Disaster Rehabilitation: Towards a New Perspective

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Introduction

Disaster rehabilitation is an integral part of disaster management. Disasters, as we all know, are catastrophic events that can seriously degrade a country’s long-term potential for sustained development and cause governments to considerably modify their socio-economic priorities and programmes. Disasters also create psychological stress leading to many dysfunctional consequences. In the process, they do highlight high-risk areas where necessary actions must be taken before another disaster strikes. Managing disasters thus is an uphill task. Disasters are very costly in terms of both human life and resources and require a long gestation period of rehabilitation. Disaster management involves systematic policy making and effective use of resources to make a potent dent in disaster relief, rehabilitation and long-term recovery.

In common parlance, disaster rehabilitation involves methodical steps for bringing changes in the disaster affected site, with a view of ensuring long-term recovery. Disaster rehabilitation may be considered a transitional phase between immediate relief and recovery. It refers to actions taken in the aftermath of a disaster to enable basic services to resume functioning, assist victims’ self-help efforts to repair physical damages, revive economic activities; and provide support for the psychological and social well-being of the survivors.
In order to understand the intricacies of disaster rehabilitation process, its place in the disaster management cycle needs to be comprehended. The cycle comprises five major stages:

1. Disaster Preparedness and Mitigation, which rests on the principle that prevention is better than cure. It involves all the steps necessary for creation of disaster-resilient structures and communities;
2. Disaster Response, which includes immediate disaster search and rescue operations;
3. Disaster Relief, which involves provision of food, clothing, and shelter for the affected;
4. Disaster Rehabilitation and Reconstruction that takes into view the efforts to restore all essential facilities to pre-disaster status; and
5. Disaster Recovery, which focuses on measures that will pave the way for long-term recovery of social, economic and physical structures, as well as processes in such a way that future disasters are unable to impact severely and irreversibly.

All the five stages are well-integrated into the disaster management cycle. These stages could be examined separately, but it needs to be kept in mind that they essentially complement and supplement each other in an attempt to rectify the disaster-related problems. Disaster rehabilitation is thus preceded by disaster response and relief, and followed by disaster reconstruction and recovery. Disaster preparedness
and mitigation, however, are continual processes that are part of each and every stage of disaster management cycle.

It is often not possible to suggest any time-frame for disaster rehabilitation, reconstruction and recovery, as these processes are strappingly intertwined. Reconstruction represents long-term development assistance that could help the affected people to rebuild their lives and meet their present and future needs. Rehabilitation and reconstruction should together lead to long-term recovery, but this may not happen unless certain measures are strictly adhered to. A comprehensive rehabilitation and reconstruction plan, or what can be called long-term recovery plan should take into consideration both physical and non-physical requirements of the affected areas, or else it may result in large and unwieldy investments in infrastructure. The plan then may not be able to provide for the necessary inputs to help the victims in becoming socially ready, economically self-sufficient and psychologically fit.

Rehabilitation and reconstruction programmes need to base themselves on a few guiding principles. The broad priorities in a disaster rehabilitation plan could be:

1. Provision of emergency relief to be operationalized by the way of mobilizing human and material resources, ensuring food security, constructing temporary structures and making available all basic needs.
2. Relocation of all the displaced people, restoration of basic and alternative means of livelihood along with community-based infrastructure and institutions; and

3. Initiation of long-term development interventions, which would lead to sustainable community-based strategies for disaster reduction (Medury and Dhameja, 2005).

Disaster rehabilitation planning needs to be broadly based on these three priorities. However, it can produce results only if it entails sub-plans pertaining to the different facets of rehabilitation.

**Dimensions of Disaster Rehabilitation**

There are three types of rehabilitation, namely physical, social and psychological. Physical rehabilitation is a very important facet of rehabilitation. It includes reconstruction of physical infrastructure such as houses, buildings, railways, roads, communication network, water supply, electricity and so on. It comprises short-term and long-term strategies towards watershed management, canal irrigation, social forestry, crop stabilization, alternative cropping techniques, job creation, employment generation and environmental protection. It involves rehabilitation for agriculture, artisans, small businessmen and animal husbandry. The physical rehabilitation and reconstruction package must also incorporate adequate provision for subsidies, farm implements, acquisition of land for relocation sites, adherence of land use planning,
flood plain zoning, retrofitting or strengthening of undamaged houses, and construction of model houses.

