

HOLISTIC APPROACH TO DISASTER MANAGEMENT FOR A SUSTAINABLE FUTURE

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Abstract

Disasters are becoming the key concern of many nations. The term disaster usually meant for natural calamities . There of course may be a human hand behind each of the disasters , whether its' impact is small or large. Disasters can be categorized into natural and man made . In the case of natural disasters there may be some natural indicators to predict them all. But in countless man made ones the impact may be disastrous due to lack of concern by the persons responsible . Natural disasters can be classified into categories such as untimely rainfall and floods, quakes , tsunamis, cyclones, contagious diseases, etc. Identification , tracking and prediction of natural disasters are of high importance in reducing casualties .Combined efforts of indigenous and modern technology is an effective measure in this regard .

Disaster management systems in various countries including India provides an idea about our preparedness in disaster management . In India administrative hazards cause increase damages in calamities . What strategy should be followed ? ,Who does the key role ? How far these are possible in Government level ? Which personalities should be included ? .Who will done it for whom ? . These are some of the key questions to be answered for an effective disaster management .

Preparation , Mitigation, Rescue & Relief, and Rehabilitation are the main phases in a disaster management .Identification of the existing policies and facilities in the state has an important role . Persons suitable and feasible for each phase and their training in the corresponding area should be done .

The role of students , teachers, teacher educators , machines and media in effecting efficient disaster management systems is vital for a sustainable future of life on earth . That is the significance of a holistic approach for DM. Isolated thoughts , preparation, awareness programmes, other activities etc., should be cooperatively integrated with the participation of all sections of the community , because disaster has no reservation to any special sections of community .There comes the importance of holism, in thoughts, preparation and action, of the community, for the community , and by the community. Any step taken today in this direction may be helpful for a big leap in future .

Introduction

Disaster is the strongest ruler of the day making colonies in each continent and at each nations of our world . Every news channel every news daily features desperate faces of disaster drawn people struck by cyclones , quakes, floods , tidal waves , building collision ,etc. Change is only in location , nature and impact of the disaster . The term disaster may be commonly stands to represent a sudden change in situation or condition which alter normal life of human beings . Disasters can be natural and man – made . Commonly the term disaster meant to natural one, but many a times man – made disasters maybe more disastrous . Disasters ,regardless of natural or created, impact on every ones life without any demarcation of haves or have-nots . Literal scarcity of water , food , shelter , medicines , fuels , electricity , communication etc., badly affect Haves rather than have-nots .

Man made or created disasters have limitless manifestations . It may range from a simple accident to the most disastrous AIDS and a small variation in rainfall to sharp changes in climate .A Paper by Raymond T Pierrehumbert of the University of Chicago, USA (*Nature*, June 2004) states that “even if carbon dioxide (CO₂) concentration is 550 times the present level (about 368 parts per million), de-glaciation (complete melting of ice sheets) is unlikely to happen”. According to the World Meteorological Organisation (WMO), December 15, 2004 report. “The global mean surface temperature in 2004 is expected to be 0.44° C more than the 1961-1990 annual average (14° C),”. The IPCC report even gives dire warnings about the impacts of global warming, such as large-scale flooding and frequent storms. Indeed, showers have been defying weather forecasts worldwide

‘In 2003, instead of confining itself to issuing scientific reports and statistics at the end of each year, WMO was forced to report on extreme oddities of weather: a pre-monsoon heat wave in India had killed 1,400 people; at least 562 tornadoes had hit the US in May 2003, killing 40 people, much higher than the previous peak of 399 storms in 1992. In 1998, there were 63 weather-related disaster declarations, far more than the average 21.78 per year in the 1980s’. In the current year 2005 the number of cyclones , hurricanes , earthquakes ,and floods are countless and world wide in action . Unpredictable weather means: more human casualties and economic losses . The record

breaking showers in Mumbai and recent floods in Tamil Nadu proved the uncertain nature of climate , which may worsen day after day .

on June 21, 2004 , 'the Indian government released its first 'National Communications' report on climate change, its first 'official' document detailing the emission levels of GHGS(green house gases), and present/future impacts. The report concludes by stating that comprehensive planning is required to ensure that least percentage of the population is affected. "At present, we practically have no policies related to adaptation and mitigation, despite millions of people at risk. This is because very few concerned officials understand the grim reality," says Subodh Sharma, national project director, National Communications Project, the Union ministry of environment and forest'

