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Unit-V Management Role in Mitigating Disaster

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Unit-V
Management Role in Mitigating Disaster

Indian Industry's perspective towards disaster management is changing, as the number of instances is increasing, from rescue relief and rehabilitation to prevention, preparedness and management. Some industries have developed products which can be used in prevention, preparedness, rescue, relief and rehabilitation of the disaster victims. Many medical companies are devising kits which can be used in different disaster situations. Industries are also researching on how to avoid biological disasters or how to safeguard from viruses/bacteria which may spread communicable diseases of mass destruction.

Disaster recovery and Business Continuity has often been overlooked and sometimes even ignored. Managers could have been excused for thinking 'it won't happen here'. However, the series of recent tragic events have made businesses sit up and consider how and what they could do in the event of a disaster to protect their staff, customers and properties, brand, reputations, business and more appropriately their existence.

Most businesses depend heavily on technology and automated systems, which if disrupted, even for a few days, could cause severe financial loss and threaten survival. The continued operations of an organization depend on management awareness of potential disasters, their ability to develop a plan to minimize disruptions of critical functions and the capability to recover operations expediently and successfully.

 A disaster can be defined as an occurrence causing widespread destruction and distress. Disaster management does not avert or eliminate the threats; instead, it focuses on creating plans to decrease the effect of disasters. Failure to create a plan could lead to damage to assets, human mortality, and lost revenue. Events covered by disaster management include acts of terrorism, human caused disaster (like electrical fire, structural issues, industrial sabotage, natural disasters like earthquakes, hurricanes, Tsunami, flood etc.

In order to avoid, or reduce significant losses to a business houses, emergency managers (preferably facility managers) should work to identify and anticipate potential risks, hopefully to reduce their probability of occurring. In the event that an emergency does occur, managers should have a plan prepared to mitigate the effects of that emergency, as well as to ensure Business Continuity of critical operations post-incident.

What is disaster management?

Disaster management is a collective term encompassing all aspects of planning for and responding to emergencies and disasters, including both pre- and post-event activities. It

refers to the management of both the risk and the consequences of an event. In essence, disaster management is more than just response and relief; it is a systematic process aimed at reducing the negative impact and/or consequences of adverse events.

Goals of disaster management

- Proactive plans to mitigate various business risks
- Minimizing loss via more effective preparedness and response
- Creating more effective and durable recovery

What are key components of disaster preparedness for an industry?

While this manual touches on components of disaster response and relief, the main focus is on disaster preparedness, which ultimately is the best mechanism to ensure that response and relief efforts are most effective.

Risk Assessment

Before developing a disaster preparedness plan, it is important to do a hazard risk assessment to ensure that there is a clear understanding of the overall environment and circumstances for which the plan will be made

Risk assessment can be understood as a five-stage process:

- Establish the context of the risks
- Identify potential risks
- Analyze the risks by assessing the likelihood and impact of an event
- Set priorities for addressing the risks (which can include a decision to not address some risks)
- Treat the risks (identify, plan and implement activities)

All risks can't be eliminated but they can be minimized to varying degrees. Technical measures, traditional practices, and public experience can be used to reduce severity of the disasters

Assessing risks is a crucial step before developing a disaster management plan.

Planning

- Contingency plans must be developed and/or previously existing plans updated in□ light of experience gained in the disaster. Contingency planning is most effective when it is a participatory process that includes all the actors who will be required to

work together in the event of an emergency. It is a forward planning process, in which scenarios and objectives are agreed, managerial and technical actions defined, and potential response systems put in place to respond to an emergency situation.

- Developing a plan is key to ensuring that efforts in preparedness, response, and relief have taken the business, the community, and other entities' key issues into account.

How do disasters affect industries can mitigate the disaster?

Disasters not only destroy infrastructure and stability of the communities in which they take place, they also can interrupt business in many ways:

- Loss of capital assets (buildings, plants, equipment)
- Damage to land and/or area where industry or suppliers are located
- Disruption of distribution, sales, and other core business endeavors
- Disruption of business for partners along the supply chain
- Harm, both physical and mental, to employees

How can industry get involved in disaster preparedness, response, and recovery?

Disaster management is a multi-disciplinary field and its success cannot be achieved by a single entity or by working in isolation. Both the public and private sector have a role to play at every stage.

