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6. **Findings, Conclusion and Suggestions**

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**Findings**

As indicated earlier there has been need for paradigm shift in approach to disaster management. The shift is from a relief centric approach to a multi dimensional preparedness oriented approach, with stress on building up capabilities of communities to enable them to work towards their own risk reduction. The role of NGOs in this context therefore assumes added significance. It is evident from the study that role of NGOs in pre disaster phase should include awareness generation, education, training, capacity building, formation of village level task force, mock drills, vulnerability, hazard and resource mapping and coordination with government agencies and other NGOs. Apart from the role of NGOs, major findings and challenges encountered are as follows:

**Community Based Disaster Preparedness in Gujarat**

Strategy adopted by sample organizations is mostly common in nature, delivering effective CBDP practices through village level task force, SHGs and in coordination with PRI. Some of the major common features of these organizations’s intervention strategy are as follows:

- **Awareness campaigns:** By adopting awareness and information campaigns at community level, these organizations spread awareness about disaster preparedness, which in long run helps in building disaster resilient communities.

- **Village level workshop and capacity building:** By arranging such workshops for community leaders, SHG members, PRI members and other diverse groups in the community, the community is able to get a platform where they can share their experiences and learning. And with such type of exposure the community is able to develop preparedness measures for themselves. Through capacity building workshops strengths and existing coping mechanism of the community are identified and then
the same is used to empower the community. Capacity building can be divided into following areas:

- **Disaster Response**: Formation of village level committees and assigning responsibilities to each member in case of any emergency.
- **Disaster Preparedness**: Community contingency plans prepared by people themselves by recognizing their vulnerabilities and preparing action plan to equip themselves for future disasters.
- **Risk reduction and risk transfer**: The direct action leading to risk reduction, such as retrofitting and support in reconstruction of houses. Promotion of various village Insurance schemes as a risk transfer mechanism.
- **Vulnerability Reduction**: Capacity building of communities to avail their rights on food security and other issues relevant to the area to empower them to fight for their rights in normal time as well as in disasters. Regularization of housing rights and Below Poverty Line cards are the examples of vulnerability reduction at community level.
- **Formation of village level task forces**: Again the one common practice among the sample organizations is formation of the task force and assigning them roles and responsibilities to ensure effective response during the emergencies. SHG plays very vital role in such team building as they are well informed about the community and helps in maintaining diversity among such task forces.
- **Community meetings**: Community meetings are held at regular interval with the help of SHG members. To ensure diversity Government officials are also invited for such meetings. At such meetings community members can directly interact with the government officials about disastrous situations faced by them.
- **Community fund**: Community contingency funds have also been maintained with the help of SHGs.
- **Participatory Rural Appraisal (PRA)**: Different PRA tools like resource identification, mock drills, problem tree, pair-wise raking, identification of safe areas, vulnerability mapping, preparation of village and social maps are the most commonly used practices among all sample organizations.
Training of community leaders, panchayati raj institution’s members, self help group’s members for disaster prevention.

Formation of farmers club for preparedness measures agricultural losses due to flood and soil erosion.

Linkages with other NGOs, Government authorities and institutions for effective implementation of CBDP practices.

