

## Natural Disasters: Causes, Consequences and Its Preventive Role in Sustainable Development

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### ABSTRACT

Disaster is defined as a crisis situation causing wide spread damage which far exceeds our ability to recover. Disaster is a sudden, calamitous event bringing great damage, loss, destruction and devastation to life and property. The damage caused by disaster is immeasurable and varies with the geographical location, climate and the type of the earth surface. Natural disasters are relatively sudden and cause large scale, widespread death, loss of property and disturbance to social systems and life over which people have a little or no control. Thus, any event can be classed as disaster when the magnitude of destruction and damage caused by it is very high. Communities will always face natural hazards, but today's disasters are often generated by, or at least exacerbated by, human activities. At the most dramatic level, human activities are changing the natural balance of the earth, interfering as never before with the atmosphere, the oceans, the polar ice caps, the forest cover and the natural pillars that make our world a liveable home. But we are also putting ourselves in harm's way in less visible ways. This paper seeks to determine the natural disasters, causes and consequences and its prevention. Nature is bountiful full of resources used by the living organisms use for their survival and well-being. But nature has its own control systems. Resources used up are replenished excesses are checked, all naturally through the biogeochemical cycles, the food chains and webs and other natural phenomena. Thus equilibrium is maintained in nature. This is called ecological balance and has in recent times been disturbed by human activities.

**Keywords:** *Natural disaster, Earthquake, Flood, Tsunami, Drought, Hurricane, Avalanches.*

**D**isaster is an undesirable occurrence resulting from forces that are largely outside human control, strikes quickly with little or no warning, which causes or threatens serious disruption of life and property including death and injury to a large number of people, and requires therefore, mobilisation of efforts in excess of that which are normally provided by statutory emergency services. As compared to natural hazards, natural disasters are relatively sudden and cause large

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scale, widespread death, loss of property and disturbance to social systems and life over which people have a little or no control. Thus, any event can be classed as disaster when the magnitude of destruction and damage caused by it is very high.

A natural hazard is an atmospheric or hydrological and geophysical, event (e.g., Flood or Drought, Earthquake, Tsunami, Landslide, Windstorm,) that has the potential to cause harm or loss, however a natural disaster is the occurrence of an extreme hazardous event that impacts on communities causing damage, disruption and casualties, and leaving the affected communities unable to function normally without outside assistance (Twig, 2007).

According to the Centre for Research on the Epidemiology of Disasters (2013) annual disaster statistics review, 357 natural disasters occurred worldwide in the year 2012, which was less than the average natural disaster frequency from 2002 to 2011(394). 9,655 people were killed in 2012 by natural disasters and 124.5 million people were affected globally. Hydro-meteorological disasters accounted for 74% (US\$2.6 trillion) of total reported losses, 87% (18,200) of total disaster events, and 61% (1.4 million) of total lives lost. From 1980 to 2012, disaster-related losses amounted to US\$3,800 billion worldwide. Some 87% of these reported disasters (18,200 events), 74% of losses (US\$2,800 billion (Munich Re 2013)). The economic damages from natural disasters in 2012 were estimated at US\$ 157 billion.

Since 1960, in the all over the world natural disasters have resulted in the loss of more than three million lives and affected many more. 90% of the natural disasters and 95% of the total disaster related deaths occur only in developing countries. It is because most of the world's worst disasters tend to occur between the area of Tropic of Cancer and the Tropic of Capricorn.

The natural disasters directly impact economies, agriculture, food security, water, sanitation, the environment and health each year. Therefore it is one of the single largest concerns for most of the developing nations. Different natural hazards cause varying levels of physical damage to infrastructure and agriculture with implications for their indirect and secondary impacts. Drought causes heavy Crop and Livestock losses over wide areas of land but typically leave infrastructure and productive capacity largely unaffected. Floods and Cyclones cause extensive whereas damage to both infrastructure and agriculture, depending on their timing relative to the agricultural cycle. While Earthquakes have little impact on standing crops excluding localized losses but can cause wide spread devastation of infrastructure and other productive capacity over relatively large areas. India is hit by one major natural disaster or the other almost every year where in the loss of life is accompanied by losses of the magnitude that is difficult to comprehend. The decade (1990-99), which was the International Decade for Natural Disaster Reduction (1990-99), it witnessed a spate of large-scale disasters that defied all attempts to stem them.