Private sector organizations bring unique strengths and capabilities that can contribute significantly to disaster preparedness, including risk management and risk reduction. The private sector can engage in the following ways:

- **Support local development** that helps mitigate risks in disaster prone areas via corporate- initiated or public sector-led programs focusing on, for example, physical infrastructure, poverty alleviation, and other capacity building initiatives.
- **Provide corporate support for community preparedness programs** and for training local governmental and non-governmental organizations where appropriate.
- **Encourage sound economic policies** to foster a more stable environment for community development and business that at the same time helps decrease vulnerability to natural disasters.
- **Provide technical, logistical, and other "core competency" support.** Companies can leverage their existing technological capabilities, distribution networks, and other types of expertise and become integral partners in disaster management as

individual entities or in alliance with other companies.

- **Offer technical and other training.** Industries can form strategic alliances or bilateral partnerships with other stakeholders (e.g. government, NGOs, etc) to provide technical training, management and leadership capacity building, and best practices to build sustainable systems for disaster risk reduction.

- **Engage in corporate peer education** by sharing best practices in risk management training, and other core preparedness tactics with other companies.

- **Provide donations**. Industries can offer donations in cash or in kind (e.g. tents, medicines, clothing, food, water, generators, vehicles etc), through establishing appropriate product donation and service sharing channels.

What are the benefits of strengthening your industries efforts in disaster preparedness?

Companies can benefit in concrete ways from strengthening efforts in disaster preparedness, response, and recovery. Some benefits include:

Preventing Direct Loss: Natural disasters have the capacity to de-stabilize economies and livelihoods. They spare no one — large corporations, SMEs and individuals all can be affected to various degrees.

Protecting Assets and Promoting Efficient Operations: Industries can benefit if they link their business continuity plans with the overall emergency contingency plans of communities. Community preparedness means safeguarding members of the community who not only may include employees but also may form part of a company's customer base

Restoring Market and Supply-Chain: Preparedness helps ensure business can resume normal functions quickly after disasters and provides an opportunity for business to link up with government and other institutions to support recovery.

Nurturing a Positive Corporate Culture: Preparedness demonstrates a industries commitment to the community and especially to its employees. Such efforts help retain employees and motivate them to engage with the community as individual volunteers and contributors.

Leveraging CSR: Many private sector industries give back to society through CSR initiatives. Responsible corporate practices are in line with a pro-active approach to disaster preparedness and subsequently to involvement in response and recovery. The process provides an opportunity to enhance corporate reputation and demonstrate

leadership in the industry.

Supporting Sustainability: Saving lives, mitigating risks, and building resilience are all sound strategies for long-term sustainable development, which ultimately can provide livelihood safety nets and stable income generation for communities at risk.

Connecting with Communities: Disaster preparedness can provide a platform for the private sector to be better connected to the communities they serve. It is an opportunity for private industries to build strong partnerships with other stakeholders, including government, humanitarian agencies and community groups.

Engage company employees by leveraging internal skills and resources and forming internal preparedness committees and by encouraging employee volunteerism. For the latter, industries can partner with professional organizations (in either the public or private sector) to train their employees to be disaster relief volunteers.

Risk Identification & Mitigation

Risk Identification & Mitigation Risks can be identified in the following categories:

1. Business Risks: These are strategic risks that may threaten the existence or the smooth running of the business in the future.

2. Operational Risks: These are risks encountered in the day-to-day running of the business and are mainly mitigated by putting strong business processes with internal controls in place. These risks are function-wise.

3. Financial Risks: The finance function including borrowing, forex management and hedging, etc is centralized for the company and hence these risks are for the central finance department.

4. IT Risks: Risk of disruption in business due to failure of Information technology for the company as a whole.

5. Legal Risks: The legal risks for the company as a whole but the mitigation procedures are fairly decentralized depending on the compliance requirements.

Risk Management There is always a residual risk attached to the business. A Textile business needs to therefore implement a continuous monitoring mechanism to deal with risks on an ongoing basis.

Details of various initiatives towards achieving this objective are provided below:-

Strategic Planning Senior management must meet periodically for a detailed strategic and operational review of business segment, taking into account existing and prospective business environment.

Communication & Reporting Members of the core management team must review the implementation of these strategies, and also ensure that adequate attempts are made to mitigate the risks perceived.