Social rehabilitation is also an important part of disaster rehabilitation. The vulnerable groups such as the elderly, orphans, single women and young children would need special social support to survive the impact of disasters. Thus, construction of infrastructure such as community centres, day-care centres, anganwadis or homes for women, balwadis or crèches and old age homes is a vital part of social rehabilitation. The rehabilitation plan must have components that do not lose sight of the fact that the victims have to undergo the entire process of re-socialization and adjustments in a completely unfamiliar social milieu.

Another crucial dimension of disaster rehabilitation is psychological rehabilitation. Dealing with victim’s psychology is a very sensitive issue and must be dealt with caution and concern. The psychological trauma of losing relatives and friends, and the scars of the shock of disaster event can take much longer to heal than the stakeholders in disaster management often presume. The fear of changing means of livelihood could lead to occupational disruption and subsequently high degree of occupational redundancy in the victims.

Thus, counselling for stress management should form a continuous part of a disaster rehabilitation plan. Efforts should be made to focus more on psycho-therapeutic health programmes, debriefing and trauma care. While implementing the disaster
rehabilitation programme, tradition, values, norms, beliefs, and practices of disaster-affected people need to be kept in mind. It is, therefore, essential that social welfare and psychological support measures be considered immediately after a disaster event so that they could be made a vital part of a rehabilitation programme.

The economic, social and psychological requirements of the affected population would vary from one disaster-affected site to the other. Even within the same site, the satisfaction of one need or requirement would not result in the satisfaction of the other needs. For example, rehabilitation in terms of provision of houses for the displaced will not take away the psychological trauma of having lost the dear ones. This makes it necessary to design and implement the rehabilitation programme to cope with specific aspects of the victim’s lives at all the stages of disaster rehabilitation.

It is essential that a systematic rehabilitation plan treats the affected communities as heterogeneous. Gender analysis should be introduced at the level of rehabilitation planning itself. A gender-sensitive approach helps to identify differing vulnerabilities, capacities and coping strategies of men and women to crisis situations. It has to be seen that no affected group is left out of the rehabilitation operations in order to avoid social tensions and enable the inclusion of different categories of the affected population in specific sub-plans.

Community participation at all levels of disaster rehabilitation can go a long way in making rehabilitation effective. The participation of the community should go hand in
hand with the assessment of unmet needs and response capacity. No disaster rehabilitation plan can achieve its objectives unless the disaster-affected community participates in the formulation, implementation and evaluation of its various components.

In the Tsunami-aftermath in Southern India in 2005, community-non-governmental organizations (NGOs) joint efforts such as Tsunami Farmers Self-help Groups in Tamil Nadu and Pondicherry Multipurpose Social Service Society have been pertinent. The experience of these initiatives must find a place in the disaster rehabilitation plan. The long-term counter disaster rehabilitation plan must be based on building the resilience of victims. A number of Community Based Disaster Management (CBDM) Projects and Disaster Task Force initiatives are coming up. These need to be encouraged and the lessons learnt through them must be assimilated in the larger rehabilitation plan.

The role and responsibilities of all the stakeholders (planners, governmental agencies, NGOs, international agencies, self-help groups, and community) need to be clearly demarcated in the rehabilitation plan. The measures pertaining to rehabilitation cannot be sustained if they are not institutionalized. Local authorities have to be in active dialogue over priorities and focus of rehabilitation strategies. Efforts have to be made to establish and sustain the institutions that are involved in disaster rehabilitation such as micro-credit societies, environmental forums, grain banks, fodder banks, seed banks, mahila mandals, pani panchayats and so on. There is also a need to fix
accountability on each organization involved in disaster rehabilitation. The duties of the army, paramilitary, home guards, civil defence, police, fire services, public sector and media need to be streamlined, in order to avoid haphazard coordination, multiplicity of tasks, duplicity of organizations, red tapeism, delay and wastage.

The media can play an important role in strengthening disaster rehabilitation and building strong communities. As an important channel of communication, media transmit facts from disaster site to general public. Accurate, timely and consistent information dissemination by the media could be a useful contributor to disaster rehabilitation exercise. The media should try to highlight the stories of hope and courage in disaster aftermath, instead of merely focusing on human misery and distress. The Information, Communication and Technology revolution has opened up new vistas for use of communication in disaster rehabilitation. Options such as HAM Radios, Wireless and Incident Command System can be supplemented with new technologies of Internet, Intranet, Extranet and Webblogs.

