

THEMATIC SESSION D1: DISASTER, DEVELOPMENT AND GOVERNANCE

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ABSTRACTS

**DISASTER, DEVELOPMENT AND GOOD GOVERNANCE:
INSTITUTIONALIZATION STRATEGIES AND E- TOOLS OF GOOD
GOVERNANCE FOR EFFECTIVE MANAGEMENT OF DISASTERS**

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The vulnerability of India to all types of disasters is well known. The need for an effective Disaster Management strategy has been increasingly felt in many quarters. The Government's performance in Disaster situations and its ability in organizing and providing Disaster response including distribution of relief will be under careful scrutiny and watched not only by the local citizens but even by the international communities. Management of Disasters continue to be the major challenge for the Government, as it remains the core responsibility of the Government. Government's ability in successful management of Disasters and its performance in disaster situations are among the key indicators of its performance.

Disasters have an adverse impact on Development as they cause severe damage to the economy. Losses from Disasters reduce the pace of sustained economic development. The beneficiaries under the various programmes and schemes in the development administration and the losers on account of various disasters are increasingly becoming one and the same. Consequent on a disaster, resources become scarce and development programmes will be affected since the limited available funds and resources have to be diverted for reconstruction and

restoration programmes. However, Disasters may also provide an opportunity for Development. Development can not be sustained without integrating the Disaster management with the Development process through various Good Governance mechanisms.

In Disaster situations, the continuance of delivery of public services is of utmost importance. In countries like India, the Governments are taking several initiatives to revamp Public Service delivery systems and introduce structural changes in Governance in order to improve effectiveness.

Good Governance involves induction of various Mechanisms, Rules, Regulations, Processes and Institutions through which people's needs and expectations are assessed and services delivered by the governments. The characteristics of Good Governance include transparency, participation, rule of law, responsiveness, efficiency & effectiveness, and accountability etc.

In this paper, an attempt is made to explain the relationship between Disasters and Development and how the Governing reforms can aid the administration for successful management of public service delivery mechanism during Disaster situations. This paper seeks to provide a basic insight in the process and framework of E-Governance and how the E-Tools and institutionalization strategies of Good Governance can be used for effective management of Disasters. Particular emphasis is placed on using E-Governance tools to address communication issues which are vital to both Disaster preparedness and post Disaster management. A road map is also suggested in this regard.

RELIEF -DEVELOPMENT GAP : VISIBLE VS INVISIBLE APPROACH

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Sudden nature of disasters, such as Orissa super cyclone in 1999 killed nearly 10,000 people and destroyed more than one million hectares of crops. The Gujarat earthquake in 2001 claimed over 13,805 lives, left millions of people homeless, and ruined public infrastructure worth hundreds of millions of dollars. Estimated output losses in the state of Gujarat, following the Bhuj earthquake amounted to 2-3% of the Gross State Domestic Product (GSDP) and forced a change in fiscal planning in the form of a surcharge on taxes on the entire country. Recent Tsunami has created as huge economic loss in almost all the affected countries. These catastrophes typically result in the substantial loss of hard-earned development gains as well as diverting the development funds towards fuelling disaster relief. The slow onset disaster, Drought , has long and deep socio-economic impact on the society. The response of the Governments on its impact is evident from the fact that more than 70 percent of the money is spent on creation of temporary employment . In majority of the cases it has been seen that most of the relief work is focused towards immediate and the short term relief which ignores the long term strategy leading towards risk reduction. India, with the latest allocation of relief by 12th Finance Commission of Rs. 21,000 crores approx. as Calamity Relief Fund and Rs. 500 crores approx. for National Contingency Fund. In addition to that aid/funding of bilateral and INGO and NGOs, Corporate sector are also contributing to the immediate response by providing assistance.

Disaster has a positive impact also, if it is seen with a different perspective. Disaster do play role in eroding development but at the same time, if it is tackled

differently, may provide opportunities for development. Disaster should not rather must not be seen as an isolated event based approach. It should be seen as integral part of development process. The major question is who owns hazard (risk reduction) and who owns disasters (relief)?

