

## The Role of Broadcasting in Management of Natural Disasters

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**Abstract:** The media, in the sociology of natural disasters, are mainly viewed as management tools used to influence people's preparedness and response to natural disasters. Every function of modern media is so critical for the society in some special occasions. Media emerge in their functions including informing, but in case of crisis and critical time some of their functions play far more significant role. In case of socio-political crisis or natural disasters media not only play their critical role effectively specially educational and informing but level a memorable and historical effect doing their functions. Radio is a unique media in natural disasters mainly in spreading news about occurring disaster and its side effects at the first stage. In the second stage TV could play the most important role because it can simulate the crisis and show people how to react and survive while they are occurring. Research and studies can reply those seeking everyday interpretations. The place of listening frequently is in the shelter. What is frequently noted during every day program of radio is that due to critical state there have been some changes in ordinary broadcasting. In reality, it should be argued that radio enjoys competitive advantage in critical states since: Radio and TV remarkably benefits from high rate of power and speed in providing and delivering news. Immediately after disasters, the media conveys critical information to the public regarding the crisis, but it also provides psychological support to the stricken communities. During natural disasters mass media became an alternative for personal contact. We also can conclude that media, apart from transmitting information, also have a "linkage" and "a social utility" function. Keeping the TV on helps people to overcome loneliness and reduce the negative effects of stressful life events in general.

**Key words:** Broadcasting • Natural disasters • Radio • Television

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### INTRODUCTION

People have survived different natural disasters for thousands of years. A disaster is any natural or manmade crisis which imperils lives, produces property damage, causes serious damage to the economy and seriously disrupts normal life [1, 2]. For the first time, the report revealed that many people are living in big cities rather than in the countryside. The poorest cities in the world with over one million populations are facing the same risks at the time of a disaster [3, 4]. The urbanization is developing drastically. Only 75 cities had more than a million population sixty years ago. The number of such cities now reaches to nearly 450 [4]. Scientists believe that

climate change plays an increasingly important role in natural disasters. The number of catastrophes due to natural causes (earthquakes, storms, volcanic eruptions) or due to epidemics has remained fairly constant [5]. The number of disasters caused by global warming has increased dramatically over the past 15 years. According to the Red Cross report, the majority of victims are influenced by disasters connected with the climate change [3, 4].

Mother Nature has a long history of powerful destruction such as the earthquake that struck Haiti in 2010 and caused thousands of deaths and billions of dollars of damaged infrastructure [6- 8]. The severity of natural crisis such as earthquake, hurricane, tornado,

tsunami and flood can cause damage and harm people. Following hurricane Katrina in 2005 and the tsunami in South East Asia in 2004, many countries started to implement preparedness management and strategies to lower the damage that is caused by natural crisis [9].

Internationally, an estimated 200,000 people were dead, one and half million were displaced and 194,000 were injured during the 2010 Haiti earthquake [10]. The Indian Ocean tsunami of 26 December 2004 was one of the greatest natural disasters, water came ashore from the clear blue sea. It killed more than 280,931 people in a few hours, led to about \$4.45 billion damage and demolished numerous lives in 12 countries, neighbouring the Indian Ocean. The death tolls caused by tidal surges and waves in the 20th century were less than 5 percent of the number of deaths occurred in that day [11]. The magnitude and significance of the 2004 tsunami appear to be equal to, if not greater than, the great Lisbon Earthquake and resultant tsunamis and fires of 1755 (around 100,000 deaths; Pararas-Carayannis, 1997) and the eruption of Krakatoa and the resultant tsunamis of 1883 (around 35,500 deaths; Pararas-Carayannis, 2003) [12]. In Bam, Iran 2003 a devastating earthquake killed 26,300 people and injured thousands [13]. Thousands of lives were lost in the January 2001 earthquake in Gujarat, India [14].

There are high risk regions where scientists have found or predict disaster because of the potential for earthquakes, hurricanes, tornados, tsunami and floods. In India, 60% of the land is in peril of earthquakes and 12% is susceptible to floods [15, 16]. Indonesia is very susceptible to natural disasters with 13% of land lying on the world's most active volcanoes [16].