Damage assessment is a precondition for effective disaster rehabilitation. Unless we are clear about the nature, extent and intensity of damage in the aftermath a disaster, we can never plan out, implement or evaluate the disaster rehabilitation plans and strategies. Perception, assessment and mitigation of risks are some of the dimensions of Damage Assessment. It can be done through systematic Sample Surveys, Earth Observation Programme, Geographical Information Systems, Aerial Photography and Remote Sensing. Possible uses of Aerial Photography include hazard mapping,
vulnerability analysis and reconstruction planning. Feasibility study is also an important step towards damage assessment and rehabilitation of infrastructure.

The rehabilitation plan must be clear, transparent, structured, objective, accessible, accountable and responsive. It has to be adaptive in nature so that it can change as per the demands of a new situation. Flexibility norms in terms of structure, processes and finances need to be ingrained in the plan. The key issues pertain to assessment of damage, fixation of responsibility, prioritization of requirements, execution of major mitigation strategies, and most importantly monitoring, evaluation and general review of the development process.

One of the most crucial components of the rehabilitation plan is financial infrastructure development, which needs to be strengthened. In India, the government, both at the central as well as state levels, has specific schemes for providing funds for disaster management activities. Though much of the funds go towards immediate disaster relief work, a small amount is also earmarked for disaster rehabilitation. The Calamity Relief Fund is one such arrangement at the central level. Other measures include National Calamity Contingency Fund and Prime Minister’s National Relief Fund. Various insurance schemes such as Swarnajayanti Gram Swarozgar Yojna, National Agricultural Insurance, Seed Crop Insurance, Kisan Credit Card etc., are also slowly becoming popular.
The rehabilitation plan should also have adequate provision for building disaster-resistant structures as a guiding principle. 55 per cent of India is earthquake-prone. The traditional housing techniques based on the use of timber and bamboo have been successful in India. The structural system for quake resistance needs to be tensile and material used should be flexible. These houses should have tie-bands just above the level of the floor, the level of the doors and windows and another at the roof. Flexible steel rods or wood panels can be used at the corners to enhance elasticity. Doors and windows should be few, small and systematically placed away from corners. As far as flood-resistant housing is concerned, structures need to be erected on a higher elevation on best bearing soil and raised mounds, using concrete cement and waterproofing. Cyclone resistant structures have to be sturdy, wind resistant and concrete in texture.

Building authorities and Research Institutes in India such as National Building Construction Corporation (NBCC), Building Materials and Technology Promotion Council (BMTPC), Housing and Urban Development Corporation (HUDCO) have laid down certain guidelines for housing in disaster-prone areas. The rehabilitation plan must pay attention to these aspects. It must see that properties of symmetry, ductility, deformability, rectangularly and simplicity are followed strictly to build disaster-resistant houses. An effective control mechanism for adherence to the disaster-resistant design rules has to be established.
The ‘oughts’ and ‘shoulds’ in disaster rehabilitation planning are innumerable. They often make for a good reading. In reality, however, India does not even have anything that can be remotely referred to as a disaster rehabilitation plan at the central, state and local levels. Therefore, solutions have to be searched within the framework of an altogether new paradigm. The conventional approach of treating disasters as isolated one-time events has not borne fruit. We may go about harping on the composition of rehabilitation plans, but unless we change our approach and start viewing the problem of disaster rehabilitation differently, we may slip further away from tackling the issue.

The solution to the problems of rehabilitation and reconstruction lie in the establishment of interlinkages between disasters and development. The relationship between disasters and development is not that of straight cause and effect. There are many intricacies in the underlying network of relationships. Rehabilitation plan should encompass issues related to the negative impact of disasters on socio-economic system and also the ways and means through which these challenges could be converted into developmental opportunities. We certainly need a new paradigm for looking at the whole issue of disaster rehabilitation.