For disaster management whether it is drought, tsunami, earthquake, floods and cyclone, relief is the key instrument for all humanitarian assistance provided by the government as well as donor agencies focused towards the immediate needs of the people (shelter, water, health). These assistances did not have any intended strategy for long term risk reduction. The government, the donor agencies and the NGOs all have very short sighted focus. They plan for short term assistance in the form of immediate need of food, shelter and clothing are visible and noticed. Risk reduction strategy in relief is ignored because it is a long term and difficult to quantify and remain invisible. The present paper will analyze the impact of relief work on the risk reduction and development with special reference to the slow on set disaster i.e. drought. This paper will make an attempt to provide a framework for linking relief with risk reduction and development. Relief aid should be need based and refer to long term initiatives in vulnerability reduction and capacity development of the community. This is an attempt to suggest about the governance of disaster leading to bridging the gap between relief and development .The entire paper has drawn learning from the study conducted in three states of India i.e Karnataka, Rajasthan and Orissa.

**PUBLIC CONTROL ON GOVERNANCE FUNCTIONS:
A TOOL FOR MAKING DISASTER MANAGEMENT EFFICIENT AND
EFFECTIVE**

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The Disaster Management Act of 2005 attempts to provide an elaborate organizational structure for the government machinery for tackling the challenges posed by disasters. In India, disasters and their impacts are highly diverse in nature and widely dispersed in locations. Hence, it is impossible for even elaborate government machinery—on its own—to adequately address complex issues in disaster management. Based on the action-research conducted in the aftermath of disaster in Maharashtra in 2005, the current paper proposes an alternative framework of public control on governance in disaster management to tackle the complex issues involved.

The view from the below (of disaster affected people)—which emerges from the action research—suggests five core substantive issues that need urgent attention, viz., priority to livelihood security of the poor, people’s meaningful participation, focus on ecological roots and disaster prevention, accountability of public and private sectors, and transparency in planning, and operations. The major hurdle in progress towards each of these substantive issues lies in the ineffective and inefficient performance at the policy and practice level of disaster management.

The performance failure in the government institutions, the paper suggests, is rooted in the unconscious or conscious efforts of the vested interests to influence

three functions of governance, namely, decision-making, implementation of decisions, and regulation of the first two functions. Such influence distorts policies and practices in disaster management and ignores the core substantive issues mentioned above. Hence, an alternative approach to improving the governance in disaster management would be to develop public control on the vital functions of governance and safeguard the public interest. The different mechanisms suggested in the paper for ensuring public control on the governance of disaster management, when operationalised, will make the new government's machinery for disaster management more effective in tackling complexity of disaster management in India.

DISASTER DEVELOPMENT AND GOVERNANCE

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“Disaster is like hare that occur (runs) sudden (very fast) and leave behind (destroy) tortoise (development) and Government is the referee of the race. Since civilization of mankind the three aspects, disaster development and governance are always associated with man. History of mankind reflects natural events are permanent phenomenon in the journey of its development. From Stone Age to 21st century nature creates challenges to man and man invent new methods to overcome the challenges. Race between man and nature is continuing in the present and will continue in the long journey of mankind.

Role of man is like traffic controller who can stop a vehicle for some time but cannot change the direction of the vehicle. For example a hall can be air-conditioned but “ to stop summer to come” would not be possible”. Defeating” nature will not create wining situation. In other words respect nature and develop resilient power will be a win win situation for man.”

INCLUSION OF DISABILITY IN DISASTER MANAGEMENT AND RESPONSE

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In recent years of natural and manmade disasters, disabled people are invisible in policies and programmes.

In this paper the exclusion of disabled from disaster programmes and policies will be discussed. We believe that Disasters lead to further discrimination for already disabled people, creating worse conditions of their health and overall well being. The exclusion and systemic undervaluing of disabled people perpetuates a cycle of poverty and isolation

Our Experience

SMRC has a long history of campaigning at international, national and local level since 1999 on inclusion of disability in disaster management. This includes collaboration with the World Bank, NDMA, CIR (USA), Global Health Research Forum (Switzerland) and many other agencies. The paper will focus on the campaign and in that the issues that have emerged such as:

Disabled face more morbidity and mortality as they and their families do not know how to manage disability Few disabled people were found in the aftermath of the recent Tsunami in Sri Lanka as disabled disproportionately killed during the Tsunami. Besides, more people are disabled by disasters. The main pathologies in disasters include respiratory infections, over-infected wounds - amputations, spinal injury, brain injury, psychological trauma.