**Major Findings**

- Through constant intervention by these NGOs, communities are now able to recognise need for preparedness.
- Instead of involving only socio-economically marginalised sections, relatively better off sections should also be involved in the programme. As these communities are well equipped with resources which can be easily utilised during emergencies rather than relying on external resources. Socio-economically better strata can also provide livelihood opportunity to weaker sections, as they are worst affected. (eg daily wages in agriculture, cleaning work etc)
- There is need for strong awareness generation regarding food-stock storage methods during pre-monsoon
- There is also need for preparedness measures against agricultural losses due to flood and about sustaining soil fertility after floods
- Livelihood component should be part of programme in order to involve poorest of the poor (eg CBDP knowledge imparted among youth during occupational training in one of the village, such initiative should be introduced)
- Community resources should be available for use during the time of emergency
- Training on disaster management should be provided to Panchayat members and other resourceful persons in the village
- For effective implementation of programme Panchayat members should be consulted on regular basis
- Government representatives should be invited in CBDP campaigns
- Emergency fund should be created in order to help worst affected during emergencies
- Taskforce should have diversity- representatives of Panchayat, dairy, school and SHG
- Construction in low lying areas should be avoided
- Village meetings should be organised on regular basis including community representatives, Panchayat members, dairy chairman, principal, teachers, PHC nurse etc.
- Village level committees should function actively throughout the year instead of being active only during pre monsoon
- CBDP measures should be incorporated with ongoing activities in order to ensure desired participation as it is difficult to convince community that disaster preparedness should be a moral responsibility
- Agriculture insurance should be introduced in CBDP programme
- More measures for women and child security during emergencies should be introduced in programme
- Role of SHGs should be strengthened, as they are very effective in mobilising community
- Impact evaluation- programme should jointly address vulnerability and poverty
- Preparedness practices should be incorporated with other government schemes in order to achieve desired output

Achievements and Impact

- Interaction with the target communities brought out that the SHGs are strong and well structured. Women are committed to savings activities. They have become more articulate and exude leadership. The women’s SHGs are providing a forum for women of different castes to come together and participate in an activity aimed at common advantage and this has helped create unity.
- The committees were also well organised and the community meetings during the field trip revealed that these committees were successful, due to their all-inclusive approach, in reducing the adverse impact of floods in 2006 compared to the
devastation which occurred in 2005. Villagers have learnt how to pack and store their valuables at a height in their homes to protect them against destruction by flood waters.

- Owing to the CBDP intervention, communities became empowered to voice their concerns and demand their rights before the relevant authority.
- These NGOs realized during the floods of 2005 that many members of vulnerable communities did not have ration cards, thereby becoming ineligible for government assistance. Learning from this experience, they ensured that all members got their ration cards. This turned out to be very useful during the following floods in 2006.
- The component of developing village micro plans was effective in giving the community members an opportunity to analyze their situation and identify one concrete task which they could take up which would ameliorate the water-logging issue in their village. The group effort and community contribution of labour was a participatory way in which the complex flooding issue could be addressed and the successful completion of the task has led to a sense of confidence and pride.
- As one of the components of the programme focuses on children and youth, based on the recognition that children are most vulnerable to disasters, the awareness activities conducted in schools has the distinct advantage of addressing all children including children from vulnerable groups.

**Strategic Issues**

- Inclusive programming: reaching out to the poorest and most vulnerable sections of the society irrespective of religion, caste, creed and gender on one hand while ensuring that vested interests/influential people are included in a manner not affecting the programme negatively is important.
- Sustainability: there is need to focus on working with PRIs in order to make interventions and their impact sustainable and effective. Additionally, it is important to build linkages and networks with other service providers, especially the government.
Linking disasters to development: the issue of disaster management and preparedness needs to be looked as a cross-cutting issue and be integrated into ongoing, regular programme and should change from a project approach to a process oriented approach.

Migration: distress migration being one of the challenges in most of the intervention areas, there is a need to strategise the interventions to address this issue and bring it into programme designing so that the communities do not suffer negatively.

Poor developmental planning: properly planned physical infrastructure is a necessary prerequisite for achieving desired output of disaster preparedness. In some cases poorly planned development has resulted in to recurring flash floods, causing losses to crops and assets. There is need to focus on measures to minimise such type of recurring disasters due to poor development plans, at community level.

