**Disaster preparedness and Management using Case Study**

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1. **Introduction:**

Disaster is a natural or human-induced impact that adversely affects a society or the environment. Nowadays, disasters appear as the results of the wrong risk management practices. These risks are the products of hazards and vulnerabilities. Developing countries are much affected by natural disasters. Financial losses of developing countries access 20 times more than the developed countries while 95% of death events occur in developing countries as the results of disasters **(http://www.ahder.org).**

Disasters are divided into two groups as natural disasters and human-induced and technological disasters. Natural disasters occur as the results of natural hazards as earthquake, flood and volcanic eruptions that affect people. Vulnerability caused by lack of emergency management, leads to financial and moral losses. On the other hand, technological and human-induced disasters are the results of the human impact, negligence, error and system failure. These disasters can be classified into two groups as technological and sociological disasters. Technological disasters are caused by technological failures such as traffic accidents and engineering errors. Nuclear and chemical accidents, major fires and environmental pollution are some examples of technological disasters. In sociological disasters, there are powerful human impulses as the events of crime, riots, wars and panics. The main task of disaster management is to reduce loss of life and property, and protect the nation against natural, technological and human-induced disasters. In doing so, a risk-based comprehensive disaster and emergency management system including items such as preparedness, protection, response, recovery and mitigation should lead and support the public. Recently modern disaster management systems also emphasize the importance of preventing disasters before occurrence in addition to the disaster preparedness issue **(Kadıoğlu, 2008).** The State of California, USA, is similar to our country due to its place in a region that people intensely experiences disasters and must always be ready to cope with these hazardous incidents. The largest earthquake in the history of California occurred in 18 April 1906. After this 7.9-magnitude earthquake in San Francisco, three (3) thousand people died and 200 thousand people became homeless and San Andreas Fault was broken along the 500 km distance. Experts have detected underground vibrations on incomprehensible reasons when examining the San Andreas Fault along the Pacific in California in the centenary of the massive earthquake. For a while, new movements of the earth's crust have expressed suspicions after 100 years passed over the San Francisco Earthquake, one of the most powerful earthquakes in history. San Bernardino Fault that most recently caused an earthquake of magnitude of 7.7 in 1690 is expected to break again in the near future. According to experts' estimates, in the next 30 years, a devastating earthquake in San Francisco is likely to be expressed as 62 percent. This area is also under the threat of storms, hurricanes, floods and tsunami as well as earthquakes. Not only natural disasters but also technological disasters affect this area adversely. Latest in April of 2012, San Onofre nuclear power plant, in the south of the province, was closed indefinitely due to problems of radioactive gas leak. Because the geography is always vulnerable to disasters and these disaster and emergency situations lead to casualties, a systematic disaster and emergency system is established. In 2001, the United States Federal Emergency Management Agency (FEMA - Federal Emergency Management Agency) working group indicated the greatest third disaster scenario listed below and the risk map of the region is shown **(Carter, 1992):**

In the first part of this study, an introduction to the concept of disaster, disaster types and disaster management systems is presented and it’s focused on elements of integrated disaster management systems in the second part. In the third part, plans of creating disaster awareness and disaster preparedness implemented in California is examined, in the fourth part, best practices from our country are sampled and finally conclusions and recommendations are given in the fifth part.

1. **REVIEW OF LITERATURE**

The handful of empirical analyses that have addressed the problem of business disaster preparedness have been limited in scope. Generally, the research has focused on specific industries such as tourist-oriented firms (Drabek, 1991, 1994a, 199433) or chemical companies (Quarantelli et al., 1979; Gabor, 1981). Much of this research has also been plagued by small sample sizes (Barlow, 1993; Mileti et al., 1993). The narrow focus and small sample sizes of these analyses have limited the generalizability of the research findings. Nevertheless, they provide a theoretical and empirical base for the development of a model to analyze business disaster preparedness. Although some of this research has identified some managerial and community characteristics related to business disaster preparedness, by far the strongest predictors have been a series of firm characteristics. The most consistent firm characteristic related to preparedness is firm size, usually measured by the number of employees. Quarantelli and associates (1979) were among the first to address disaster preparedness within the commercial sector. Focusing on a sample of chemical companies in 18 communities across the U.S., they found that larger chemical companies had engaged in more planning than their smaller counterparts. Small chemical companies did not view themselves as a significant threat or source of potential disaster regardless of the hazardous nature of the products they handled. Smaller firms may also have fewer resources to devote to disaster preparedness.