The other problems are Communication of disasters itself; Inaccessibility: to shelters; denial of specific health needs, inaccessibility to rehabilitation measures Food; Inaccessible housing where provided and above all no decision making roles.

It is necessary to set up international and national standards where we create a system whereby collaboration between key stakeholders (DPOs, Governments, UN, Donors, NGOs etc) actively considers disability issues

during disasters to assure the health, safety and other human rights of disabled people.

The paper will finally focus on how

Standards should include measures to:

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- i. Reduce poverty due to disasters.
- ii. Ensure that warning systems and *universal design principles* are disabled friendly
- iii. Ensure that relief workers understand and are sensitive to disability issues in working with people.
- iv. Ensure that services and funding are in place to provide care and medical aid to high-risk groups.

DISASTER MANAGEMENT LAWS IN INDIA – A CRITIQUE

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Compelling need for a legal framework dealing with disaster management was felt after Bhopal Gas Tragedy. In the immediate aftermath of Tsunami, the Disaster Management Bill was passed by the Rajya Sabha on 28/11/05 and Lok Sabha on 12/12/05.

This Article proposes to analyze the Disaster Management Act and also the adequacy of legal framework on Disaster Management in India. The Disaster Management Act defines disaster, disaster management, capacity building, reconstruction etc. These definitions need to be analysed properly since their interpretation would affect the implementation of the Act. For example to be ‘disaster’ within the purview of the Act the event must be beyond the coping capacity of the community of the affected area. How does one access the coping capacity is a question which needs to be answered.

The Act establishes a National Disaster Management Authority and other authorities at various levels, but whether so many authorities will be able to co-ordinate their activities is to be observed.

The paper proposes to analyse whether adequate relief measures have been provided. Whether NGO’s , which have been working during earlier ad-hoc arrangements have been given proper weightage and their role is properly addressed within the new legal framework. It seeks to conduct an enquiry

into the earlier legislative responses to disasters in India in the light of advantage of the new legal framework. It seeks to analyse the law laid down by the apex court regarding co-relationship between sustainable development and disaster management.

Though much of legal framework exists we need a re-examination of duties and obligations of people connected with management of disasters since the legislative and administrative responses have always been considered to be lacking even after legal framework resulting into ad-hoc arrangements till the Disaster Management Act came into force. Its effectiveness needs to be understood properly.

PLANNING FRAMEWORK FOR DISASTER RISK REDUCTION

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Disaster Preparedness as a profession and idea has only been taken seriously in past one decade. Mainstreaming disaster preparedness in development planning is a much recent thinking; hence the practice is yet to evolve which could provide definitive answer to 'how to do?'. Disaster reduction is a shared multisectoral and multilateral commitment to idea that disasters and development are linked. The pursuit to see a significant reduction of disasters has brought us to attempt the impossible; a truly integrated multilateral, multi sectoral development planning. This paper attempts to explore a planning framework and its application for disaster risk reduction based on the work done in various part of the world.

Planning Framework; a system to assess and enable progress, manage risk and capability creation to ensure safety and well being of citizens, *would be an important investment in progress and preparedness of a community/district/country.*

Such a framework would help achieve more effective no. of resources and improved division making at all levels.

Evolving a Framework:

Disaster and development (D&D) are linked. *"Disaster risk is an unresolved problem of development. Disaster risk is not inevitable but on the contrary can be managed and reduced through appropriate development policy and*

actions. Similarly any disaster response activity' has the capability to influence development." D&D work evolves around a multi-lateral, community based, planning process that promotes the development and implementation with a risk management framework. The PROCESS is central to achieving sustainable results and mainstreaming of risk reduction strategy. Hence the major challenge is to have an appropriate strategy (contents of the process) and resources to sustain the process till it is reasonably institutionalized.

Various components of the D&D PROCESS contribute to local institutional capacity development within a community-based planning framework.

Frame work for action:

Reducing disaster risk and improving economic resilience to disasters creates:

- An incentive that attracts outside business interests and investors.
- Ensures growth and development of existing economic activities.

The next important challenge is to evolve some tangible programmes which could lead to wider involvement of various stakeholder to achieve risk reduction that should lead to economic sustainability.