### Challenges Encountered

- Changing mindsets: It has been very difficult for these NGOs to play the role of change agent, and preparing community to adopt proactive approach
- Limited role of GSDMA: Although the presence of Gujarat State Disaster Management Authority is there at district levels, it is non-functional at the local level and this hinders the efforts of linkages with government at local level
- Sustaining human resources: There have been difficulties for these NGOs in attracting and keeping qualified and motivated staff for leadership and technical support.
- Community participation: These NGOs experienced difficulties in getting active participation due to insufficient motivation among community in beginning.
- It is evident that CBDP measures should jointly address vulnerability and poverty and should involve participation from poorest of poor, and that has been reflected in sample organization’s strategies. It also indicates that there is still strong need to develop linkages with the State Government. The strategy adopted by the sample organizations suggests need for strong and effective utilization of Government resources- be it technical in nature or strategically well developed in nature.
same time GSDMA should also ensure effective coordination mechanism with other Government agencies and NGOs for implementing strong preparedness mechanism.

**Justification of Hypothesis**

*Statement of Hypothesis:*
Trainings and capacity building initiatives help to increase awareness and impart skills that help increase preparedness before disasters and develop coping mechanisms after disasters in communities.

On the basis of the data gathered and the interviews, it is evident that trainings and capacity building greatly assist in coping with disasters as well as enhance the preparedness of the community. The case studies only further highlight the validation of null hypothesis.

Moreover, alternate hypothesis would easily not stand valid as without training and capacity building in disaster preparedness, the disasters all over the world have given far more damaging results and the countering mechanisms have amply shown the ability to curtail the widespread demolition of communities. In light of these, the requirement of testing of hypothesis and subsequent analysis is negated since absence of disaster countering mechanisms is well established as well.

Thus, it has been well demonstrated in the above analysis that training and capacity building initiatives helps building resilience among communities and empowers their coping mechanism.
Conclusion

It has been noticed in the past that as and when attention has been given to adequate preparedness measures and when the disaster or potential disaster situation is responded quickly, the ramification of disasters are brought to minimum levels. In the recent years, attempts are being made to orient the disaster management set-up towards a focus on preventive approaches, mainly through administrative reforms and participatory methods, still many actions remain to be taken at the ground level to achieve a complete State of preparedness.

Considering the fact that proper disaster preparedness and preventive measures leads towards building disaster resilient communities. As per UNNRO, Disaster Preparedness may be described as (a series of) measures designed to organize and facilitate timely and effective rescue, relief and rehabilitation operation in case of disaster...Measures of preparedness include among others, setting up disaster relief machinery, formulation of emergency relief plans, training of specific groups (and vulnerable communities) to undertake rescue and relief, stockpiling supplies and earmarking funds for relief operations.

A Three Tired Strategy for Preparedness and Response:

- Extensive training of the first responders and citizens to assume immediate responsibility for local hazard fighting in the event of a sudden disaster
- Planning, Land-use and building controls that permit access, evacuation and sheltering of exposed populations while retarding the spread of acute hazards and increases human safety
- Advanced prediction and warning systems and ensuring its dissemination at the last levels and no area or community are left without receiving it.

Preparedness measures such as training of role players including the community, development of advanced forecasting systems, effective communications, and above all a sound and well networked institutional structure involving the government organizations,
academic and research institutions, the armed forces and the non-governmental organizations can greatly contribute to the overall disaster management and better preparedness and coordinated interagency response can be attained.

**Need for strategic and Preventive Planning**

The integration of disaster reduction into the process of economic and social development and environmental management is itself a process and a difficult one at that. The cultural, social, economic, political and environmental conditions require strategic planning.