Drabek also found size to be significantly related to disaster evacuation planning among two samples of tourist-oriented firms (1991, 1994a, 1994b). The first sample consisted of 65 firms selected from three communities with progressive local government disaster programs. The second sample consisted of 120 firms selected from six communities with recent disaster experience. In an initial analysis of the 65 firms Drabek noted that "the more employees a business has, the more extensive its disaster evacuation planning'' (Drabek, 1994a:21). In later analyses Drabek pooled the two samples providing an overall sample size of 180 firms. Again, size was an extremely strong predictor of disaster evacuation planning (Drabek, 1994a, 199433, 1995) . Age of business is another firm characteristic thought to be related to business disaster preparedness, but research findings are not consistent. Among the smaller sample of 65 tourist- oriented firms, Drabek (1991) found the age of business to be related to disaster evacuation planning with more extensive planning occurring in firms that had been in business for six or more years. Interestingly, age of the firm made little difference beyond this threshold of six years. Quarantelli et al. (1979) found that newer chemical firms, usually built in modern industrial parks, were more likely than their older counterparts to engage in preparedness activities. Drabek (1991, 1994a, 1994b, 1995) also found ownership patterns, i.e., whether or not the business was an individual firm or part of a larger chain, to be significantly related to disaster evacuation planning. Firms that are part of a larger national chain had engaged in more evacuation planning activities than individual firms. This was due, in large part, to corporate mandates. Corporate headquarters often provide local affiliates generic guidelines for disaster plans. Again, this is consistent with a finding of Quarantelli et al. (1979) who found that larger national chemical companies had engaged in more preparedness than locally based individual firms. National companies had policy directives from headquarters to institute programs relevant to chemical disasters. Further, Drabek (1991, 1995) found type of business to be significantly related to disaster evacuation planning. Although focusing only on tourist-oriented firms, he was able to distinguish between lodging, restaurant, entertainment, and travel establishments. Among the sample of 65 firms, Drabek found that lodging establishments had engaged in more evacuation planning activities than restaurant, entertainment, and travel firms. In their analysis of 54 firms selected from eight San Francisco Bay area counties, Mileti and associates (1993) found that firm type was indirectly related to preparedness for earthquakes. Health, safety, and welfare organizations that had agency staff with earthquake activities as part of their jobs, and whose executives had higher levels of earthquake risk perception were more likely to prepare for future damaging earthquakes. In sum, the small amount of research that exists suggests that a series of firm characteristics, including firm size and type, whether the firm is an individual firm or part of a franchise or chain, and the age of the firm are all related to business disaster preparedness. One firm characteristic that has not been included in earlier analyses but that may be related to preparedness is whether a business property is owned or leased. In their analysis of household earthquake preparedness in Southern California, Turner, Nigg, and Paz (1986) found that home owners had engaged in more preparedness activities than renters and other household types. For example, homeowners were much more likely to possess various emergency supplies such as flashlights, battery-operated radios, and first-aid kits. Previous disaster experience has also been found to influence business disaster preparedness. Drabek (1994a, 199425) found that businesses with previous disaster experience had engaged in more evacuation planning than businesses with little or no disaster experience. Mileti and associates also found experience to be k significantly related to preparedness. In his descriptive analysis of the preparedness activities of 20 St. Louis area firms, Barlow (1993) noted that a lack of disaster experience was probably the most significant factor for explaining the lack of earthquake preparedness among the firms. Drawing and expanding on previous research, this paper presents a model of business disaster preparedness and applies it to two business samples. Model variables consist of a number of firm characteristics including business size, type of business, age of business, whether the business is an individual firm or franchise, and whether the business property is owned or leased. Previous disaster experience is also included in the model.

**1 - The Management of Disasters**

Disasters have adversely affected humans since the dawn of our existence. In response, individuals and societies alike have made many attempts to decrease their exposure to the consequences of these disasters. All of these efforts have the same goal: disaster management. The motivating concepts that guide disaster management the reduction of harm to life, property, and the environment are largely the same throughout the world. Whether due to political, cultural, economic, or other reasons, the unfortunate reality is that some countries and some regions are more capable than others at addressing the problem. Furthermore, the emergence of a global economy makes it increasingly difficult to contain the consequences of any disaster within one country's borders. This chapter examines basic concepts of disaster management and expands upon those concepts to specifically address the management of international disasters, which is a complex discipline. Like disaster management on the national level, it involves actions that seek to mitigate the effects of hazards, ensures that populations are prepared for disasters should they occur, facilitates the response to disasters that do occur, and helps nations and people recover in the months and years following disaster events. The chapter provides a brief history of disaster management.