**Towards a New Perspective**

Ensuring effective disaster rehabilitation is not an easy task. Many convoluted issues need to be addressed. A simplistic solution would be to prepare a picture perfect disaster rehabilitation plan and put it to test through controlled implementation and
evaluation. This may lead to goal-achievement on a short-term basis. A larger or macro-view would, however, focus on long-term analysis of a disaster situation by positioning it in a disaster-development matrix.

While disasters are calamitous events, lessons learnt and incorporated into long-term development planning may serve to reduce future vulnerability. The destruction of unsafe infrastructure and buildings can provide an opportunity for rebuilding with better standards or relocation to a better place if the present site is found specifically vulnerable. Particularly damaging disasters will also focus on relief aid and rehabilitation investment, thereby providing developmental opportunities that have been previously unavailable. Damaged buildings may highlight structural weaknesses, which could be rectified and may serve to improve building and planning regulations.

There is thus a significant relationship in the way disasters and development affect one another. In the present context, disasters can no longer be viewed as random occurrences caused by the nature’s wrath. The distinction between natural and man-made disasters is getting blurred with time. The frequency and intensity of disasters has recorded an all-time high, as the harmonious balance between human beings and nature is being disturbed to almost irreparable proportions.

Faulty urbanization, population explosion, civil strife, unbalanced industrial growth have led to severe environmental degradation. Global warming, deforestation, desertification, soil erosion, and salinization reflect the denuded face of earth’s
environment. The degradation of environment and its mismanagement may aggravate the frequency, severity and predictability of disasters. The relationship between disaster management and environmental protection thus needs to be examined against the backdrop of disaster-development matrix.

It has been observed that the frequency and intensity of disasters can be attributed to flawed environmental policies. The global environmental situation appears to be grim. The beaches of a third of the 200 islands of the Maldives are being swept away. A quarter of all species of plants and land animals could be driven to extinction. Sea ice in the Arctic Ocean has decreased by 10 per cent. Coastal areas like the US, China, Bangladesh and India are threatened (Saxena, 2006).

Globally, the Earth’s climate is warmer today than it has been at any time in the past 140 years. An acutely alarming analysis of data collected from the Greenland Glacier suggests that earth is moving towards a speedy end. Greenland’s Glaciers are melting twice as fast as previously, pointing towards a scary reality. The Earth’s oceans are rising at such a high speed that by 2050, cyclones, tsunamis, submerging islands would become headline news everywhere (ibid.).

The relationship between environmental degradation and disasters needs to be clearly surveyed. There are many International Environmental Treaties such as Kyoto Protocol, United Nations Framework Convention on Climate Change, Basel Convention on Transboundary Movement of Hazardous Wastes, Convention on
Biological Diversity, Convention on Climate Change, Convention to Combat Desertification, Convention on International Trade in Endangered Species (CITES), Convention on the Law of the Sea (LOS), and Montreal Protocol on Substances that Deplete the Ozone Layer. These Treaties and Conventions have set guidelines for environmental protection. The rehabilitation plan should keep the underlying features of these treaties into view and integrate environmental protection measures wherever required. A sustainable environment-friendly rehabilitation plan is the need of the hour.

Sustainable Livelihood Framework: The Key to Disaster Rehabilitation

In order to promote environmental protection and create long-term vulnerability reduction conditions, a ‘sustainable livelihood framework’ is urgently required. The livelihood approach advocates an increase in economic opportunities of work without degrading the natural environment. It seeks to understand the many factors that influence people’s choices of conventional and alternative livelihood strategies. Creation of livelihood options is a crucial step towards disaster rehabilitation.

Sustainable development involves more than growth. It requires a change in the content of growth to make it more equitable in its impact. The main objective of sustainable development is to prevent acts of nature from becoming disasters. The main focus of sustainable development is to mitigate the conflict between
development and environment to safeguard the resources for the present and future generations. While at first glance, this may seem unrelated to disaster prevention, the truth is that they are intricately entwined (Dhameja, 2001).

Sustainable living patterns have always been an integral part of rural India. There has been a long tradition of living in harmony with nature. Traditional practices of water conservation such as ‘Kuhls’ of Himachal Pradesh, ‘Kundis’ and ‘Rapats’ of Rajasthan and ‘Palliyals’ of Kerala have held people in good stead against low intensity droughts. ‘Sumers’ and ‘Chaukhats’ of Rajasthan are inimitable earthquake resistant structures from India’s heritage and past. People have followed traditional practices of coping with disasters, but are now increasingly becoming dependent on external agencies to withstand the disaster aftermath. These traditional practices are being abandoned to make way for new technologies. At a time when we need a thoughtful blend of the ‘old’ and the ‘new’, we are slowly loosing our traditional wisdom to a haphazard approach to modern development.