*Need for Shift in Approach:* The last decade has made it evident to the State of Gujarat that it is highly prone to calamities; be it natural or human-made, slow on set or rapid-on-set. The multi-hazard history of the State indicates that the disasters have shattered the State time to time; still they are treated as discontinuous events. Relief is offered by State and Central Government in the wake of calamity and various compensations, assistance and rehabilitation packages are declared by looking at aftermath of disaster. The sheer magnitude of human problem in disaster areas, exacerbated by the magnitude of disaster and rapid and unplanned expansion of human settlements and population concentration makes the relief measures and post-disaster rehabilitation insufficient within themselves even with the best government deliberations. Still, the needs of relief phase are met better than rehabilitation since the society takes relief as a collective responsibility, while rehabilitation as responsibility of Government. Situation in the recent earthquake rehabilitation is enhanced with widespread Voluntary Organizations’ involvement with Government with participatory approach. Despite this, quantum of work handled by Voluntary organizations is meagre compared to that of Government. Therefore, the need of shift in approach is been recognized at this stage. There is no ready-made solution to disaster problems. An effective disaster management and mitigation system can evolve through continuous learning from experiences by all the stakeholders involved in the process and not just the government.
Development Planning Process: Many developed countries have suffered from severe disasters in the past, however, through strategic and preventive planning as focus and with an integrated approach to disaster mitigation and regional development planning for physical, social and economic planning processes, countries have been able to reduce the impact of disasters to a great extent. Efforts in the direction of integrating disaster prevention into habitat planning processes are one of the most viable disaster prevention means. It took several decades for these developed countries to collect data and information, analyze, investigate, study and undertake research and get through the main culprits responsible for disasters before evolving a series of actions ensuring utmost disaster reduction in all the aspects. It is also ensured that the process remains continuous to have State-of-art disaster management capabilities.

Networking and Coordination: There is need for more timely and reliable assessment of the location, area and extent of damage (damage scenarios) to aid in response and recovery activities. An integrated system adequately equipped with the necessary infrastructure and expertise to constantly monitor the risk profile on all possible disasters and maintaining a database will become relevant. Proper coordination mechanisms should be incorporated for following:

- Different level of government
- Different departments
- Government, private sector and NGOs
- International agencies

Long term Mitigation and Preparedness Measures

The strategy for long-term disaster mitigation and rehabilitation should concentrate actions mentioned in the following ten areas:

Awareness and Sensitization: Disaster issues more than anything else require political will and commitment. Good practices are a result of the heightened awareness and sensitivity towards communities at risk. Therefore, within the entire gamut of the
preparatory set-ups that needs to be taken, the initiative and the awareness of the people regarding the problems are one of the most crucial matters. The present scenario in State and the Country is essentially owing to lack of awareness and sensitivity towards sufferers and losses caused by natural disasters by all key players. People should be made aware of their right for a safe, secure and healthy living and administration should be sensitized to address vulnerability issues rather relief as an administrative response. Two main areas of awareness are: a good knowledge and understanding of local hazards and vulnerabilities and the kind of mitigation measures, which can be applied.

Evolving Risk Sharing and Transfer Mechanism: The quality of life of an individual is determined largely by socio-economic and physical environment. From a different perspective, enchanting quality of life is minimizing frequency and intensity of disturbances to average human existence. The core issue therefore is to reduce the vulnerability of the community and providing risk cover. It is also obvious that the nature of the vulnerability of the community is largely dependent on the social structures, the physical structures and the economic assets. Therefore, the risk that can’t be reduced should be shared. The Risk cover also determines Government’s expenditure on disasters; for example, in developed countries the concept of insurance is widely put into effect, which results into very less Government expenditure for losses incurred. Therefore, the State of Gujarat must go for revitalizing of Insurance sector and with involvement of private insurance companies in this sector, there are better opportunities of market. This will ensure the right kind of fund management with less amount spent on compensations and resources allocated to rehabilitation measures and where they require the most.

Financing Disaster Mitigation and Preparedness: It is vital that the authorities charged with the responsibility of directing or carrying out disaster management should not be hampered by any lack of necessary resources. In India, funding for disaster mitigation is a crucial problem. When disaster is a state subject, in the CRF, Central Government contributes 75% of the total allocations. All the possible resources CRF, NFCR, PMRF, CMRF, Governor’s Relief funds, all of them put together don’t meet the requirements of that the affected state. There is a high amount of assistance expected from the Central
Government. Moreover, all these funds are strictly for relief, there is no fund earmarked for disaster mitigation. This compels the disaster burnt state to go for bilateral/multi lateral funds, which are often difficult to pay back, leading to higher fiscal deficit. Therefore, there is a need to have a permanent and more reliable source to be tapped for emergency as well as for mitigation measures. Such a fund can be called “Emergency Management Fund” and its mechanism is to be made available various levels such as urban authority areas, District and State.