## REVIEW OF LITERATURE

Effective community participation is an educational and empowering process whereby communities identify the problems and needs and assume responsibility to plan, manage, control and assess the collective action that are necessary. While disasters can strike a region or a nation, their impacts can be felt at the community level. It is these communities that constitute what is referred to as “disaster fronts”. Being at the forefront, communities need to have the capacity to respond to threats themselves. It is for this reason that communities should be involved in managing the risks that may threaten their well-being. While different community empowerment programmes related to disaster mitigation have achieved their objectives, they are often short-term, and issues of sustainability in these efforts are rarely addressed. Government, non-government and international organizations implement various programmes before and after the disasters. Most of them are very successful during the project period, but gradually diminish as the years pass. There are many reasons for this kind of phenomena; however, lack of effective participation and capacity building of the local communities to peruse programs remains a major factor for lack of sustainability. In the past, top decisions came from higher authorities based on their perception of the needs. The communities serve as mere “victims” or receivers of aid. In practice though, this approach was proven to be ineffective. It fails to meet the appropriate and vital humanitarian needs. Moreover, it increases requirements for unnecessary external resources and creates general dissatisfaction over performance, despite exceptional management measures. This is due to the fact that the community, as the primary stakeholder and recipient of the direct impact of disasters was involved in the implementation of activities. On the other hand, communities, if left alone, have limited resources to fully cope with disasters. In many developing and underdeveloped countries, those who suffer the most are the poor, who, in the first place, have limited survival resources and do not enjoy adequate infrastructure and access to social services.

It is also significant to say something about Sustainability in Community Based Disaster Management. Sustainability can be thought of either as a fundamental system property, or as a long term, probably unattainable, social goal, and sustainable development as the immediate policy agenda attending that goal. Societies looking for sustainable development are characterized as being resilient, responding in an organized manner and recovering more efficiently from a disaster. Incorporating risk management into the planning process, both for the sectors as much as local authorities, allows those countries with public policies orientated towards development and growth to have a better chance of success than those which do not take them into account (Toro Joaquin, 2014).

In the Year 2002, UNCRD launched a three-year project titled “Sustainability in Community Based Disaster Management”, to study the effectiveness of grass-root projects and to suggest policy input for sustainability (which would be useful for the different communities to take future actions). This was to help to understand the gaps in community initiatives, and to take corrective action in future. The study would be an evaluation of what has been done so far in

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Community Based Disaster Management, with specific examples from field experiences, and what should be done in future for the sustainability of these efforts. In this study, the inter-linkages of government, non-government, academics, and international organizations should be reflected in terms of concrete projects and initiatives, and a model of cooperation would be established (Rajib Shaw & Kenji Okazaki, (2002).

Sustainability means recognizing and making best use of the interconnection between social, economic and environmental goals to reduce significant hazard risks. This entails the ability to reduce one's exposure to, and recover from, infrequent large-scale, but also frequent smaller scale, natural and human driven events. The bottom line for any country, especially the poorest, is to build sustainable communities thriving from generation to generation, with a social foundation that provides for health, respects cultural diversity and considers the needs of future generations. They require a healthy and diverse ecological system that is life-sustaining and productive, with a healthy and diverse economy that adapts to change and recognizes social and ecological limits.

### **CAUSES RESPONSIBLE FOR NATURAL DISASTERS-**

There are different types on natural disasters and depending on different types of disasters the causes are also different. For example, the causes of earthquake cannot be same as that of forest-fire. Natural disasters are caused due to different reasons like soil erosion, seismic activity, tectonic movements, air pressure, and ocean currents etc. natural disaster is not a new phenomenon these natural events have occurred since the earth began forming and continue to cause serious damage and loss of life all over the globe from many years. The root causes of most of the natural disasters that occur on earth can be attributed to the imbalance created in our environment. This imbalance may either be in the form of air pollution, noise pollution or water pollution and the collective effect of these imbalances are also one of the few reasons for natural disaster. Though it also a fact that we cannot blame anyone because this is just one of the few reasons. Natural disasters like earthquake, floods etc have also occurred in past era when human was far away from modernization. So it would not be fair enough to blame modernization for the same. Natural Disasters are a set of naturally occurring events which can directly or indirectly cause severe threats to human health and well-being and adversely affects the human life for quite some time. It has been witnessed that the natural disasters have their root causes in the normal activities of the earth. However during past few years we have witnessed some rapid modernization and growth, man's increased knowledge and technology has served to trigger for some natural disasters. Flooding and erosion can occur is really prone to the areas where mining, deforestation, and manufacturing have taken place. Global warming, which could eventually effect the ocean currents, has its roots in modern man's overuse of fossil fuels. Earthquakes resulting as a result of tectonic movements and movements of plates inside the earth's crust can also be triggered by drilling, bombing, mining, and construction.