The success stories in India are few yet noteworthy. The endeavors such as greening of Arvari River in Alwar (Rajasthan), rejuvenation of Sukhha Lake in Chandigarh, and Build Your Own Check Dam in Saurashtra have been initiated by community groups and non-governmental organizations. These need to be woven coherently in order to build a strong knowledge base for disaster rehabilitation. Of late, the Narmada Bachao Andolan in India has been drawing attention to the travails of Project Affected People (PAPs). It has been trying to highlight the reckless development and rehabilitation
policies by focusing on issues such as non-compliance with rules, violation of human rights, and hardship of the poor.

One viewpoint is that unlike the environmentalists, those who equate development with huge shopping malls, big dams, vehicular explosion, and global merchandise are never called ‘ideologues’. They are never faulted for the negative consequences of development process that ignores the norms of equity, environmental protection and social justice (Iyer, 2006). Without going into the debate of mega projects, the issue to ponder over here is that if in normal times, development projects can cause so much displacement and inadequate rehabilitation of the affected people, can we expect a comprehensive rehabilitation policy for natural disasters? What happens to those, who are already vulnerable, in disaster aftermath?

A systematic rehabilitation plan should make way for a right mix of traditional practices, sustainable ways of living and modern technological development. A sustainable livelihood programme needs to analyze the existing socio-economic conditions prevailing in the area before the occurrence of a disaster, examine the occupational pattern in the affected area, survey the prevailing infrastructure facilities, adjudge the awareness levels of the people; and gauge the mind-set of the affected. It needs to recognize the premise that the community’s relationship with the environment is a basic unit for rehabilitation planning and implementation activities.
Self-reliance should be promoted and administrative interventions should follow a ‘rights-based’ approach. It is essential to ensure that the people are not treated as mere beneficiaries, but they also participate in the development process. This kind of approach could be beneficial in creating sustainable livelihood conditions and the rehabilitation plan should keep this in view.

There is also a need to strengthen the legal, organizational and procedural facets of disaster management. The Sustainable Disaster Network (SDN) could be a way out. It is a global network of organizations whose mission is to encourage policies, which allow individuals to pursue their goals in consonance with the environment. The SDN focuses on the institutional framework within which the people pursue their goals and make an optimum use of resources in a bid to protect the environment.

The United Nations (UN) is committed to promote sustainable development and mitigate disaster losses. The World Bank and the regional development banks have also begun to engage with issues surrounding the relationship between disaster risk reduction and economic development. The World Bank’s Board of Executive Directors has endorsed a viable Environment Strategy on July 17, 2001.

The Strategy has three interrelated objectives:

- improving people's quality of life, enhancing the prospects for quality of social and economic growth
- protecting the quality of the regional and global environmental commons, rational and planned growth of agricultural, industrial and tertiary sectors of the economy
- creating employment opportunities, programmes for the youth, women and physically handicapped; and
- promoting alternative cropping patterns, irrigation and water harvesting techniques, social and farm forestry, as well as skilled labour

The ‘connect’ between population growth, poverty and development is strong and complex. When assessed in terms of growth of the Gross Domestic Product (GDP), India is still far behind. Food insecurity, lack of means of livelihood and insufficient capacity to access resources characterize the lives of the poor even in non-disaster situations. Conditions of poverty often contribute to greater vulnerability of some sections of a population to an environmental disaster.

An effective rehabilitation plan has to be sustainable and must therefore give credence to creation of sustainable livelihood opportunities and alternative technologies. The United Nations Development Programme (UNDP) has a vision on human development, which treats development not merely in terms of mere rise or fall of national incomes. It envisages a space in which people can develop to their full potential and lead productive and creative lives in accordance with their needs and interests. This idea of human development has to be translated into action to uphold the values of equity and justice in the disaster rehabilitation exercise.
The new perspective that is gaining relevance pertains to convergence of relief, rehabilitation and development. The basic premise for Linking of Relief and Rehabilitation with Development (LRRD) holds the key to future strategies towards disaster rehabilitation. The development policy often ignores the risks of disasters and the need to protect vulnerable households by helping them to develop appropriate ‘coping strategies’. If relief and development were to be linked, these deficiencies could be reduced. Better ‘development’ can moderate the need for emergency relief; better ‘relief’ can contribute to development; and better ‘rehabilitation’ can ease the intermediary process between relief and development.