Beyond Curriculum

MEDIA AND EMERGENCY RESPONSE – A REVIEW:

In managing disaster - the necessity of "right information at right time" has not changed for centuries. People need warnings ahead of the disaster and then, in its aftermath, data on - casualties, damage, the supplies and skills that are needed, the best ways to bring in these resources, the help that is available and is being provided, and so on.

There are many examples where - public education and the rapid, widespread dissemination of early warnings saved thousands of lives. In November 1970, for example, a tropical cyclone, combined with a high tide, struck southeastern Bangladesh, leaving more than 300,000 people dead and 1.3 million homeless. In May 1985, a comparable cyclone and storm surge hit the same area. "This time - there was better local dissemination of disaster warnings and the people were better prepared to respond to them. The loss of life, although still high, was 10,000 or about 3 percent of that in 1970. When a devastating cyclone struck the same area of Bangladesh in May 1994, fewer than 1,000 people died. 1977 cyclone in Andra Pradesh, India killed 10,000 people, while a similar storm in the same area 13 years later killed only 910. The dramatic difference - was due to the fact that a new early-warning system connected with radio stations to alert people in low-lying areas, was put into place.

On the other side – there are many examples where absence of an alert and warning system resulted into huge number of casualties and extensive damage of property. Bhopal gas leak, 1999 super cyclone in Orissa and 2004 Indian Ocean tsunami are few of the recent example in India where "timely alert" could have saved millions of lives and enormous property.

These and many other examples make it clear that media, with its instantaneous outreach, throughout the world play a vital role in educating the public about disasters; warning of hazards; gathering and transmitting information about affected areas; alerting government officials, relief organizations, and the public to specific needs; and facilitating discussions about disaster preparedness and response. The media can assist in pre-disaster education. They may be crucial to an effective warning process. They can provide information and advice to victims and others in the wake of disasters. They can help activate the local disaster response. They can assist in stimulating effective disaster relief.

All this is not to say the media do not, on occasion, cause problems. They can help increase convergence to the scene both by the curious and by those with genuine concerns. By their own convergence, both in person and by telephone, they can create pressures on managers for information to the point where media demands interfere with effective response.' They can spread rumors,' and so alter the reality of disaster, at least to those well away from it, that they can bias the nature of the response." They can and do create myths about disasters, myths which will persist even among those with contrary disaster experience.

Public administrators sometimes decry the mass media. They see a more relaxed working atmosphere if the media were not there to record their actions, question their decisions, and air the remarks of their critics. But in time of disaster the media, on balance, are actually helpful. Rather, their absence can create enormous difficulties. In addition, media can be a way in which individuals or organizations can ask for information. While the media cannot usually have answers to public queries directly (though they may try to do so), they can be a link between the public and the central / state disaster management authority. There are examples when media (a radio station) helped mobilize relief and in mobilizing effective emergency response.

TECHNOLOGY IN MEDIA:

There are two major types of media that exists – 1. Electronic media and 2. Print media. Radio, (both satellite as well as wireless), and Television (cable, DTH etc) are prominent player in electronic media, where as newspapers, magazines, journals are part of the print media.

Technology has a crucial role in information acquisition, analysis, forecasting and dissemination. New technological advances in communications offer the prospect of

considerable improvement, both in the anticipation of sudden-onset disaster, and in dealing with after-effects once disaster occurs. Communication underlies virtually all elements of the hazard-mitigation process. The capabilities of communications, data-gathering, and data-management technology have leaped forward in parallel with our increasing knowledge about the origins and behavior of natural hazards and the mitigation of their effects. Indeed, advances in telecommunications and computer sciences are among the major contributors to the recognition that technology can do much to blunt the effects of natural hazards.

In meteorology, the deployment of geosynchronous satellites for telecommunications and for Earth observation, combined with the use of supercomputers to analyze the data gathered from space, has led to highly sophisticated models of tropical storm formation and behavior, providing earlier and far more reliable information with which to plan evacuations and other hazard-

mitigation strategies. Similarly, remote sensing from space can now identify insect infestations by detecting changes in the color of the Earth's surface. Seismological devices, also linked to supercomputers, are greatly improving our understanding of earthquake propagation. The hope is that this increased knowledge will enable us, in time, to provide reasonably early warnings about earthquakes in the same way as we can increasingly do so for volcanic eruptions, tsunamis, and various meteorological events.