Disasters are not predictable though natural or man made . They follow no standard operating procedures no predetermined strategies. 'Disaster preparedness is about managing the unknown, it is not a science but a social behaviour that's responsive, predictive and imaginative'. What is important is the need of a fruitful package for Disaster Management (hereafter denoted as DM).DM means everything about disasters .Effective disaster management depends on the following factors:

- **Preparedness & Mitigation** :Advance knowledge of where and when disaster will hit. This includes Early Warning systems including modern & traditional knowledge . Measures that can be adopted mandatory before the disaster struck . Measures like coastal zone regulation, building earthquake-resistant buildings ,
- **Evacuation** : Immediately preceding to the disaster .
- **Rescue & Relief** : Effective action to enable survivors of the disaster to return into a normal stage.
- **Rehabilitation**: Long term but time bound action for reconstruction .

PREPAREDNESS AND MITIGATION

The first and foremost factor of DM. is preparedness and mitigation ,i.e., what are our preparations to receive disasters. The school safety draft series by the National Disaster Management Division , Ministry of Home Affairs , Govt. of India reminds us

that, “ Let’s remember that, the time we spent on prevention today may be the life we save tomorrow”. This includes policies , technological support, promoting capacity-building , Developing early warning systems etc. The Orissa super-cyclone and the earthquake in Bhuj, Gujarat, exposed serious limitations in India’s preparedness system: Then we realized that India has no national disaster management policy. The responsibility of DM is a matter of affected state ,the central government only offers financial and material help. Which ministry is responsible for what .This creates an administrative crisis during the calamity. We treat Disasters as a one-time crisis . To deal with the aftermath of the situation we have only haphazard shifting of responsibilities .

‘Bhuj showed that science could be used to track earthquake-prone areas and specific earthquake monitoring and microzoning would help in this regard. Policy’s role was to make sure that building codes on earthquake-proofing were enforced in vulnerable areas to minimise deaths. One of the ways suggested to prepare for earthquakes after Bhuj was micro-studies of earthquake zones. To do this, Microzonation (mapping seismic hazards, on an urban block-by-block scale, based on local conditions such as soil types that affect ground shaking levels or vulnerability to soil liquefaction) was the preferred method.’

In November 2004, the Union Home Ministry’s Disaster Management Division (NDMD) put together an expert committee to chalk out a National Microzonation Programme prioritising states, union territories and cities to be mapped .Gujarat state disaster management authority (GSDMA) status report in 2004 on disaster management states that : “Although the Bureau of Indian Standards (BIS) has laid down the standards for construction in the seismic zones, these were not being followed.” In June 2004, the GSDMA also reported that less than 20 per cent of new buildings in earthquake-affected areas of Gujarat have adopted the necessary building codes

The Disaster Reduction Management (DRM) programme (2002-2007) implemented by the Union home ministry and supported by the UNDP says: “Typically, the majority of constructions in these cities are not earthquake resistant. Thus, any earthquake in one of these cities would turn into a major disaster”. DRM is India’s only programme to ensure earthquake-resistant buildings in India’s 187 towns.

By the lessons from Orissa and Bhuj the Union government reviewed India's disaster preparedness. A high powered committee was set up in 1999. By 2001, it had come up with ideas for a policy and the supporting institutional mechanism.

The committee has the following recommendations:

A national policy on disaster management: for prevention, preparedness and mitigation before and after the disaster should be framed. DM should be a planned expenditure, at least 10 per cent of plan funds at the national, state and district levels should be for prevention, reduction, preparedness and mitigation of disasters. Microzoning should be done at urban areas to mitigate earthquake threat, to develop early warning systems for cyclone preparation and to strictly enforce building codes set by the BIS.