These initiatives include priorities in the social, environmental, and economic sectors. The over arching goal of various initiatives could be to prioritize incorporating disaster risk management as a critical component of economic development policy in order to obtain overall economic sustainability.

The participatory planning process/events that could underpin the above mentioned programme.

The next challenge is to develop a planning framework that is simple to follow and can make sense within the context of local goals of sustainable economic development.

The 3-Step, Risk Reduction Planning Framework:

1. Risk and Vulnerability Assessment,
2. Development and review of mitigation countermeasures to the specific risks and vulnerabilities identified during assessment (*safety Program*),
3. Specific recommendations for risk reduction policy implementation.

ORGANISATIONAL LEVEL DISASTER PREPAREDNESS (OLDP) IN GUJARAT

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Since past decade, experiences drawn from various disaster responses both by government and non-government organisations have reinforced the fact that irrespective of the nature and scale of the disaster, different actors, who have a mandate to respond, are often caught 'off-guard'. This then puts them in a reactive mode and at times limits the timeliness and delivery of an effective response. Hence, there is a felt need to put together optimum level of preparedness at any organization's office level in order to respond to disaster situation effectively and efficiently.

The broad aim was to develop a Decision Support Tool which enables any organization to respond to disaster situation effectively and efficiently and scale up the same in order to reduce the suffering of people in Gujarat.

A user-friendly GIS based application cum databank having information about vulnerabilities due to multiple hazards in Gujarat, service providers such as relief material suppliers (1601), transporters (339), experts (648 - Doctors, Engineers, Volunteers etc), CSOs (470), Road networks and other important utilities. The application will be having vital facilities such as data display, map display, object Selection, querying (pre-defined and dynamic), thematic map generation, distance measuring etc. The application will be available in a CD form with operational manual for all the disaster

responders such as NGOs, CBOs, International NGOs, corporate agencies, Government agencies and departments etc.

The application will be helping for taking quick decisions during any disaster response such as prioritising the geographical areas, Identifying experts for taking support particularly in need assessment and implementation of technical interventions in various sectors such as Water and Sanitation, Shelter, Public Health etc, Identifying appropriate traders / suppliers and transporters for procuring relief material, Identifying partner NGOs to work with in disaster response. Hence it will contribute in reducing suffering of disaster victims in Gujarat.

SAFETY OF HUMANITARIAN AID WORKERS

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Countries have so far shown little motivation to do what needs to be done. The situation has been made grim by the collapse of the United Nations Small Arms Review Conference on 8 July 2006. Relief workers - those who have dedicated their own lives to protecting civilians - need to be protected. but how?

The recent massacre of 15 NGO workers in Sri Lanka raises, once again, the specter of the safety of aid workers in conflict zones. The bodies of the 11 men and 4 women were found lying face down in their office in the town of Muttur, the centre of fighting between government forces and the Tamil tiger rebels. The 15 aid workers, all local Tamil civilians working for the French NGO, Action Contre la Faim (ACF), were wearing their ACF T-shirts, which clearly indicated that they were humanitarian relief workers. All had bullet wounds. They had gone to Muttur to assist the refugee settlement and were unable to return to Trincomalee due to heavy fighting.

The thousands of homeless tsunami survivors who still depend on international aid organizations for their daily lives have the additional trauma of the possibility of the NGOs pulling out for safety of their staff.

In Sudan Eight aid workers died last month as fighting among Sudanese

factions increased. Many of the attacks happened while workers were helping suffering populations. "The situation is made even more serious by the fact that the need for humanitarian assistance is increasing while our ability to respond is being ever more restricted" said Manuel da Silva, the U.N. deputy special representative in Sudan.

Unidentified assailants killed a Canadian national in the Nahrin district of Baghlan Province, in Afghanistan. The victim was working on a project to build a school in Nahrin.

Humanitarian aid workers experience among the highest homicide rates in the world. Between 1997 and 2003, 291 aid workers were killed in acts of violence. Over 1000 United Nations (UN) personnel, including peacekeepers, were killed on duty between 1992 and 2001.

The Humanitarian Dialogue and the Small Arms Survey shows that aid workers in conflict situations often live in violent security environments, surrounded by military forces, police, private security forces, organized criminal factions, rebel groups and heavily armed civilians (including child soldiers).