In Gujarat there has been success stories of people participation through investment in projects of Sardar Sarovar Dam and bonds floated by Amdavad Municipal Corporation. This has not just brought the authority-required resources, but also heightened awareness and sense of ownership among people. Such options can be explored for Disaster Management Fund since people of Gujarat have today acknowledged the fact that the State and the community are highly prone to various hazards.

Information, Communication and Role of Media: Information is the lifeblood of any system. Information black out can lead to serious problems. Here, information for DMIS and Public Information is to be dealt in a different way.

- The Disaster Management Information System (DMIS) should be updated time to time, so that right and timely decisions are taken.
- The support and participation of decision makers and other stakeholders in disaster reduction programs across the region can be achieved through highly successful information campaigns only. The Government’s Information Department requires being transparent especially about precautionary measures taken, losses, death toll, and relief and rehabilitations steps to make people aware.

Now a day, the role of media is often questioned with the kind of coverage given by then to the disasters. When Government on the one side trying to give lower figures of the damage estimates, media on the other hand, tend to give it on much higher side. This creates lack of reliable information to a layperson. Here, discussing it out with media
persons relevant issues are highlighted in box. However, media can certainly play a
different role, where they act as a media for dissemination of information, generating
awareness among people, raising issues that concern the disaster affected people and
influence the relief and rehabilitation process. Also issues related to warning systems in
the country, the administrative set up and role of all the stakeholders, especially civil
society, can be brought in focus by media and thereby, bringing change in present state of
affairs. However, some responsible media groups do follow this in certain ways. There is
also an important role played by media, many at times, it does act as a vigilant and
influences the concerned authority, although, it hasn’t been much successful to check
some of the evils like corruption, lethargic attitude of responsible agencies.

Institutions, Organizations and Networks: Approach to the problem and solutions to
mitigate the hardships cannot merely be technical one devoid of social issues. Accordingly approach has to be holistic involving not only scientists, architects, planners, engineers, administrators, local leaders, NGOs, voluntary organizations and people at large. Each one’s role is complementary to another and accordingly suitable mechanism has to be created at various levels to ensure their effective coordination to achieve the end result. As a follow up of national and international efforts, establishing effective networks between various institutions becomes increasingly important. With technological innovations now making communication cheaper and easier, there is every opportunity to utilize networking possibilities in training, experience sharing and removing duplication in efforts and initiating efforts in establishing networks at all levels for training.

Role of Local Self-Governance: The aspect of decentralized governance may hold
opportunities for increased accountability at a local level, while commitment to disaster
reduction may largely depend on local politics. Efforts will vary in the region due to
different forms of local governance and the level of accountability to the civil society.
Shri Hemantkumar Shah (Academician and Panchayati Raj Activitst) expresses,
“Strengthening of local authorities is the most essential since the local authority with
local community inevitably bear the first burnt of the first impact and these local authorities almost certainly will, because of the time factor, have to shoulder a greater share of the immediate responsibility for emergency relief action than the state/national government. With the 73rd and 74th Amendments in the Constitutions the local authorities are responsible to carry out mitigation and relief measures, but authorities are not provided with sufficient funds. This is irony of the system.”

In a country like New Zealand, changes in local government structure have affected the basic organization of civil defence. Such changes updated plans and published them and defined methods of operation at all levels and show how resources of Government department can be used. The Mayor has the statutory right to declare a state of “local civil defence emergency” to exist in the district if there is a threat to public safety (other than from acts of war). Such a declaration confers special powers on the local authority itself, its Controller of Civil Defence, the Police, and certain other people in authority. The authorities may set aside some rights of the individual in the interests of public safety. Even in the World Trade Center tragedy, even with this magnitude of disaster, the Mayor of the New York handled this emergency, since it is his responsibility.