**Table-I**: **Linkages between Communication Technology and Management of Various Classes of Hazards**

Hazards	Satellite Sensors	Satellite Remote Telemetry	Radio and TV	Print Media	Terrestrial Sensors
EARTHQUAKE		Linking sensors to central facility and reverse	Transmitting warning and protection information / data	Education for protection, including evacuation and building techniques	Strain gauges vibration sensors
LANDSLIDES	Meteorological monitoring of soil wetness	Transmitting data to central facility and reverse	Transmitting warning and protection information / data	Education for protection, including evacuation and building techniques	Strain gauges wetness sensors
TSUNAMIS	Wave surge detection	Transmitting data to central facility and reverse	Transmitting warning and protection information / data	Education for protection, including evacuation and building techniques	Subsea vibration sensors
VALCANOS	Optical and thermal sensors	Transmitting data to central facility and reverse	Transmitting warning and protection information / data	Education for protection, including evacuation and location techniques	Vibration and thermal sensors
FLOODS	Optical Monitoring and meteorology	Transmitting data to central facility and reverse	Transmitting warnings and protection data	Education for protection, including evacuation and location techniques	Flow, rain and river high sensors
CYCLONES	Meteorology	Transmitting data to central facility and reverse	Transmitting warnings and protection data	Education for protection, including evacuation, and construction location techniques	Meteorological monitoring for storm surge
WILDFIRES	Optical and thermal monitoring	Transmitting data to central facility and reverse	Transmitting warnings and protection data	Education for protection, including Prevention and resistant construction	Optical and thermal sensor to support visual sitting

EMERGENCY ALERT SYSTEM (EAS) IN USA

The EAS is a national public warning system that requires broadcasters, cable television systems, wireless cable systems, satellite digital audio radio service (SDARS) providers, and direct broadcast satellite (DBS) providers to provide the communications capability to the President to address the American public during a national emergency. The system also may be used by state and local authorities to deliver important emergency information, such as AMBER alerts and weather information targeted to specific areas

US Emergency Alert System (EAS) was implemented to provide the Commander and Chief (the president of United States) the capability to address the Nation during emergencies. At the national level, the EAS can only be activated by the President. The EAS places the Nation's multi-billion dollar broadcast and cable industries at the President's disposal. These industries include more than 14,000 radio and television stations and 11,000 cable systems serving over 33,000 communities. EAS must be available to the President within 10 minutes (utilizing normal activation procedures) from any location.

In January 1997, the Federal Communications Commission (FCC) activated the Emergency Alert System (EAS). This new system replaced the Emergency Broadcast System (EBS) established in 1963 and CONELRAD (Control of Electromagnetic Radiation), a program started by the Truman administration.
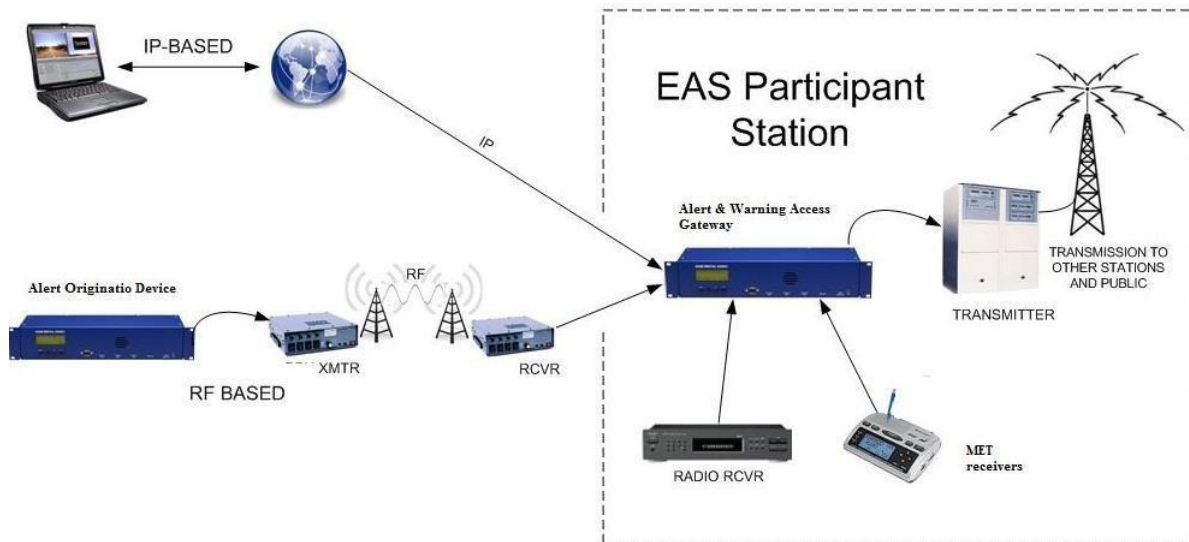
Under the EBS program, all FCC licensed broadcast stations were required to have equipment that would allow the President to reach the public during national emergencies. This equipment produced what was commonly termed a two-tone signal (the frequencies 853Hz and 960Hz transmitted simultaneously) and was broadcast by stations on the main audio channel. They served the dual purpose of getting the listeners attention and activating other EBS equipment in the surrounding area. Upon activation of the EBS equipment, a station would listen and record the accompanying audio message and then retransmit this message for their audience. In general, upon activation, EBS equipment could do little more than reproduce the dual tone signal and alert station operators. Once a station received an EBS message, the station operator could only rebroadcast the EBS message and two-tone signal in order for the next station to receive the information. If a station failed to activate their EBS equipment, the chain would be broken and a segment of the population would not receive the emergency information. With EAS, the situation is vastly different.