Using advanced technology to alert people to threatening situations can lessen the destruction of a crisis. Broadcasters often react to international and national crisis, holidays, natural disasters elections, conflicts and wars with extended broadcasts. Everyone wants the latest information when a natural disaster strikes [1, 17]. Shortwave listeners can be the first to get the word directly from the source. Consider installing an outdoor dipole antenna for good reception under all conditions. Everybody should turn on her/his shortwave radio when she/he hears word of a natural disaster. During crises, radio operators in affected areas sometimes try to relay important information [18, 19].

At the time of such events, the media and the public are urged to cope and make sense of a disaster with regards to its cause and meaning [20]. They are also challenged to learn from one disaster how best to communicate the next. During the actual moments of a

disaster television plays multiple roles. It is purveyor of information, storyteller and sometimes agent of change [20, 21]. Ulmer and his colleagues defined crisis communication as a way that local, state or national entities use resources to spread information to the public quickly during unpredicted crisis which can cause damage and life threat [22]. A crisis communication plan is necessary to alert and prepare the public for natural crisis. Had crisis communication plans been actively pursued, it is likely that most of the previous disasters would have lessened the loss of life [9]. The ultimate goal of a crisis communication plan and strategies is to help the public during crisis to prevent loss of lives or injuries. The need for a crisis communication plan is vital to help reduce deaths and economy damage [22, 23].

In order to communicate with the public different media choices are often used like TV, radio, cell phones and other traditional communication medium. Effective communication is all about conveying messages to other people clearly [24].

Interpersonal communication is used most often when a major crisis occurs. But other media outlets would serve as reassurance to the information passed through the earlier medium [25]. Perry stated that interpersonal communication in certain countries was not the major source of information due to some cultural difference, but with the help of technology essential information can be dispatched to a larger group of people without any distortion during crisis communication [26]. The media plays a major role in disseminating of information toward the public whether for awareness, preparedness or just to report news of crisis around the world [22, 26]. Nature has its own way of disrupting human lives like Haiti's 7.1 earthquake that struck the country on January 10, 2010. The mass destruction of a natural disaster gets the exclusive attention of the public and media [6, 7, 27].

**Media and Disaster:** Mass media play crucial roles at the time of natural disasters. The majority of the researchers believe that at each phase of the disaster, people get the true and factual information about the disaster and guidelines for the correct behavior that they are required to display, from the media [28]. The literature accentuates the ability of media to balance the physical and symbolic factors of vulnerability to natural disasters [29]. In fact, they tend to assume that the media is the bridge between the community's physical and symbolic conditions [30]. For example, according to the risk communication approach, the mass media are considered the most important actors in the creation and transformation of

public awareness to reflect environmental dangers and other local conditions [29]. Also, the functional approach focuses on their ability to transmit preparedness and recovery information to a population at risk [23, 31-32]. At the same time, it has been theorized that even between events, the media's daily coverage of disasters in other part of the world may facilitate raising disaster awareness because it helps people realize their own vulnerable conditions through the experience of others [25, 33-34].

The media is used in various ways by the crisis communicators to deliver messages to the public to let them know about a specific crisis. Key concepts of crisis communication plans are risk and the formation of a consistent communications infrastructure that will be used before and during the crisis occurs [35].

Most of communication media choices around the world are dependent on electricity to operate such as TV, radio, cell phone and internet [36]. In the event of a crisis like a hurricane or a severe ice storm which normally takes down the power, all the means of communication may get disrupted or malfunction. The need for preparedness and precaution measures are important for such crisis which may last for weeks or months and can cause problems for people. When power shuts down people tend to go back to the very basic way of getting information which is interpersonal communication and sometimes a battery radio to get the needed information during a power outage [37]. Pre crisis, during crisis and post crisis are the three phases of the crisis communication plans. The pre crisis stage deals with early warning signs which help the organization to inform the responsible bodies about the crisis. During this stage, organizations take or diffuse preparedness measurement by creating different crisis communication scenario plans for a crisis. The second stage is during crisis which all the previous preparation would be implemented by a crisis communication team to inform the public during a crisis. The post crisis stage is where the evaluation period of the crisis occurs to measure the advantages and disadvantages of certain communication plan in order to use it for future crisis. Fearn -Banks states that crisis goes into detection, prevention or preparation, containment, recovery and finally learning from the crisis experience. Each of these phases has a rich communication messages that need to be conveyed correctly to the right channel [38]. Television, radio and new media are considered as the most used source of information during natural crisis. Similarly, following the 9/11 attacks, patterns of media use for information seeking showed almost exclusive use of television followed by increasing use of the Internet and newspapers and a decline in television utility [39].