*Community’s Involvement in Disaster Response:*
Considering the widespread nature of hazards, it is reasonable to say that extensive grassroots level knowledge and awareness is a prerequisite towards the aim of achieving a safer world. Community’s coping mechanisms (resources and capacities) can’t be overlooked. Community itself is a strong institution; efforts at community level should be institutionalized and should be replicated widely after conceptualizing. Governments and other bodies can, at best, play the role of facilitators, helping communities to cope with the situation as best as they can. Initiatives for improvement have to come from the communities. Following steps should be taken to ensure community participation:

- Designing strategies that will ensure community involvement;
- Addressing the root causes of vulnerability & strengthening the community’s structure and coping strategies to reduce vulnerabilities and thereby improving the socio-economic status of people;
• Uniting on a fundamental shift from science to practical application and from sectoral to interdisciplinary action;
• Complementing community skills and resources;
• Empowering the communities to participate in making decisions on issues that affect their lives;
• Recognizing vital role of local self governance and Panchayati Raj Institutions;
• Reaching a broad consensus on priorities through public meetings and gramsabhas at villages and targeting the most vulnerable;
• Enriching the disasters and development discourse;
• Documenting the best practices on community-based disaster management to draw lessons from experience;
• Organizing local activities to highlight community achievements in disaster reduction;
• Networking among communities for sharing and learning with community involvement.

*Emphasizing Disaster Resistant Infrastructure:* It is essential that essential services, important structures and health facilities continue function after a disaster strikes. Therefore it is important that these facilities are constructed to withstand natural disasters, and are equipped to provide basic assistance. Retrofitting of existing structures or incorporating seismic technology into new construction is helpful. Government offices, especially, the one handling emergencies must be disaster resistant structure. Schools and other community facilities can serve as shelters during relief efforts, if, and only if, they are accessible to the community. It is important that local authorities realize the versatility of such facilities and appropriate them for such uses. Integrating the construction and improvement of such facilities into long-term plans for disaster reduction at the local level continues to be a key issue of work in the region.
**Promoting Traditional Knowledge Base:** Before the advent of the modern technological age, disaster management, where it existed, comprised primarily of indigenous mechanisms that had been passed down over generations. Community had developed their own unique way of coping with the onslaught of nature. With the coming of the technological age, some of the traditional practices have disappeared, some continue in their original way till today and some merged with modern scientific and technical know-how and have taken the form of unique local mechanism to cope with natural calamities.

- Numerous communities, especially those who had earlier been time to time exposed to hazards such as cyclones, have over the ages evolved their own traditional systems of advanced warning. This should be further developed by scientific studies. Another point is that they know their problems the best since they face it. There is also an increasingly vocal support for movements that argue about how a departure from the original customary practices has aggrandized the impact of natural hazards.

- There is thus an opportunity in revisiting these traditional practices and devising means on how these could be replicated and publicized to reach and benefit a larger population. Engineers, architects, and technocrats and other researchers must take it as challenge and evolve new technologies from traditional wisdom, which can be easily adapted and disseminated due to wide acceptance.

- Firstly, studies to identify the existing knowledge and expertise which may be applied directly towards the prevention and mitigation of disasters and secondly to find gaps in the current knowledge which require actions at state level, national or international level. These studies can further be translated into manuals and will be of value to broad range of users, including high-level officials, administrators, voluntary organizations and technical experts in the field and specialists in the various areas of disaster prevention and pre-disaster planning.

**Environmental Degradation Issues, Livelihoods and Urbanization:** It is established that disaster issues are unsolved development problems. With repetitive drought and depletion of natural resources, population having their livelihood dependency on natural resources becomes highly vulnerable and gradually turns impoverished. The severity of the effects
of the events will vary according to the degree to which man has created an environment susceptible to damage, that is, an environment where life and property are at risk. The poor and the unemployed from the rural hinterland, attracted by the economic opportunities cities offer, arrive in large numbers and squat on any available piece of land. They live in temporary structures often made of materials discarded by the better-off scenario, lands designated as vacant for future expansion or as environmentally sensitive zones under the Master Plan become soft targets in urban center. Therefore, to bring disaster mitigation in urban areas, development and livelihood generation in rural sector is inevitable. Also, urban livelihood programmes tailored to enhance various skills among the people to be implemented.