**4 - Mitigation**

Mitigation, sometimes called prevention or risk reduction, is often considered the “cornerstone of disaster management.” Mitigation measures seek to reduce the likelihood or consequences of a hazard risk before a disaster ever occur. Mitigation is defined as any sustained effort undertaken to reduce a hazard risk through the reduction of the likelihood and/or the consequence component of that hazard's risk. In other words, mitigation seeks either to make a hazard less likely to occur or to reduce the negative effects if it were to occur. Mitigation traditionally has been perceived as a luxury of the wealthy nations. Yet, through unilateral, multilateral, and nonprofit financial and technical assistance, many of the poorer nations of the world are beginning to not only recognize mitigation's benefits but also benefit from its practice. This chapter provides an overview of mitigation and describes its various forms. Insurance as a mitigation option is detailed. Finally, several of the many obstacles to mitigation are presented.

**5 - Preparedness**

When disasters strike, there may be little or no time to make any additional arrangements, to learn any new skills, or to acquire needed supplies. Disaster preparedness defined as actions taken in advance of a disaster to ensure adequate response to its impacts and the relief and recovery from its consequences is performed to eliminate the need for any last-minute actions. Many different organizations and individuals, including emergency response agencies, government officials, businesses, and citizens, conduct disaster preparedness activities. Each has a unique role to play and unique responsibilities to fulfill when disasters strike. The range of activities that constitute the preparedness component of the comprehensive emergency management cycle is expansive, and these actions are often the primary factors that determine whether actual response actions are successful. This chapter presents an overview of disaster preparedness, followed by descriptions and discussions of the planning process, including Emergency Operations Plans, exercises, training, equipment, statutory authority, warning, and public preparedness. A discussion of the media role in disaster management is included as well.

**6 – Response**

Despite the best-laid emergency plans, the most comprehensive preparedness programs, and the most effective mitigation programs, disasters strikes every day of every year. When these hazards strike, individuals, communities, and countries must initiate disaster response, working within the confines of their limited funding, resources, ability, and time to prevent the onset of a catastrophe. This chapter focuses on response as a disaster management function. The response function of emergency management includes actions aimed at limiting injuries, loss of life, and damage to property and the environment that are taken before, during, and immediately after a hazard event. Response is the most visible disaster management function at the international level. Media images and video footage depicting disaster victims rescued by the international disaster response community are never in short supply. The process by which international disasters are recognized, announced, and managed is also addressed. Even though there are disaster management functions common to many disasters, each is unique, drawing upon several of the tasks, processes, and systems described in this chapter.

**7 - Recovery**

Even with the best mitigation, preparedness, and response, there is some level of environmental damage, destruction of property and infrastructure, disruptions of social and economic systems, and other physical and psychological health consequences. The process by which all of these are rebuilt, reconstructed, repaired, and returned to a functional condition is called “recovery.” This chapter explains what the recovery function is and what actions are taken to fulfill the recovery needs of communities affected by disasters. Disaster recovery is the emergency management function by which countries, communities, families, and individuals repair, reconstruct, or regain what has been lost as result of a disaster, and, ideally, reduce the risk of similar catastrophe in the future. Disaster recovery is usually a long and arduous process that is more often measured in decades than in months or years. Communities may never recover if not provided with proper assistance. Fortunately, with pre disaster preparedness measures and ample post disaster international assistance, even countries that experience the most catastrophic damages can enjoy some level of recovery. Those that recover and reduce the original hazard risk may even find themselves stronger as a result.

1. **Real Life Case Study**

**Case Study-1 Marth Aluel, 33 age**

In September 2017 BOR, SOUTH SUDAN - An overflowing Nile River and heavy rains flooded the South Sudanese town of Bor, destroyed homes of 2000 internal displace person IDPs in the protection of cilvilians site located on the base of United Nation in South Sudan and leaving hundreds of families without food.

Likewise the Residents of Bor, Jonglei State, walking through flooded roads in the state capital. Hundreds of people were displaced from their homes when heavy rains caused the banks of the River Nile to burst.