The last five years have given a plenty of opportunities for India to test its state of disaster preparedness in the form of cyclone, earthquakes, droughts, floods, and many other man made disasters year after year, in state after state. Bureaucratic hurdles worsen the conditions. The government's 'Standards Of Procedure' (SOP) prescribed for the duty room at the seismology section of the IMD says that an earthquake would be required to be reported to the CMG only if it had occurred within Indian territory or very close to the borders, irrespective of magnitude. This was the procedure followed during the tsunami, when, despite getting news of tsunami only a minute later, IMD didn't react. At 6.29 am, on the morning of December 26, 2004 an undersea earthquake erupts in Sumatra, triggering off tidal waves called tsunami. A minute later, the India Meteorological Department (IMD) gets the news. In 15 minutes, IMD tracks the tsunami to the Indonesian coastline. But they make no attempt to issue warnings to people on the Indian coast for, by rule, the tsunami has occurred beyond Indian waters. At 7.50 am, the tsunami hits Car Nicobar. The island is almost wiped out. Then the tidal waves head for the southern coast of India. How many lives How much cost. Similar is the thing of man made ones, a small child who received blood from a blood bank affected with HIV virus, Since test for HIV in window period is available in market in affordable price, it is not done by the absence of such a procedure. In all these cases the persons concerned are highly educated. This arise the question that who should be alerted first for preparedness of a disaster, 'the common man or the professionals'?. Irony of these incidents is that the professionals are responsible for creating awareness in common people. It once again

underlines the fact that , ‘DM is not a science, But a social behaviour’. The national policy itself is not self contained to treat disasters in a holistic manner .It is the high time to develop and practice DM programmes in a nation wide holistic manner incorporating all sections of the society especially , common people usually prone to every disasters .

Early warning Systems :

Though we are technologically very advanced our all inventions depend on a very fragile invention , the supply of electricity , which of course may be the first hit in any natural disaster . This warns us about the overdependence on modern technology by completely neglecting traditional knowledge , because traditional knowledge came through experience of many generations and experience is the best teacher .

‘The tribal communities of the Andaman islands, with no access to modern warning systems, *observed the disturbed marine life, listened to the calls of the sea birds* and interpreted that some great danger was coming. A natural methodology, perfected over centuries of kinship with the elements helped them for survival’. There must be a **need for identification of such natural methodologies**, look out for the indicators of nature, danger signal given by nature from time to time .As the people of China did in 1966 to spot quakes by observing changes in behaviour of birds animals and other creatures in and around them which helped them to reduce casualties in the massive quake in 1970.

Ability of animals to predict disasters both natural and man made ones are very well experienced . The escape of a blind person at the time of collision of world trade centre at US , and escape of birds and animals hours before tsunami from the sanctuaries of Sri Lanka are the recent examples. The appearance or disappearance of specific species are identified as indication of disasters . Such information should be made available to the public instead of sleeping in files , it may help to reduce casualties of tomorrow. There is an urgent need to develop our knowledge in these tracks also . The measures we could easily adopt in this direction are to keep an eye on our surroundings , trees , birds, animals , other creatures , water level in the well . Proper documentation of disasters occurring in different parts of the world and its’ analysis . Have a pet at home and in office and find some time to spend with them to realize its’ natural and unusual behaviour . Wind chains, nowadays we are using for decoration may be first developed

to identify quakes . Many of such *small , but very valuable natural warning systems may be somewhere here or there may be submerged in our past* . Lets' retrieve them together for a better tomorrow.

Capacity Building :

Capacity building refers to the identification and training of personnel for various sectors of DM. The personnel should include professionals , viz , scientists, doctors, engineers, advocates, managers of different organisations and teacher trainers ,as the top level . The Hazard Risk Management Team of UN and world bank provide a rich collection of manuals , guidelines , damage & need assessment reports , and other articles pertains to disasters all through world . The top level officials should study these lessons and internalize with our situations for a full fledged Programme Of Action .

Teachers , students , workers like mason , carpenter, health workers, NGO.s,(voluntary organisations) at the middle level, who should have a working knowledge in disaster risk reduction by proper training . The ground level consists of all others , especially people engaged in works directly with environment .Persons like fishermen , farmers, and those living near the coast line ,high altitude areas ,students etc. Because they could provide direct information about unusual changes in the environment to which they confront daily. Reports of such changes if any should be immediately sent to the top level through the middle level . Proper documentation of all things (usual / unusual)in the surrounding should be done at each locality . This could done with the help of students in all areas, which should be monitored regularly by NGOs' especially with the help of a teacher in the locality. All these should be done voluntarily .