To manage a crisis at every level there are some especially defined tasks. These tasks can be explored from nationally to locally as well as from individually to organizationally. Media organizations also play a key role along with officials. But the type of media activity is not clear because people's expectations sometimes are indeed higher than the capacity of media and environment. However, all media including press and audio-visual ones play their own roles. Paying highly attention to these considerations leads to control the crisis as well as minimize waste of human and financial sources. Media can engage in all stages of crisis management; Fink developed four crisis communication stages. The first stage called the prodromal which is similar to pre crisis stage. In this stage the focus is on public education. The second stage is the acute crisis where the crisis strikes and in this stage, the emphasize should be on confrontation to disaster. The third stage is the chronic crisis which is a correction and support stage for any problems that were faced in the previous one. Stage four is the crisis resolution stage in which the crisis has been resolved and known as improvement stage [40].

Different crisis situations require different or multiple medium usages. Each crisis situation has unique characteristics which influence the communication channel and response [41]. People normally tend to use television, radio and newspapers to learn about a pandemic crisis such as the swine flu. Whereas, a major ice storm or flood, radio and television become the dominant sources of information for the public if power still exists [42].

For the overall goal of risk reduction, it is useful to divide the communication strategies into three phases:

- Public awareness (pre-event).
- Public warning (during the event).
- Informing and advising the public (immediately following and long-term post-event).

**Pre-Event Stage: Public Awareness:** In this stage all media can play their role and prepare the social ground to face the natural calamities and disasters. Media should provide people with required information on natural calamities so that enable them sufficiently to encounter the crisis. They not only train them how to survive the people and themselves but also how to prevent their assets being damaged. In this stage TV could play the most important role because it can stimulate the crisis and show people how to react and survive while they are occurring [43]. The printed media and radio can complement the TV as they do with commercial ads.

Education in this stage includes identifying crisis and its states, preparing organizational and responsible units and eventually introducing appropriate approaches to face crisis as well as to aid damaged people [9, 16].

Educational and training programmes have not been adequately produced focusing on approaches and means to decrease the disasters and their consequences. Moreover, the potential of the information media, scientific, industry community as well as the private sector has not been adequately utilized [16, 17, 20].

The media play a unique role in disaster mitigation. Although the aims of the media and those of disaster mitigation organizations are not synonymous, without compromising the independence and integrity of either, much can be done to communicate to the public the information that will help many save their own lives [20, 40].

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 [44]. "This time," according to IDNDR Director Dr. Olavi Elo, "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. The dramatic difference, according to Roundtable participant Mohammed Saidur Rahman, Director of the Bangladesh Disaster Preparedness Centre, was a new early-warning system that allows radio stations to alert people in low-lying areas. According to Mr. Rahman, "wonderful work was done by the media" [9, 20, 44].

These and many other examples make clear that media 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.

**During the Event: Public Warning:** The main objective of crisis communication is to convey messages to the audiences during a crisis so as to inform them about the magnitude of the crisis. Crisis communication is a type of public relations that helps an institution whether public or

private to cope with crisis during natural or man made disaster. Crisis communication involves the effort to control information and reduce negative public reaction when sudden crisis occur.

Piotrowski and Armstrong found that the dissemination of information during a natural disaster is about the size of the crisis, the planning, the official responses and the length of the disaster [45]. Information is very essential for the public in order to avoid loss of lives and prevent or lessen damages. The news of crisis spreads very fast to the public [46]. Kanihan and Gale examined the news diffusion process in the wake of the 9/11 terrorist attacks and found that 44% of college students learned about the incident through TV and radio within three hours. Many of these studies examined how mediated networks were supplemented by interpersonal networks to complete the diffusion of a news event [47].

During the ice storm that struck northeast Arkansas and Kentucky in January 2009, power was lost for more than a week. In Arkansas alone, for one electrical cooperative the damage cost was more than 214 million dollars (R.Roedel, personal communication, October 24, 2009). As the electricity was gone the technological communication medium was gone as well [42]. Murad conducted a survey on students at a mid-south university during the severe ice storm in 2009. The researcher found that interpersonal communication was forced on people because of the lack of electricity. Student reaction to the ice storm was normal and was taken cautiously. TV, radio, internet and interpersonal communication were the medium used for this case [42].