The major difference between the EAS and the EBS is the technical capabilities of the new EAS technology. EBS used a two-tone audio signal transmitted by broadcast stations to activate a receiver. EAS utilizes new digital equipment and the EAS digital signal contains codes that identify the key elements of a message. Elements identified include the message originator, the event, the location of the event, the valid time period of the message, etc. These message elements provide a method for broadcasters and cable operators to automatically interrupt their programming. With the proper software, the EAS equipment is also capable of providing warnings in the language normally used by the station or cable system.

EAS testing:

Testing of the EAS system occurs on a weekly basis and are originated from local or state primary sources at random. Each EAS participant must receive and transmit an EAS test weekly. A weekly test consists of transmitting the EAS header codes and End of Message codes (EOM) only. This test only takes approximately 10 seconds because only digital information is transmitted. Unlike the weekly test, the monthly test must be transmitted by participants within 15 minutes of receipt. The monthly test can be scheduled and broadcast stations and cable systems are encouraged to choose a time convenient to all participants in the EAS. The monthly test script can be developed locally and may be used to place added emphasis on emergency events that may also occur in that particular area.

National Level EAS Activation:

The FCC, in conjunction with Federal Emergency Management Agency (FEMA) and the National Oceanic and Atmospheric Administration's (NOAA), National Weather Service (NWS), implements the EAS at the federal level. The President has sole responsibility for determining when the EAS will be activated at the national level, and has delegated this authority to the director of FEMA. FEMA is responsible for implementation of the national-level activation of the EAS, tests, and exercises. The NWS develops emergency weather information to alert the public about imminent dangerous weather conditions.

EAS - State and Local Plan:

Under EAS, all states and territories have a SECC (State Emergency Coordination Committee) with Co-Chairs, usually with one representative from both the broadcast and cable industries. In some states however, a member of the emergency management community serves as a vice chair. Most states formed SECCs under the previous EBS system therefore; they were "grandfathered" into the EAS system. The chairs are appointed by the FCC and create the state EAS plan. Although the SECC chairs need to create a plan for their state while serving on a voluntary basis, they do not have to go it alone because the SECC group is composed of LECC chairs, members of industry and government officials. All members serve on a voluntary basis.

EAS – Technology Management:

The FCC's role includes prescribing rules that establish technical standards for the EAS, procedures for EAS participants to follow in the event - The EAS is activated, and EAS testing protocols. Additionally, the FCC ensures that the EAS state and local plans developed by industry conform to FCC EAS rules and regulations.

AREAS WHERE MEDIA CAN CONTRIBUTE:
Since disasters are a significant source of news and capture the attention of populations worldwide, the media provides tremendous visibility for disaster-related issues and, if used properly, can aid the process of disaster management very effectively. Some of the areas where media can contribute include:

Aid prioritization of Disaster Risk Issues - The media can influence the government to prioritize disaster risk issues, thereby ensuring that "self serving" political interests are

not emphasized at the expense of the wider population. For example, the media may expose excessive and inefficient expenditure to relocate persons from vulnerable areas just before a general election with a view to secure votes, while little or no attention is given to replenishing the stock of relief supplies in the national warehouse for distribution in the event of a disaster. This kind of exposure facilitates more prudent and balanced prioritization of disaster risk issues.