The NGOs' at each habitation area should be identified and trained properly for developing awareness in people , utilize early warning systems , strict observance of rules on building construction, evacuation , and rescue operations .Identification of unsafe buildings ,safe buildings for shelter at the time disaster , route for evacuation , conduct of mock drills , supply of food , fuel , water , sanitation , first aid and communication facilities . Disasters and DM should be the part of School curriculum, not as a part for mere essay or short essay questions, but to save the life of many when situation demands. A school girl who had save the life of about one thousand people just before tsunami by remembering her lesson was one remarkable lesson for us to think in this direction. Instead of providing matter as mere facts the details should be provided in the form of

games or activities as given in the website of Federal Emergency Management Agency for kids .

Swimming should be made compulsory to all students because it would help them to survive on unpredicted disasters like flood, collapse of a vehicle in any water body , etc. In recent train and bus accidents due to flood some survives because they knew swimming , students who escaped from a flood hit hostel only because they know swimming .

Rules & Regulations :

Strict observance of rules such as CRZ (Coastal Regulatory Zone Act) , Building construction Act . Rules should be framed to prevent sand mining , demolition of unsafe buildings . Violation of such rules should be strictly prohibited by people oriented awareness programmes .

Imaging studies should be done to identify low lying areas and areas suddenly isolated by floods , quakes etc, . Estuaries , island like areas , major towns , etc, should be specially taken care of . The main cause of Mumbai floods is said to be garbage especially plastic carry bags contributed to the city's poor drainage system . We have a good tradition in building drainage systems even at Harappan times .So this is the time to study in depth about the architectural principles of our predecessors and put the best for a safe future .

Able to practice the 4 R' principle of conservation at least in the case of plastic , which should be done as a nation wide campaign , along with to develop immediate strategies for effective waste management .

Regulations should be made for protection of natural barriers to tidal waves such as sand dunes , mangroves , and tiny forest along the coast line . If create proper awareness, people living along the coastline under the guidelines of NGOs' would take over the charge of construction , protection and maintenance of such natural protectors . Another effective measure to reduce the effect of large tidal waves including tsunami is dredging of coastal waters by removal of sand .This was originally suggested by an Indian but now practicing in various countries and found to be very effective . This is advantageous in preventing excessive sand mining at coastal regions.

A database should be prepared by including all areas and occupants of that area , so that the tracking of affected ones could be easily done .

EVACUATION

Sudden action at the onset of an incoming danger, may be like bird flu (killing of suspected ones) or that of a Hurricane Rita (evacuation of thousands), meant for reducing human casualties . Proper planning and early arrangements , identification of safe buildings, specified & shortest route, transportation facilities available and utilizable , measures to reduce fear in people , procurement of alternate drinking water , sanitation , food , fuel, medicine , communication , avoid traffic blocks etc . are very important factors.. Even at USA traffic blocks during the onset of Hurricane Rita caused chaos in people as well as in authorities . These should be lessons for us in our planning for evacuation . The time available for is very crucial in evacuation and the life saved could be many .

RESCUE & RELIEF

Rescue and relief are immediate post disaster activities , usually treated as a single activity . But Rescue meant for who trapped in and Relief meant for aid to those who survive and taken out from the site In any disaster the common people in and around should act as rescue team . This emphasizes the necessity of adequate training to grass root level, so that they could conduct rescue operations effectively within no time lapse . NGOs' at each place should be identified and trained and utilized in this regard . It doesn't mean that government has no role to play in this direction . The backbone of all these action should be on the basis of a policy decision of the government , and such policy should not be changed with the change in ruling party . The role of government is very crucial mainly for preparedness & mitigation , providing machinery & technical support , and in most urgently meeting the basic needs of survivors including food , water , shelter and medical and communication facilities . Any lapse of action in any of these areas turns the post disaster management into great trouble and misery to survivors . Though telecommunications opens a wide network of communication , every thing on land may tilted by a small quake or flood . Even the mobiles may run out of charge in the absence of electricity , the first hit by natural disasters . So it is essential to be in touch with solar chargers may be the only dependable solution . This should create a track of

thought that even such small aspects should be considered while we are dealing with disasters .