The linkages between developmental, relief and rehabilitation operations constitute a complex network of relationships, which have to be examined within the specific policy framework or strategic planning. The components of the LRRD and their design should be considered in the light of the ‘contextual’ realities of the country or region concerned. A comprehensive long-term recovery plan should keep into view the interlinkages between all the stages of disaster management, as well as the ‘connect’ between disaster rehabilitation, reconstruction and the larger developmental planning.

Adequate backward and forward linkages between disasters and development can, therefore, reduce the vulnerability to disasters. If we analyze the vulnerability of coastal communities to natural hazards within the parameters of the World Bank’s 1991 Environment Strategy and the disaster-development matrix, we can say that by
promoting certain development measures, the disaster impact can be made less severe in the coastal areas. These include:

- establishing a regional early warning system;
- applying construction setbacks, greenbelts and other no-build areas in each region.
- promoting early resettlement with provision for safe housing; debris clearance; potable water, sanitation and drainage services;
- providing for access to sustainable livelihood options;
- enhancing the ability of the natural system to act as a bioshield to protect people
- restoring wetlands, mangroves, spawning areas, sea grass beds and coral reefs; and
- seeking alternative construction design that is cost-effective, appropriate and consistent.

**The Road Ahead**

A futuristic perspective would have to look into the contours of disaster-development interface and come up with a systematic disaster rehabilitation strategy. Certain developments in the recent past could be regarded as the much needed steps in the
right direction. A Rehabilitation-Reconstruction-Tracking Matrix is being produced. Its objective is to provide salient information on the overall recovery effort. The Matrix is aimed at bringing together information from tsunami-affected countries with regard to the nature of work in the area, functions of stakeholders, monitoring and evaluation of impact; and availability of resources The Matrix is designed to give information at three levels of resolution: regional overview, sector-level status by a region or a country, and project level status by a country. It is expected to provide a comprehensive view of rehabilitation and long-time recovery.

The advancement in science and technology could be used with advantage for speedy long-term recovery. The international developments in terms of various environmental treaties, international consortiums, sustainable data forums and declarations focus on the use of technology, information exchange, coordination mechanism and environmental protection. These are: ProVention Consortium, Fribourg Forum, Hemispheric Conference, and South Asian Livelihood Options Project. The International Decade for Natural Disaster Reduction (IDNDR-1990-2000) has helped raise the profile of discussions surrounding the social and economic causes of disaster, and has acknowledged the mitigation of losses through technological and engineering solutions.

Yokohama Strategy in May 1994 has endorsed these objectives, and further underlined the need to strengthen the link between disaster reduction and sustainable development. The focus has been on prevention, preparedness and mitigation, with an
aim to increase public awareness, necessitate people’s participation, strengthen infrastructure, create disaster resilient communities and ensure accountability of the stakeholders in disaster management.

The International Strategy for Disaster Risk Reduction (2000) aims at carrying the good work ahead. The Strategy aims at: increasing public awareness on the risks of natural, technological, and environmental hazards; obtaining commitment by public authorities to reduce risks to people, their livelihoods, social and economic infrastructure and environmental resources; engaging public participation at all levels of implementation through increased partnership and expanded risk reduction networks at all levels; and reducing the economic and social losses of disasters.

The World Conference on Disaster Reduction (2005) held in Kobe, Hyogo, Japan has adopted a Framework for Action (2005-2015) on “Building the Resilience of Nations and Communities to Disasters”. It is a positive step, as the Conference has provided a unique opportunity to promote a strategic and systematic approach to reducing risks and vulnerabilities to hazards.

The World Health Organization (WHO) Meet in Bangkok in December 2005 has identified the gaps in addressing response, preparedness and recovery for health needs of the affected. One of the major objectives of the Meet has been to develop benchmarks and corresponding course of action (The Hindu, Dec.28, 2005). The focus of attention has shifted to health related facets of disaster management. New and old
techniques of health surveys such as Nutrition Centred Health Assessment and Epidemiological Surveillance are being amalgamated for effective health surveillance.