The role of television news in disasters is also spatially varied. In local settings or in the immediate area within which disaster has struck or is striking, television news is one of the primary means of disseminating information often vital to the physical and emotional health and safety of community residents. Television provides information about the risks they are under, where they can go for relief and who they should contact for specific needs. At times television becomes a conduit for personal messages [23, 36, 44].

When severe weather conditions or the need for immediate access make television the only viable means of communication, individuals may use the medium to let others know they are safe or where they can be found. In other situations distant disasters have a profound impact on one area. In such cases television is the fastest way to convey personal information to local residents [22-23, 43-44].

Among the major challenges faced by the local newsroom during the time of disaster is the cooperation with local law and safety officials so that true and necessary information is delivered to the people in a suitable way. The news staffs of local television also recognize that they need to overlook the daily routines to take quick action and greater flexibility in completing tasks. The news of National television plays a different role in reporting disaster.

**Post-Event Stage: Informing and Advising the Public:**

The first few weeks after a disaster usually deal with communication between aid agencies, people in the field reporting events as they happen and supplying data, video and voice services where local communication is typically destroyed [48]. After a disaster, regions need to follow a flexible and strong strategy to help the reconstruction process. Communication needs can differ between organizations, such as providing help with logistical cooperation and creating normal connectivity for cities and villages as well as offices and providing voice, Internet and data [41, 34].

After the immediate danger and basic needs are addressed, recovery efforts will build semi-permanent accommodations, temporary offices and medical centres to aid victims. The communication abilities will require scaling quickly and becoming more stable while mobile groups will still need portable communications and power in order to provide service to other neighbourhood regions. The applications will involve administrative work, voice calls, assessments of relief supplies and uploading reports and sharing information [34, 39]. Furthermore, there is much disaster mitigation organizations can do directly and in cooperation with the media, to help focus public attention on disaster preparedness and prevention and to avoid many of the unintentional consequences of the images used by and in the media. This is the responsibility of disaster mitigation organizations particularly media to be more aware of the ramifications of their public communications [24, 31-32].

There are some duties that can manage by media and particularly broadcast media after occurring disaster as follow:

- Informing to increase the integrity and unity of survivors: informing is the media's major responsibility. People should be aware of the demolishing consequences of crisis and should not overlook their given duty. Meanwhile, the responsible bodies should focus on solving the survivors' problems.

- Informing and educating for reducing the pains of survivors: children are highly affected by the natural disasters and their consequences may be with them for many years. Therefore, parent should ask their children to articulate their emotions and feelings in their paintings, games and the like.
- Some of the children may behave aggressively or lose their temper and or behavioral disorder. So, they need highly attention whereas their survivors carry heavy spirit and physical burden and pains so that forget their children. Then, the engaged organizations and individuals are required to have particular attention to them [43].

In all three phases, i.e. pre crisis, during crisis and post crisis, the media is crucial to the communication strategies of disaster agencies and media channels including radio, television, newspapers, internet or mobile phones provide easy access to a large number of people. Through all phases the level of coverage, exposure, placement, headlines and photographs, contribute to the way in which events and risks are construed by the public in the immediate and the long term [49, 50].

**CONCLUSIONS**

One major element in efficient communication is the production and convey of precise and efficient messages through the mass media as well as the other channels of communication. Such messages can help people to take practical measures to protect themselves against natural disasters and hazards and to ask for the governmental and private organizations' attention to disaster prevention, mitigation and response. The scientific and disaster mitigation organizations are required to establish and solidify their cooperation with the media, if media want to play these roles most efficiently.

Media play a crucial role in educating and training the people about disasters, hazards, collecting and delivering information about affected regions, informing relief organizations, government officials and the people to certain requirements and facilitating debates about the preparedness and response for and to disasters. Media should extensively address the issue of disaster prevention and mitigation. The media as well as the disaster mitigation organizations should recognize and communicate to the people certain measures that have been successful or failed to decrease the impact of natural disasters and hazards.

Media institutions are required to evaluate their reporting about natural hazards and disaster preparedness and to cooperate with disaster mitigation organizations where appropriate to improve the preciseness, accuracy and quality of such reporting.

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