REHABILITATION

Rehabilitation , a long term but time bound activity enable the victims to return to their normal way of life . Rehabilitation should be done with proper guidance and guidelines of the government . ‘Sooner the better’ is the slogan for rehabilitation . Various agencies and Trusts could be entrusted to do rehabilitation in a time bound manner so that many administrative procedures can be simplified and the survivors can return to normal life at the earliest .The government should strictly watch out whether the building rules are strictly followed and no buildings are being constructed in the no construction zones ,etc. A database should be prepared and maintained by the Land and Revenue dept. to identify the correct victims of the disaster and to settle claims for compensation if any in an effective manner

Teachers ,Schools, and DM :

The role of teaching community is very crucial in DM . A country with most number of Universities , and lakhs of educational institutions and teachers could effectively develop a fruitful strategy for DM . Teachers as social engineers should lead the society to tackle effectively unpredictable situations . There fore, teachers should be well trained in advance in the supposed to be roles of them in DM. The activities of teachers should not be in the direction we observed , in felling of all trees in the campus or conversion of all thatched building by single isolated incidents . But they should be able to realize the forthcoming disasters well advance . Mere formation of a DM committee at school level , or practice of mock drills without proper awareness programmes create adverse effects .

Demonstration by a trained group or its’ visualization should be done at first . This could be easily be done with the help of DD and other TV channels or using CCTV . Basic aspects of all type of disasters like DCH (Drop Cover Hold), Fire escape , Building collision escape , Flood (practice swimming) etc .,should be given . A detailed action

plan for school level safety measures are given in the School Safety Draft series prepared by Ministry of Home Affairs , Govt. of India for practice at each school

Schools are more often turned as relief camps at the time of disasters , so schools should be very effectively utilized for pre – disaster awareness programmes also . Now a days there are no machinery to conduct awareness programmes and mock drills to common people . Such programmes should be easily organised with the help of Parent Teacher Association of each school . Government, by utilising satellite technology such as, the EDUSAT prepare and transmit programmes for teachers, students , parents and other public people. Schools and there by teachers may become the key functionaries of disaster prevention .

Students and DM :

Students, the future of any nation , must have a thorough understanding of the essentials of DM. Community work is made compulsory for graduation in many universities in our country. Such programmes should be more meaning fully converted to build up human resource for a secure future . Instead of conducting a one day cleaning programme , each student should have to educate at least five families of their neighborhood on disaster preparation. Higher secondary students also can be included in this programme so that to create a social responsibility behaviour . School children in the other classes should be assigned duties to observe regularly their locality, and to document systematically on disasters happening throughout the world daily. This should act as a document for verification for the top level and at the same time create a positive attitude in children towards DM .

Media and DM :

Information Technology explosion , bring up dramatic changes in gathering , handling and transmission of information . This enabled every electronic media to transmit an information alive . But unfortunately , these giants keep idling on 26th of December 2004 when tsunami struck on various part of the world including Indian coastline. Always we can see the caption ‘breaking news’ in TV channels , but the incident of Tsunami showed that, mass media are failed in information processing , one of their key functions, at the crucial time . At present what they are doing is simply telecasting information . This morale should be changed . Instead of repeated telecast of

'breaking news' on Hartals and strikes , a simple one line alert about the incoming danger may help to reduce loss of life and property at least to a limited extent .

The official medium of the government , the Radio should be strengthened and alerted as in many other countries doing for alerts . In addition government should take over broadcast in every channels to provide emergency warning , precaution , and to reduce panic in common people . Various programmes should be developed on disaster preparedness and broadcasted for the benefit of the public from time to time .

In general ,media the most effectively utilizable instrument for DM ,should be vigilant over this issue immediately.

Conclusion :

Disasters gradually becoming ruler of our earth ,in its' all dreaded forms from continent to continent and from country to country . The unlucky warriors without weapon and commander simply bowed in front of the gigantic enemy . Whether natural or man- made disasters are the routine of many places including our country . Even the developed countries failed in proper DM . All these tough lessons put forth *the need of a 'Holistic Approach in DM' , with community participation where , schools, teachers ,students , and media to play the key role ,supported extensively by Voluntary Organisations for a sustainable future .*

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