Facilitate creation of Early Warning Systems:
Owing to the extensive outreach - the media can help disaster mitigation experts create Early Warning Systems by providing information on risks and existing technologies that can aid the development of useful concepts and systems. Emergency Alert System (EAS), which uses radio, TV and cable services across the country in United States for transmitting early warning, has been very effective.

Increase international donations:
The media can trigger donations from the international community subsequent to the occurrence of national disasters, as well as push the government to increase budgetary allocations for disaster response programmes.

Improve coordination of risk assessment activities:
The media can improve the coordination of risk-assessment activities between policymakers and donor communities. This integration of effort should result in increased availability of resources and improved work programmes geared towards saving lives of affected populations and vulnerable communities.

IMPACT OF MEDIA:

The media is a mere tool in the hands of the disaster management professional and can, therefore, yield positive or negative results depending on how it is used.

Positive effects of the media:

The media is usually the first to define the event as an official disaster. They inform the public about it and therefore heighten awareness. This resulting awareness influences public opinion about how the disaster is being managed and often determines the level of attention that relief agencies pay to a particular disaster.

1. The media provides instantaneous information and are considered to be trusted sources specially at the local level, where the news media have a "vested interest" in the home town.

2. The network's continuous and factual coverage of incidents and post-disaster events can aid decision making and response immediately after a disaster, thereby saving lives and property.

3. The media is an invaluable asset in times of a disaster by disseminating information about public safety, giving useful details on areas such as impassable roadways and downed utility lines etc.

4. Other important public health concerns are usually addressed by issuing water safety advisories and providing information about sites where medical help is available for the public.

5. In the absence of telephones and other mechanisms for communicating with the world outside an affected area, the news media provides:
    - the affected population with much needed information and
    - the outside world with a glimpse of what that affected community is dealing with.

Negative effects of the media:

1. The media may exaggerate some elements of the disaster and create unnecessary panic.

2. The media's inaccurate portrayal of human behavior during and after disasters may create a very dramatic and exciting, but only partially truthful story. For instance, it is not uncommon to see footage of people looting after a disaster on all news networks, but most viewers may not realize that all the networks were covering the same store being looted. As a result, people may feel that widespread and uncontrollable looting is taking place in the affected area(s) which may not be true at all.

3. Influential politicians may manipulate the media for personal or political gains. For example, Hurricane Dean significantly affected the island of Jamaica a few

weeks before the 2007 general elections. The electronic media consistently showed members of a particular political party issuing relief items to the poor, which sent a subliminal message that the political party in question was more responsive to the needs of the people than the other. Incidentally, the political party (that was portrayed in a positive light by the media) won the elections and now forms the new government of Jamaica.

4. News reporters may provide biased coverage for purposes of sensationalism by capturing horrific devastation on a street, choosing to ignore that on the opposite side of the street all the houses are intact with minor damage. This kind of "irresponsible journalism" may lead to the deployment of unnecessary and inappropriate resources to moderately affected areas thereby depriving the more severely affected areas of much needed aid.

5. Media representatives often converge on a high-profile event creating tremendous "congestion" in the affected area. This influx of individuals with their own needs into an already burdened area can be overwhelming, which may hinder or compromise search and rescue operations, jeopardize rescuer safety and hamper the provision of care needed by the critically ill and injured.

The advancement in communication technology has added unimaginable value to the mass communication service produced and provided by media. Mass communications technology has already made significant impact on how the public learns of and perceives various socio-cultural issues in Indian society. Systematic dissemination of education, awareness and alerts on disaster management CAN be an add-on mass media service at a very low cost.

We see from the above discussion that the media can play a very positive and important role in times of disaster, but can likewise, if not managed properly, hinder the response and recovery process. With this in mind, it is important to recognize that convergence of the media generally occurs after major disasters and, as such, a plan to effectively manage the media should be part of every disaster management plan and standard operating procedures.

PARTNERSHIPS WITH THE MEDIA

Media has a role to play in all phases of disasters. During actual hazard events the media is a crucial response partner in the rapid dissemination of warnings and

information to vulnerable communities that would be most impacted. This role would become more important with the establishment of state Emergency Operation Center (State EOC) network and Decision Support System (DSS).

After a disaster has struck, news media can provide effective communication channels and can assist in rapidly providing a picture of how an incident has affected impacted areas, thus helping authorities to more efficiently direct aid and rescue efforts to survivors.