The areas listed here are very necessary to be addressed before and during rehabilitation; rehabilitation instead of a mere rebuilding, should be seen as an opportunity to introduce positive changes. Implementing these suggestions shown here, will not just ensure disaster mitigation, but will also lead the community at risk to a life with dignity.

Moreover, the disaster prevention and preparedness machinery involves a variety of different services and skills all of which must work in a synchronised and harmonised together. If one part of the system/machinery fails, other elements could be seriously handicapped, and there is a high degree of interdependence between the various components. However, the system should be so designed that if one element does fail, the organization, although weakened, will continue to function and provide the service required. Effective plans cannot be based on the assumption that the authorities and the emergency services will themselves be unaffected by the event. The recent earthquake has established how even the physical and social infrastructure and governance get affected by calamity and become ineffective to serve and situation is aggravated. Even if physical facilities are not destroyed or disrupted, personnel may be killed or injured, or suffer the adverse effect of stress, or may simply be prevented by force majeure from reaching to their duty. Plans, which do not allow for these factors may fail just when they are, needed the most.
Suggestions

The state has already established coordinating body for disaster management (GSDMA), and it is also looking forward for long-term disaster mitigation in the state. At this point, the subsequent areas require to be addressed to reinforce the overall process of disaster management.

Policy Formation at State level

This should take into account:
- Greater policy, leadership and budget commitment
- Government Accountability and Political Commitment
- Disaster reduction as a criteria for sustainable development
- Laying down model frameworks to fortify disaster management systems
- Provoking public awareness to disaster reduction
- Realizing criticality of disaster issues
- Disaster Code of Conduct

Strategy for Future

Future strategy for disaster interventions demands a vision, where Government requires putting appropriate emphasis on Structural and Non-structural measures. This requires optimizing between these measures to make them effective in all the aspects. Non-structural measures will undoubtedly be less cost intensive as well as enduring also. Before going for structural measures a complete cost-Benefit analysis of the same requires to be carried out and the measures should be implemented only when they can prove to be fruitful.

Regional Approach
Disasters don’t follow district boundaries. If we look at Gujarat, it comprises of different regions with their distinguished agro-climatic conditions, ecology and demography. The effect of any natural calamity also varies with this region. All the regions have their inherent characteristics and problems. Therefore, while going for any disaster risk reduction measures should be designed with regional approach as its foundation. The regions can further be divided into sub regions with its peculiarities, similarities in vulnerability, demography and other local characteristics. This process can also ensure balance between top down and bottom up approach since the vision is for the whole state but actions are aiming the local needs.

Revising and Strengthening the Legal Framework

It will be essential for the effective operation of the plans that sufficient legal powers for their execution. The conferment of responsibility without powers is, in terms of disaster preparedness and relief, worse than its opposite. The existing disaster related legislation are insufficient, moreover they tend not to place enough emphasis on mitigation. In establishing or reviewing such legislation, therefore, it may be advantageous to ensure that mitigation requirements are adequately covered. Even the proposed National Calamity Management Act and the State Calamity management Act deals with the authority and the responsibilities only, and does not cover other related legislations mentioned here. In the absence of disaster legislation the methods of implementation of disaster reduction efforts will vary with different forms of local governance and the level of accountability to the civil society. Appropriate and effective legislations will ensure continuous disaster reduction efforts irrespective of changes in the political scene. There is also dire need to evolve and incorporate minimum standards pertaining to disaster risk reduction in the town/urban planning process. Moreover, the approach of disaster legislation should recognize that preparedness is not just prompt relief operation, but readiness to take rehabilitation at the earliest and recognize the phases of prevention, preparedness, relief and reconstruction for the “disaster continuum”, so as they merge into one another and the required may be underway simultaneously. There is also need to
recognize and highlight the present legislations and rules that can be adapted in disaster situation especially about the powers of various authorities for a better response to disaster continuum.