Disaster management is acquiring a global connotation. Besides the United Nations and the World Bank, many international organizations such as Caritas India, Lutheran World Service, Asian Development Bank, Intermediate Technology Development Group (ITDG), Danish International Development Agency, Swedish International Development Agency, Cooperative for Assistance and Relief Everywhere (CARE), Sustainable Environment and Ecological Development (SEEDS), International Federation of Red Cross and Red Crescent Societies, Oxfam, etc., are doing substantial work in the area of disaster relief, rehabilitation and recovery.

In India, National Institute of Oceanography in Goa has developed a Real-time Reporting and Internet Accessible Coastal Sea-level Monitoring System. The Sea-level Network in India Ocean has been upgraded. Deep-ocean Assessment and Reporting of Tsunamis (DART II) is under development. A Siesmographic Network and Tsunami Warning Centres Network has been proposed (Pradhudesai and Joseph, 2006). The Bureau of Indian Standards (BIS) has also initiated several pre-disaster mitigation projects to reduce the impact of natural disasters on life and property as well as bring down social vulnerabilities.

The Bureau has undertaken standardization efforts in the area of earthquake engineering. Some new earthquake-resistance techniques have been developed. One of them is the Base Isolation Technology. It aims at reducing the forces transmitted to the building from the ground by placing the building atop a mechanical system of
isolators, sliders and dampers. Such technologies along with Diagonal Bracing, Disaster Resistant Pier System, Welded Wire Fabric Reinforcement could help in disaster-resistant construction and favourable resource utilization for disaster rehabilitation.

The National Advisory Council, which works as a think tank for the central government in India, has proposed a National Rehabilitation Commission to ensure rehabilitation for all those affected by mega projects, including dams, mines, highways and natural disasters. The Disaster Management Act (2005) has been passed in India. The Act aims at speedy handling of natural and man-made disasters. It has led to the setting up of a National Disaster Management Authority at the central level and a State Disaster Management Authority at the state level. The Authority has the responsibility to lay down policies and guidelines for disaster management to enable timely and effective response to disasters. The National Centre for Disaster Management has been reconstituted as the National Institute of Disaster Management. How far and how much of their goals would these developments be able to achieve is a question only time can answer.

Disaster management has been incorporated in the training curricula of All India Services with effect from 2004-05. There is a separate faculty in the area of disaster management in 29 State Level Administrative Training Institutes. The Central Board for Secondary Education (CBSC) in New Delhi has introduced disaster management as a subject in standards VIII and IX in schools. The National Council for Educational
Research and Training (NCERT) books in India now have lessons on disaster management for school children.

The All India Council for Technical Education has been advised to include engineering aspects of disaster management in engineering courses. This education and training impetus needs to be sustained through informed people’s participation. A simple philosophy for coping with disasters is one of government and people working together in a coordinated way, by means of a coherent disaster management system.

A completely fresh perspective of linking disasters with development can draw from these developments in the area of science and technology, legal and administrative framework, education and research as well as information dissemination. Development has to be environment-friendly and sustainable. It should give due regard to the goals of equality, human rights and social justice. Disaster planning has to, therefore, be a crucial component of overall development planning of a country.

The road ahead is full of complexities, as well as promise. In consonance with the new perspective, disasters can be viewed as developmental opportunities. Howsoever paradoxical it may sound, but it is true that whereas faulty development policies may lead to disasters, many disaster events also open up new possibilities of development. An often quoted phrase needs to be reiterated over here; “development should be such that guards against disasters, development in itself should not give rise to disasters”. We may conclude by saying that we still have miles to go from here. It is indeed a long and arduous tread ahead.
References


IGNOU Postgraduate Programme in Disaster Management (PGDDM), 2006, Course MPA- 007 on Rehabilitation, Reconstruction, Reconstruction and Recovery.


Santhanam, R., 2006, “We are now in the Reconstruction Phase”, Interview with the State Relief Commissioner, Tamil Nadu, *Frontline*, January 13.


Stephenson, Rob S., 2002, Disasters and Development Module for DMTP


**Website:**