Media's role in disaster preparedness includes - Broadcasting of reliable information for the safety of the public, collection and distribution of information to/from the public, but the information requires the same verification as any other source of information used by journalists in order to be credible and reliable.

Broadcast media can play a very effective role in educating the public about disasters; warning of hazards; gathering and transmitting information about affected areas; alerting government officials, relief organizations, and the public to specific needs; and facilitating discussions about disaster preparedness and response.

RECOMMENDATIONS:

For the media to fill their role in disaster management most effectively, it is important that an institutional framework is drawn and established for closer working relationships between disaster management agencies and the media.

1. **Strengthening Relationship and sharing resources**: It is necessary that media foster still- closer linkages with the hazard-mitigation community and shares their vast information-gathering and transmission resources, when appropriate and available, with disaster-mitigation organizations.

   The enormous technical resources of the major media could be very helpful to hazard- mitigation specialists with little or no adverse impact on media operations. In the post- disaster phase, for example, the facilities established by the media to report on an event are often far more robust and more promptly operational than those of relief organizations, whether governmental or voluntary. As the journalistic needs for the equipment are intermittent, sometimes as little as a few minutes per day, these channels are potentially available to specialists as a means for better assessing the nature and extent of damage, local relief requirements, the need for specialized

recovery equipment, and unique problems or opportunities. Television not only multiplies the public's awareness of and involvement in others' suffering, but also could give direct help. Under

Cooperation agreements, for instance, broadcasters could make available any surplus remote transmission capacity to relief authorities desperate for electronic links to the disaster scene.

2. **Develop a basic code** promoting cooperation among the media and Disaster Management Agency (DMA) agencies. Here again, the first concern should be with the broadcast media, whose involvement is more intricate, and with whom there exists a greater potential for cooperative spinoff. Disaster relief and mitigation agencies should lay the groundwork for formal cooperation with the mass media, especially broadcasters.

3. **Plan and establish National Emergency Alert System (NEAS),** in line with EAS used in USA for direct dissemination of public alerts and warning from state and national level.

4. **Direct Connectivity to Transmission stations**: A more systematic state wide / national linkage with the media could improve early warning and can go to the next step in promoting an evacuation or alternative protective strategy. For example, television and radio receivers might potentially be adapted to enable them to deliver warnings even if they are turned off at the time. In essence, a high-technology approach such as building an early- warning capability into radios or television sets is but one step removed from the concept of public air-raid sirens. It should raise no issue of privacy and the technology is certainly not beyond our grasp.

5. Consider establishing a technological "**information-exchange**" mechanism, so that those centrally involved--relief agencies and major networks--can constantly cross- check the significance and usefulness of what is available, and of what is around the next corner. May be – emergency response communication network can include some of the important transmission stations.

6. **Designate and train disaster journalists**: Disaster journalism is a specialized area needing sensitization towards development of effective emergency

communication or alerts. A new cadre of "Disaster correspondents," just as many media today designate reporters to cover politics, financial markets, and other specific "beats" is the need of hour. Such specialized journalists can improve the supply of information about the nature of and remedies for "high-tech" hazards, such as nuclear reactor malfunctions and toxic waste contamination.

The media and the public are more at ease with what they consider natural hazards-- earthquakes, hurricanes, typhoons--than with hazards of more recent invention. The first category of hazard comes, as it were, "value-free" and the flow of information is accordingly reasonably pure. This is not the case with the second category, where the twin dangers of underplaying or exaggerating the seriousness of an accident are exacerbated by high levels of ignorance and uncertainty.

Commercial pressures accentuate the problem. Organizations involved in the nuclear power and hazardous chemical businesses rightly fear the limits of public tolerance.

Therefore, from Windscale, through Three Mile Island, and on to Bhopal and Chernobyl, there is a history of impure information. (In the case of Windscale, details about the degree of hazard are only now emerging through released British Cabinet papers.) Proprietors of these man-made hazards frequently complain that the media have "got it wrong," whereas, in truth, the media lack adequate information to judge.

Disaster Management agencies should plan and provide their expertise to journalists, not only at the moment of crisis, but also in prior training sessions and video and printed materials.

7. Constitute **State Emergency Communication committee (SECC)** with media included as member. SECC will have representatives from – State Disaster management authority, Representative from broadcast association, Prasharbharti, and representative from telecommunication / Wireless planning and coordination wing of ministry of communication.