**Administrative Reforms**

Disaster management is a matter of good governance. The administrative response to disasters has largely been dissatisfactory over last decades. This is mainly due to: lack of a well-structured nodal agency having sufficient power to be rendered in disaster situation and down the line administrative set up. Countries like USA, UK, Canada, New Zealand, Japan and Australia have proved to be successful in handling their emergencies by structuring an appropriate nodal agency for over all disaster management, which works for disaster mitigation and has greater responsibility to perform in peacetime also. Many experts are of opinion that disaster management should not be the job of district collector, the Collector’s powers are greatly enhanced in emergency situation, however, this system of administration has never shown efficiency. The collector being the District Protocol Officer also, most of the times the priorities are different. Moreover, it will be logical to appoint officers dealing with fire or other hazards being in charge of emergency management. Powers of officers like Chief Fire Officer can be enhanced during emergency and he/she can take over during emergency. Even during peacetime, these officers and department can work towards mitigation measures and approval of plans and building construction, vigilance, fire safety, checking and testing of disaster preparedness measures of the built environment and development planning. This will not just accelerate the operations and related activities, but will make it efficient also as there would be less hierarchal approval stage for any decision making at the onset of any disaster. Moreover, presently the local authorities are not having such an arrangement for scrutiny of plans and vigilance for disaster related criteria for town planning and building construction, therefore, such an arrangement can work at all the stages of disaster management.
Authorities like GSDMA also require in house emergency planners/managers to make their operations more effective. Emergency management is a specialized field and the best administrators also may find it difficult to act in certain situation owing to limit to their knowledge. Therefore, certain administrative reforms are urgently needed. Though, Revenue Department has traditionally being the department dealing with emergency. The rationale behind Revenue Department being the nodal department is no longer valid and effectual. Therefore, the state government should create separate disaster management department and this should comprise of various subject experts dealing with disaster issues. This department is to have mandate not just to respond to disasters but also long term mitigation and looking at disasters in a holistic view.

Apart from these initiatives, importance of shift in approach has been well discussed in study, and has been well evident from interview excerpts. To bring in such paradigm shift, there is strong need for creating culture of disaster preparedness. NGOs can play very pivotal role at community level by bringing desired output in creating culture of preparedness, strategic thinking and prevention by incorporating following initiatives:

Culture of Preparedness:
- Preparedness Plans at all levels
- Plan Updation Week recommended in the last week of April every year.
- Plan Rehearsal Week in the first week of May.
- Participation of all concerned in this national exercise, especially the NGOs and community based organisations.

Culture of Quick Response:
- The Trigger Mechanism concept used as an “emergency quick response mechanism” which, when activated prior to or during a disaster event simultaneously sets into motion the required prevention and mitigation measures with minimum loss of time.
- Operation of Trigger Mechanism requires clear delineation of duties & functions including identification of key personnel.
Adequate delegation to act in the first critical 24-48 hours without loss of time in planning or seeking clearance/approval/direction from superiors.

Standard Operating Procedures (SOPs) are required to be evolved in meticulous detail for effective operation of the Trigger Mechanism.

Culture of Strategic Thinking:
- Networking of Knowledge-based institutions and learning exercise should be encouraged for integration of:
  - Traditional and local knowledge (through PRI’s)
  - Advanced scientific & technological information.

Culture of Prevention:
- Disaster Prevention through Environmentally Sensitive Development Practices
- “Development that will protect from calamity, not become calamity itself”
- Sound understanding of Hazards, Vulnerability, Risks and Disasters.

Further considering importance of disaster preparedness, we have to make it inevitable, integral practice and approach to our development planning. Disaster preparedness should become a culture and conscious practice. The response to a disaster should start from where it strikes so as to reduce the time gap between natural disaster and response. Development plans and policies that fail to understand this and fail to integrate disaster risk reduction are bound to suffer in the long run. Disaster preparedness should become an issue of governance and common interest.