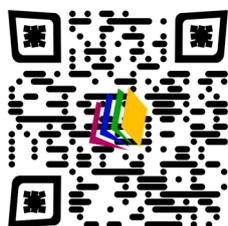




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## **Understanding Disaster Management: An Analysis**

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### **ABSTRACT:**

Disaster is defined as rapid and sudden natural calamity impacting the natural environment and socio-economic system that disrupts normal functioning of the community life. On the other hand, hazards are the pre-disaster situation in which some risk of disaster exists as human population has put themselves in a vulnerable situation. When the risk becomes tangible and impending, there is a distinct threat of disaster. This situation is not only threatening for national defence and security but may also pose various large scale medical, social, economic problems like epidemics, pandemics, shortage and scarcity of food and usable water, accumulation of waste, displacements of persons, problems of hunger and refugees etc. Poor are the worst sufferers in these circumstances. Disasters whether natural or man-made are not confined to a particular location or nation but are of a transnational character as it occurs throughout the world. It is beyond human comprehension and control as Nature has its own laws of creation, destruction and devastations. Human beings have made tireless efforts to protect themselves from the bad effects of these disasters.

Due to the result of various types of hazards, vulnerability and insufficient capacity to reduce the potentiality of risk, disasters impact individuals physically (through loss of life, injury, health, disability) as well as psychologically (fear, threat, stress, shock, trauma, behavioural and mental disorder, non-working of reflex action). The disaster risks in India are further contributed and aggravated by increasing vulnerabilities due to fast changing demographic profile and socio-economic conditions, poor and unplanned urbanization, infrastructural development within catchment area of high risks zones, environmental pollution and degradation, climate change, geological hazards, epidemics and pandemics.

Thus, disaster management requires the management of resource and responsibilities for dealing with all humanitarian aspects of

emergencies; in particular, preparedness, response and recovery in order to reduce the impacts of disaster. Disasters are the consequences of natural and human hazards. Disaster planning should be aimed at prevention, mitigation and reducing the effects of various disaster which do occur. The identification of post disaster tasks, allocation of these tasks to organisation and individual and coordination of planning efforts of all potential responders are the basic element of the disaster planning process so that the eventual response when it is required is co-ordinated and effective.

**KEY WORDS:** Disaster, Hazards, Disaster Risk Management, Prevention, Mitigation, Development

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## Introduction

Disasters are one of the unescapable realities of life and human beings are experiencing and struggling with it to protect himself since the day of origin of human civilisation. They are the outcome of the interplay of a number of factors operating both on and under the earth. Their impact is so grave on the humanity that they are invariably intel great devastations, sorrows, hardships and dislocations in normal life. The only safeguards available to human beings is to attain better forecast facilities and take up full proof prevention and mitigations measures along with proper preparedness planning. Accordingly, in principle an analysis and anticipation of hazards and problems facing both community and organisation, the elimination or mitigation of consequences by highlighting proper, feasible and possible solutions, and using available coping resources to bring best suitable results within the existing constraints. As an alert participant in and observer of the happenings in the human life I want to draw your attention in the mitigation of the threats emanating from diverse man-made and natural disaster.

## Conceptual Framework

The term disaster has its origin from a French word '**DISASTRE**' which is made up of two terms: '**Dis**' means evil or bad and '**Astre**' meaning star. So, disaster expresses '**Evil or Bad Star**'. Hence,

in the past as per traditional ancient mythological perception natural disaster is perceived as 'Acts of God' which is beyond the control of human intervention and were projected in terms of God's punishment of the sins of mankind.

But with the passage of time today we realised the responsible and rational causes of disasters which encompasses, ecological and social perspective to disasters involving organised human action in terms of various acts, omissions and interferences of human beings. It not only contributed but aggravated to disasters which is perceived as 'Acts of Man'.

Different parts of the universe are affected by different kinds of disaster. Disasters whether natural or man-made are not confined to a particular location or nation but occur throughout the world and the effects of all kinds of disasters are very much akin to each other but are classified under various groups. As per their origin disaster are classified into two types, e.g. natural and man-made.

