATIONS**

It is understood that implementation of some of the recommendations made in this paper will require changing existing legislation, while other recommendations can be implemented within the current legislative framework. It is suggested that the 14 recommendations made in this paper may be grouped into two categories as follows for the purposes of implementation:

a) Recommendations that do not require any legislative action but can be implemented through executive action alone. These are Recommendations 1, 2, 5, 7, 9, 10, 11, 12, and 14.

b) Recommendations that require legislative action: These are Recommendations 3, 4, 6, 8 and 13. Implementation of these would require amendments to legislation.

**CONCLUSION**

This paper has discussed the state of disaster management in India concentrating on the architecture of disaster management in the country, decision-making and coordination. Shortcomings in the Disaster Management Act 2005 which have resulted in a less than optimal decision making system for disaster management have been identified and will need to be rectified. Earthquake preparedness needs to be given high priority in preparedness planning. The Armed Forces, NGOs, Civil Society and the Private Sector should be integrated into decision-making, planning and risk reduction. Finally and most importantly, the Community must participate in, and be at the core of all decision making for disaster management because that is where the people who are most affected live. This paper has recommended remedial actions to be taken. If these recommendations are followed, it will provide a way forward for disaster management in India to fulfill its potential by establishing a modern, efficient, system that is needed for the governance of a large, disaster prone country.

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“Finally, most importantly, the Community must participate in, and be at the core of all decision making for disaster management because that is where the people who are most affected live. ...”
Endnotes:


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4 Annual Disaster Statistical Review 2008, *Centre for Research on the Epidemiology of Disasters (CRED), Université catholique de Louvain*, June 2009, Brussels, Belgium,

5 Katoch, Arjun, If Disaster Were to Strike Here, *Mail Today*, 31 May 2011, Gurgaon, India

6 see California Seismic Safety Commission. http://www.seismic.ca.gov/

7 Disaster Management in India, para 2.1, Chapter 2, *Ministry of Home Affairs, Government of India*, May 2011


11 Disaster Management in India, Figure 2.2, Chapter 2, *Ministry of Home Affairs, Government of India*, May 2011


14 Bangladesh Cyclone Preparedness Programme (CPP) developed by the Government of Bangladesh (GoB), United Nations, International Red Cross and the Bangladesh Red Crescent Society.


18 Disaster Management (National Disaster Response Force) Rules, 2008, para 3(3) states “The personnel of a battalion deputed to the National Disaster Response Force under these rules shall remain ordinarily in such battalion for a period of five years”


20 Disaster Management in India, Figure 2.1, Chapter 2, *Ministry of Home Affairs, Government of India*, May 2011


26 What is UNDAC, *UN Office for the Coordination of Humanitarian Affairs*, http://www.unocha.org/what-we-do/coordination-tools/undac/overview


28 Disaster Management Act 2005, paras 46(1) and 48(1), Chapter IX, *Ministry of Law and Justice, Government of India*, 26 Dec 2005

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