The Security and Risk in Humanitarian and Development Action Study comparing respondents in South East Asia with their counterparts in the Balkans, found that respondents worked in a variety of security environments. Sri Lanka and the Philippines were on average rated as being the most violent or conflict-prone, while Thailand and Laos were rated as having the lowest levels of armed violence.

Despite working in dangerous environments, many personnel indicated that they had not received any security training within the organization for which they currently worked. The frequency of reported security training did not always correspond to the level of violence in a given environment, to the estimated prevalence and misuse of small arms, or to the level of personal threat expressed. In many organizations, national staff are half as likely as expatriates to receive security training.

The importance of training cannot be overstated. The survey revealed that those who received security training viewed it as being helpful' especially due to heightened knowledge awareness of necessary precautions.

DISASTER REDUCTION AND LOCAL SELF GOVERNMENT: THE WEST BENGAL EXPERIENCE

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The paper reviews the experience of working with Panchayats in West Bengal on disaster reduction and preparedness. It attempts to demonstrate effective translation of policy into ground level implementation through a community based disaster preparedness programme. The paper will attempt to conclude with a model for replication across India.

The role of Panchayats has been reflected in the Government of India's disaster risk management policy, which aims to minimize losses by creation of resources at the grassroots of the democratic structure. This resource creation will be done through active participation and ownership of Panchayats who have a pivotal role in disaster response.

West Bengal has implemented the Constitutional directives of local self-government. The Panchayat Act, including amendments, has all been incorporated into the state machinery over the last decade. In keeping with the provisions of local self government, developmental initiatives have been implemented and managed through Panchayats across the state.

When communities are affected by disasters, the first organized respondents are the Panchayats. Relief and aid are routed and distributed through this system. It is critical to augment these services with a comprehensive understanding of preparedness, which acts as a cushion for efficient disaster management.

The foundation of the community based disaster preparedness programme in West Bengal lay in the community's participation and ownership, and the leadership role of Panchayats throughout implementation of the programme. This role allowed them to demonstrate credibility to their voters and also to participate meaningfully in a people-centred democratic endeavour. Through sensitization, capacity building and use of democratic procedures and institutions, the Panchayats understood and owned the initiative and made it their political mandate.

Participation of Panchayats in planning and implementation of disaster reduction processes have led to a deeper commitment to the democratic system.

PUBLIC PRIVATE PARTNERSHIP IN DISASTER RISK REDUCTION

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The ancient Sanskrit concept of “Vasudeva Kutumbakam” or the world is a global village has found expression in what is called “Globalisation” in today’s world. However, with globalization have come industrialization and its impact on the natural environment that has in turn led to changing climatic conditions and adverse impact on the environment, which has ultimately led to a phenomenal surge in natural disasters all over the world. In its MDG goals the United Nations has, pledged to develop a global partnership for development, so as to achieve a sustainable human development. In the recent years, there has been an alarming increase in both the natural as well as manmade disasters across the world. But, the more distressing factor is the inability to cope with the wrath of nature, be it in the developed nations or the developing nations. It is important to note that when disaster strikes it destroys years of development, economy, and of course major loss of lives. It virtually breaks the backbone of a nation, more so if it is a developing nation like India. Therefore with the changing environmental scenario, it is not the task of the government alone to handle such a massive task, and hence a partnership between the Public and Private sector towards minimizing losses is extremely important. In other words, the corporate sector needs to shift focus from the market losses to the bigger danger of incurring nerve wrecking losses from the natural disasters.

The private sector is organized with both financial resources and technical expertise, and with corporate social responsibility being the buzzword, there could be an effective public- private partnership. Investment by the Private sector can be made in terms of providing and manufacturing relief material, distribution and rehabilitation/reconstruction. For Example: during the Kashmir Earthquake, the requirement of tents was in thousands but, the country production per day was only 200. In a situation like this, a *catastrophe model* can be developed to identify and quantify the likelihood of occurrence of specific natural disasters in a region and estimate the extent of incurred losses, and, thereby build up an inventory, to meet the requirements during a calamity and the government in turn could give a security to the corporate sector to buy back the unused inventory, so that, there is no loss incurred by the company. As mentioned by, Kousky, Carolyn, Erzo F.P. Luttmer & Richard Zeckhauser, in their paper “Private Investment and Government Protection” “The devastation wrought by hurricane Katrina along the Gulf Coast has once again reminded citizens, policymakers, and academics of the difficulties of making decisions regarding development in risk-prone locations. The government does not face a simple decision of how much protection to offer investments, nor do private entities face a simple decision of how much to invest in an area with a given risk level. Instead, government and investors respond to each other, with investment increasing when protection levels are raised, and government raising protection when investment in a risky location grows.”