### **THE IMPACT OF HUMAN ACTIVITIES ON NATURAL DISASTERS-**

It has been estimated that rapidly growing modernization is leading to ignorance towards the environment. Today we are growing at rapid rate neglecting the harm that we are causing to our environment. Environmental bylaws are being neglected for personal gains by few businessmen. The dual forces of global warming as well as poor human management in the field of land and water resources combine to the cause of natural disasters. Humans have created a situation where ordinary events like earthquakes and hurricanes become increasingly elevated to the level of natural disasters which results in heavy losses in the terms of human life as well as property. Scientists researching on this topic from past many years have found that the increase in hydro-meteorological disasters can be attributed to a combination of natural and human-caused factors. The main problem is global warming which is increasing the temperatures of Earth's oceans and atmosphere, leading to more intense storms of all types, including hurricanes and floods due to melting of these oceans. Unplanned urbanization is at its peak, no one is really caring about the environmental risks and everyone is busy making money. There are a lot of constructions coming up in flood-prone regions which has increasing the likelihood that their towns and villages will be affected by flash floods and coastal floods. A recent flood in Uttarakhand is one such example. Human greed is increasing day by day and people are not at all hesitant in ignoring the environmental laws and result is the destruction. In one way or the other we are hampering our environment, the rapidly growing industrialization has led to a lot of air as well as water pollution. Though there are environmental laws that these industries need to follow to treat the waste before disposing off into environment but most of the times the industry owners neglect these laws for their personal gain and even authorities are also quite relaxed and do not take a prompt action against the culprits. Rapid construction has led to large land areas being covered with cement, which means that the flow of water becomes very strong, and the runoff from the water can't get absorbed by the soil anymore, so it keeps collecting and rushing down, getting heavier and faster, which may ultimately lead to much bigger floods. It is not that everyone is being ignorant in the race to be the best. There are also a lot of people who really cares about the environment and are really serious about taking up the matter at larger scale. There are many societies and group of people who are working in the field of environmental awareness and are working day and night out to make people aware of the harmful effects of the pollution and other practices that are harmful for our environment. Several NGO's are taking up the issue of pollution and global warming publically by taking out rallies and organizing various campaigns to save environment and such initiatives need to be appreciated.

### **PREVENTING AND CONTROLLING-**

Natural disasters are inevitable, even if we have technology to predict disasters we cannot stop it from occurring. The best that we can do is to stop the practices that are harmful for our environment and leading to environmental degradation and at the same time we should also be prepared for a disaster with our disaster management plan. Beyond damaging and destroying physical infrastructure, natural disasters can lead to outbreaks of infectious disease. Once a disaster strikes it leaves behind a lot of destruction and loss of life. In the case of disasters like

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floods, earthquake etc. where a large number people are displaced there is also a great loss of life and after the disaster there are a lot of casualties also. This is the time when emergency preparedness comes into effect giving first aid to injured and providing rescue and relief operation.

The overwhelming majority of deaths immediately after a natural disaster is directly associated with blunt trauma, crush-related injuries and burn injuries. The risk of infectious disease outbreaks in the aftermath of natural disasters has usually been overemphasized by health officials and the media, leading to panic, confusion and sometimes to unnecessary public health activities. After a disaster strikes there is a great risk of epidemic hence it is very important to control the casualties as well as it is also required to dispose of the dead animals as well human bodies properly before an epidemic outbreaks. The risk factors for increased infectious diseases transmission and outbreaks are mainly associated with the after-effects of the disasters rather than to the primary disaster itself or to the corpses of those killed. It is very important to deal with these problems which in turn can pose a greater threat. These after-effects include displacement of populations, environmental changes and increased vector breeding sites. Unplanned and overcrowded shelters, poor water and sanitation conditions, poor nutritional status or insufficient personal hygiene are often the case which may cause diarrhoea and other water borne diseases. Consequently, there are low levels of immunity to vaccine-preventable diseases, or insufficient vaccination coverage and limited access to health care services. Hence it is very important to be prepared with a proper disaster management team who can take charge as soon a disaster strikes.

### **CONCLUSION**

In brief, it is evident that disaster management is not a stand-alone activity. A well-structured people-centric, coordinated and integrated effort is the need, of the hour, to deal with disaster and emergency situations in the country. The work should start from the bottom to the top: the community should take up the ownership of the activity. The community can act immediately in a cohesive and efficient manner, when they are well trained with their boosted and they recognized. The role of local self-government in managing natural disasters is of paramount importance and effective, technical and practical oriented capacity development exercises need to be provided to the Panchayathi Raj Institutions throughout the country, as India is considered the “theatre of disasters”. Undoubtedly, we can say that team effort, with the “effective” participation of government and community, can make a difference to disaster management programmes. Effective management is possible only if a comprehensive plan and implementation mechanism programmes are chartered out. The post-tsunami scenario gives us a grave lesson to learn concerning the do’s and don’ts that should be practiced giving insight into activities that need to be employed; the role and responsibilities of each and every person who are directly or indirectly affected by the disaster; and so on. Such a study, analysis and implementation could help contribute in reducing or eliminating the consequences arising in the

wake of a disaster or any kind of emergency which shakes the entire fabric of a community or the lives of the people.

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