Marth Aluel Akuei, a resident of the Lekyak area just outside Bor town, used mud to build a dyke around her damaged home. The three grass-thatched structures she owned — known as tukuls — were washed away in the flood.

Mr. Aluel Akuei said that they are living in water, "she is so worried about her children. Anything could hurt them in this flood area. The wind and rain have demolished this house."

Bor-area resident Lueth Alier said he does not feel safe walking through flooded areas because the overflowing Nile can bring "hostile animals" to residential streets, E.g. Crocodiles

**Case Study-2 Mrs. Achol, 38 Years Old Female.**

Mrs Achol Deng from victim from POC the rain has made a serious destruction her entire house is flooded. And she is struggling now to see if she can get plastic sheets so that she can set up a tukul for family member and children.

Machar Machol Deng, deputy mayor for administration and finance in Bor municipality, says at least 1,200 households were affected by the flooding, the authorities are trying to response to the disaster by digging passageways so that the water can drain, but they don't have enough resources to finish the work.

"The whole government is in financial constraints right now. The little fuel that we had, we utilized it. We have a bulldozer here, and this bulldozer can help us to open the drainages," Machol and local residents are appealing to governments and nongovernmental organizations to provide plastic sheeting for shelters, in addition to other aid.

The government and other partners need to have in place disaster preparedness and response plane, Mitigation, and Recovery, to avoid any un sudden occurrences of disaster**.**

1. **Discussion**

Due to the lack of focus disaster preparedness and Response in place assessing what the literature suggests and apply it to the demanding context such as a disastrous event is not an easy task. However, it is clear that the government and other partners do not have enough resources or support to response to emergencies disaster. While the globalization are more concern on the early response and mitigation of disaster, on the enables more effective communication; it still often lacks efficiency particularly under the pressing conditions of disastrous events. Although the implications are derived from a limited number of cases, we hope that the government need to have a strategic plan for disaster preparedness and management through working in partnership with the national and international organization, to lobby for more fund. These suggestions can be adopted to cope with sudden and drastic events.

South Sudan need to have qualified geologies that should know the disaster prone areas in south Sudan which types of disaster that affect particular community, and the season of disaster occurrence especially flooding, These will give path to the government to communities early messages to the community going to be affected to evacuate this will avoid damages of properties.

The findings also highlight the importance of simple and succinct messages that would be both distinguishable and prompting a certain action from the recipients. This is also in line with Minato and Morimto’s (2012) and Mulilis’s (1998) argument that simple communication allows for the fast and efficient circulation of necessary information to multiple stakeholders including general publics. This finding points to the importance of cooperation and common understanding between various stakeholders and agencies involved in mitigating the consequences of a disaster and effective response operation.

**Conclusions**

  According to experiences acquired as a result of disasters, most damaging effects are that the negligence and insufficient disaster awareness was experienced. Considering the structural hazards is very important on construction of buildings and structures. Non-structural hazards must be eliminated as fixing all the utensils that can damage by falling. It’ll minimize the loss of life that even the smallest individuals in our society, rather than to escape by running during the earthquake they protect themselves until shaking will have stopped. Because the experts clearly stated, earthquakes do not kill, unfixed goods and panic kills. Training on disaster and risk management, and individual, family, neighborhood, school, institution and country-level action plans to be prepared for emergency will decrease the incidence of disasters caught unprepared. As mentioned in the example practice, regular and large-scale exercises will facilitate the conversion of the information received by training programs into behavior. Also by increasing the awareness of the community, support and solidarity will be placed. In the situation of disaster, if staying alive is possible, people will need to sustain life, a bag containing materials readily available is very important. Public education about life after the disaster is of great importance too. The purpose of public awareness about life after the disaster is to prepare people to continue living in spite of the losses and damages. Protection and backup of personal and corporate information on the policies and values are determined and applied to make the point to continue living in the post-disaster is an important detail. It is very important for the countries in disaster risk, to generalize the disaster awareness practices.

1. **Recommendation**
2. Training on disaster and risk management, and individual, family, neighborhood, school, institution and country-level action plans to be prepared for emergency will decrease the incidence of disasters caught unprepared.
3. Government together with Partner’s should develop a strategic plans for disaster response and Management in South Sudan.
4. The purpose of public awareness about life after the disaster is to prepare people to continue living in spite of the losses and damages.

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