In India, the Planning Commission, in a study of Public/Private Partnership (2004) found, that, most of the functions in the category of social services fall under the state. It is time that the responsibility is shouldered by the

community and private enterprises. Partnership between the government and private sector on a regional basis could also be worked out, for example: in the aftermath of Gujarat earthquake, it was the outstanding government/private partnership that led to a speedy and successful reconstruction. Similarly, the devastation wrought by Hurricane Katrina did not occur because laws were inadequate it was lack of adequate training and readiness, failure of coordination, and delayed action, that led to massive devastation in the worlds most developed country.

To finally conclude, the objective of this paper is to find the effective areas of public/private partnership, suggest constitutional changes for this partnership, natural disaster insurance with the exception for the critical services vital to national security, for disaster risk reduction. The industry needs to be motivated, on its own vulnerability, towards both natural and manmade disaster; pre 9/11, it was an unimaginable reality that passenger aircrafts could be used as a weapon for large scale destruction. Therefore every sector gets affected by some form of disaster or the other. Aside from the various sectors involvement in disaster management there is an urgent need to bring about constitutional changes in the country so as to bring about a flourishing market economy that would enable the private players to contribute more productively towards disaster risk reduction. As Prof. Amartya Sen points out, that merely by freeing the markets, success does not emerge, it has to be concomitant to a determined political leadership that promoted economic growth and social welfare.

CONSEQUENT MANAGEMENT STRATEGIES FOR THE MOUNTAIN REGIONS

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The Himalayan Zone is a disaster prone zone in India. This is affected by landslides, forest fires, cloudburst and floods, which strike at a certain period of the year with high frequency. Their toll is equivalent of a major earthquake in terms of life and property losses if combined together. Earthquakes are the most devastating disaster in the mountains and are unpredictable. Experts give a time span of fifty to two hundred years for the reoccurrence of earthquake in a region. In the case of Himalayas it has occurred much before the predicted time as one had experienced in Uttranchal earthquake, Chamoli earthquake and subsequently the 7.6 magnitude earthquake that hammered North Pakistan and India (Jammu and Kashmir) on 8 Oct 2005. Pakistan which bore the brunt of the earthquake had a death toll which exceeded 50,000 with thousand injured and some 2 million rendered homeless. In India the quake killed 1300 and left at least 100,000 without shelter. Many victims were children- the quake struck as kids were in their morning classes, in shabbily built schools that crumbled like sand castles during the first shock waves crushing the thousand boys and girls. A whole generation was lost.

The entire 2400 Km Himalayan Mountains is built up by an unceasing

succession of catastrophic over-thrusting, earthquakes. The steady source of stress required to sustain this process is provided by the persistent northward drive of the strong Indian plate against the thickened and now fortified buttress of the Tibetan plateau. As a result, the whole Indian continent at any given time is under high stress particularly its northern limb, which penetrates unabatedly into the rest of Asia.

The great Himalayan slip manifested by the four great earthquakes have ruptured about 200 to 300 Km long segment of the plate boundary over the past 100 years are known to have occurred on extensive fracture planes about 80 to 100 Km wide that gently dip northward beneath the Himalayas. Such slip relieve most of the strain accumulated in the region some tens or hundreds of kilometers southward of the rupture and thereafter suffer a fresh build-up of strain characterized by several hundred years of low and moderate seismic activity, a preparation for the next cycle of catastrophic slip and great earthquake.

The aim of the paper is to evaluate the consequence management strategies for the Himalayan regions in the backdrop of the, Uttranchal , Chamoli and the recent North Pakistan and Jammu and Kashmir earthquake.

**LINKING DEVELOPMENT WITH DISASTER REDUCTION-
A CASE OF SURAT FLOODS 2006**

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India is one of the most vulnerable countries for natural disasters. Floods and Droughts are the recurring natural disasters in the country. Earlier, floods were mainly affecting the rural part of the country and agriculture land was affected. Most of the Indian cities and towns are situated on river banks but because of proper urban planning, these cities and towns were not much affected by floods.

The modern urbanization is mainly responsible for recurring floods in some of the major cities of India. Delhi is the capital of the country but 1999 floods caused more than 2000 Crores loss of urban property in the capital. After that there are series of flood events, which are the result of unplanned development in our mega cities. In 2005 Mumbai floods were the wakeup calls for the city developers and planners.

In 2006, most interesting case is Surat floods, which had caused an impact on the economy of the city and the Gujarat State. As per media information, there was loss of Rs.24,000 Crores of property and business. The city took two weeks to resume normal life. The city which was given several awards for its clean environment and excellent planning in 1997 is being affected by floods annually. The reason studied by several independent groups is unplanned growth of the city and complete chocking of the sewers of the city. There are several examples of the best practices in

the county, by which natural disasters were mitigated in various part of the country. During IDNDR, enough emphasis was given on sustainable development and disaster risk reduction. The High Powered Committee set up by the Prime Minister of India in 1999 gave a slogan-

‘Vikas Aisa Jo Aafat Se Bachai’

In developing countries like India, sustainable development and good governance can mitigate natural disasters.

**PROGRAM FOR ENHANCEMENT OF EMERGENCY RESPONSE
(PEER) - AN INITIATIVE OF USAID IN SIX ASIAN COUNTRIES**

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Program for Enhancement of Emergency Response was initiated by USAID/OFDA in 1998 in four Asian Countries most vulnerable for Earthquake (India, Indonesia, Nepal, and the Philippines). In the second phase (2003-2008), Bangladesh was also included in the PEER program and subsequently after Kashmir Earthquake, Pakistan is also included as six country in the PEER program, which is being implemented by the National Society for Earthquake Technology (NSET-Nepal). The PEER program is training based and mainly deals with three types of Trainings- **Medical First Responders (MFR), Collapsed Structure Search and Rescue (CSSR) and Hospital Preparedness for Emergencies (HOPE)**. The second phase of the PEER program is mainly for the institutionalization and nationalization of the PEER training. The program aims that each of the country should have sufficient number of instructors so that the training can sustain in each of the PEER country. Each of the courses is adapted as per the need and requirement of the countries (Except Pakistan) and the adapted version is being translated in to the local language. The program objective is to set up a self sustaining training system in each PEER country and to develop a network of first responders in the region by the end of the second phase of the program.

India is leading in institutionalization and nationalization of PEER training and aiming to develop eight battalions of first responders through its para-military training institutions (CISF, ITBP, BSF and CRPF).

USE OF OPERATION RESEARCH TECHNIQUES IN DISASTER MANAGEMENT

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In the light of recent events throughout the world, ranging from natural disasters such as the Asian Tsunami and hurricane Katrina in New Orleans (US), to the man-made disasters such as the London terrorist attack, Mumbai Bomb Blast, Floods in Gujarat and Rajasthan the disaster management (also known as emergency response) become a key concern. In the Indian Sub-Continent a substantial number of people suffer every year both from natural and man-made disasters. Rapid population growth, unprecedented development combined with climatic variations and geo-environmental setting contribute to the increasing effects of disaster. Disasters cause widespread human, material and environmental losses that exceed the communities' capabilities to cope without external relief. Natural Disasters are huge economic burdens on developing economies such as India. Every year huge amount of resources are mobilized for rescue, relief and rehabilitation works following natural disaster occurrences.

The aim of this paper is to exemplify and illustrate the use of Operation Research Techniques in Decision Making for optimization of scared resources. Skills in *Quantitative Analysis* require the study of Operations, Research and Managerial Statistics Techniques. These techniques are extremely useful in validation and reinforcement of the decision arrived at by the decision maker through qualitative analysis based on judgment and experience

Disasters, Natural or Man Made, offer a plethora of extreme problem situations that require decision making in complex situations, where a number of feasible and equally attractive alternatives present themselves to the Disaster Manager, with the possibility of occurrence of a number of events/states of nature.

A wide variety of Operation Research techniques can be used for better decision making as a planning tool in the field of Disaster Management

Some of the OR Techniques are:

1. Decision Theory
2. Game Theory
3. Linear Programming Models
4. Transportation Model
5. Assignment Model
6. Inventory Model
7. PERT and CPM

All of these techniques can be used for managing humanitarian relief chain which is different from commercial supply chain in which demand is relatively stable and predictable while in Relief chain demand varies in amount as well as pattern hence managing relief chain offers greater challenge to Disaster Manager

The paper attempts to examine various Operation Research Techniques, which can be effectively utilized for planning the Disaster Management Programme, which has become the need of hour

DISASTER MANAGEMENT: A SOCIAL PROCESS PERSPECTIVE

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A UN Official, Pieter Bult, Coordinator of the UN Team for Recovery Support, while felicitating the Tamil Nadu Task Force for Community-Based Disaster Management at Chennai on the 07 Sep 06, described disaster management as a "complex puzzle with many colours and dimensions"(The Hindu;Chennai, Sept. 7 (PTI)). What prompted Peter Bult to state that cannot be asserted with full certainty, but it can be presumed that Peter was alluding to the intricate and labyrinthine characteristics (and also the consequences) of a disaster. I shall take this quote of Peter Bult to conceptualise a social process perspective of disasters rather than limiting it to mere natural or manmade phenomenon.

The UN defines disaster as “a serious disruption of the functioning of society, causing widespread human, material, or environmental losses which exceed the ability of the affected society to cope using its own resources”. And so disasters are classified according to the speed of onset (sudden or slow) or according to their cause (natural or manmade). While this is the documented definition worldwide (with slight variations), and serves well as the basis for disaster preparation, response and relief, it has serious limitations if the world has to face disasters and their consequences. This definition only alludes to physical events be it they natural phenomenon/events, or manmade or technological and their catastrophic effects, and thus presents an incorrect and incomplete visualization. The

dynamics and conception of the social construct that make certain phenomenon or events a disaster are not perceived or visualized.

An analysis of the perceived but changing origins and sources of disasters is important to fathom the inadequacies in the present perception of disasters. An accurate definition is required to guide not only the interventions that follow a disaster but also to direct efforts at reduction in disasters

In this paper I shall, while dwelling upon the historical perceptions of disasters, illustrate that the visualization of disaster is related to how we react to such phenomena, or put inversely the visualization of the ways that can be taken to prevent or to respond to disasters, depends on the perception of the dynamics of the phenomena in the first place. The collective and organised actions that can be taken by society to deal with the threats and dangers to lives, property and everyday routine depend upon a complete and accurate analysis of the source and origin of disasters.

The present analysis of what constitutes a disaster is related to human behaviour, and is what guides our intervention in disaster management. But this analysis is a little limited. We need to raise this level of analysis from the level of behavior to the level of social systems. In the paper I will highlight the macro level processes of social changes or societal development to find a more accurate definition that places disasters in a social process perspective.

**PROGRAM FOR ENHANCEMENT OF EMERGENCY RESPONSE
(PEER) - AN INITIATIVE OF USAID IN SIX ASIAN COUNTRIES**

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Program for Enhancement of Emergency Response was initiated by USAID/ OFDA in 1998 in four Asian Countries most vulnerable for Earthquake (India , Indonesia, Nepal, and the Philippines). In the second phase (2003-2008), Bangladesh was also included in the PEER program and subsequently after Kashmir Earthquake, Pakistan is also included as sixth country in the PEER program, which is being implemented by the National Society for Earthquake Technology (NSET-Nepal). The PEER program is training based and mainly deals with three types of Trainings- **Medical First Responders (MFR), Collapsed Structure Search and Rescue (CSSR) and Hospital Preparedness for Emergencies (HOPE)**. The second phase of the PEER program is mainly for the institutionalization and nationalization of the PEER training. The program aims that each of the country should have sufficient number of instructors so that the training can

sustain in each of the PEER country. Each of the courses is adapted as per the need and requirement of the countries (Except Pakistan) and the adapted version is being translated in to the local language. The program objective is to set up a self sustaining training system in each PEER country and to develop a network of first responders in the region by the end of the second phase of the program.

India is leading in institutionalization and nationalization of PEER training and aiming to develop eight battalions of first responders through its para-military training institutions (CISF, ITBP, BSF and CRPF).