## Natural disaster

Natural disasters are violent phenomenon caused by the natural events and be further divided into:

**Wind related**, e.g. storm, cyclone, tornado, hurricane, heat wave, cold wave, thunder/ lightning etc.

**Water related**, e.g. floods, sea erosion, flash floods, hailstorms, cloudburst, excessive rain, etc.

**Geological**, e.g. earthquakes, snow avalanches, landslides, volcanic eruptions, large fires, dam failures, dam bursts, mine fires etc. and

**Climatic disaster**, e.g. drought, famine etc.

As per their spread of occurrence disaster can also be divided into mainly two types e.g.

**Disaster with rapid onset:** e.g. earthquake, tornado, cyclone etc. They have the characteristics of sudden, disruptive and offer-relatively little warning before they strike as they may occur at any time and anywhere in the world.

**Creeping disaster:** e.g. drought, famine, epidemics, civil unrest etc. The creeping disasters are more predictable in its nature. It may be periodic, location-specific and are of slow processes as it may take time to reach critical vulnerable situation.

### **Man-made disaster**

Man-made disasters refer to non-natural disastrous occurrences that can be sudden and or for longer period and is induced by human activities. The environment is being overused beyond its carrying capacity on account of heavy population load, industrialisation, mining, afforestation. We are misusing mother nature not by accepting nature as a resource for development but also not treating the earthly womb for survival and development of human kind. By using latest and modern inventions of science and technology the earth has become more prone to disasters caused by themselves.

Examples of man-made disasters are nuclear, chemical, biological threats and explosions, industrial accidents, building and mine collapse, accidents of trains, air disasters, land disasters, sea

disasters, communal riots, boat capsizing, building collapse, electric fires, festival related disasters, forest fires, mine flooding, oil spills, road accidents, serial bomb blasts, and fires, regular unabated violence against Dalits, the sub-ethnic North-East tangle, civil strife, civil war and international war, deliberate international terrorism etc. are all man-made disasters.

Disasters whether natural or man-made are not confined to a particular location or nation but are of a transnational character as it occurs throughout the world. It is beyond human comprehension and control as Nature has its own laws of creation, destruction and devastations. Since origin of life on earth the human beings have been observing these phenomenal acts of nature with great fear and curiosity. Human beings have made tireless efforts to protect themselves from the bad effects of these disasters. Different parts of the universe are affected by different kinds of disaster.

This distinction between the two should, however, not be overdrawn. Often one type of disaster ends up in another. The character and extent of the disaster depends on the nature of the elements involved and on the resistance of a man-made environment to these elements. Every calamity has both common and unique features. Some have minimal impact on human beings but cause major physical and structural damage. Others produce more social impact than physical damage, on the whole, with the exception of drought. The impact of natural disaster is normally one of immediate and direct destruction and, of course, this is also true of most man-made disasters (United Nations:1976).

### **Hazards and Disaster**

In common parlance 'disaster' is very often used interchangeably with the term 'hazards'. But the

two are not the same. A precise definition of hazard is difficult. It is the pre-disaster situation in which some risk of disaster exists as human population has put themselves in a vulnerable situation. When the risk becomes tangible and impending, there is a distinct threat of disaster. This assertion is substantiated by a few of the following definitions of terms.

UNDRC explains: 'Natural hazard is the degree of loss to a given element or set of elements at risk resulting from the occurrence of a natural phenomenon of a given magnitude (UNDRO: 1982).

The International Strategy for Disaster Reduction (ISDR) has defined hazard as a potentially damaging physical event, phenomenon or human activity that may cause loss of life or injury, property damage, social and economic disruption or environmental degradation. Hazards have both natural and human components. (ISDR).

The American Geological Institute defined it as "a naturally occurring or man-made geological condition or phenomenon that presents a risk or is a potential danger to life and property." (American Geological Institute:1984).

W.F. White writes that natural hazard is "an interaction of people and nature governed by the co-existent state of adjustments of the human use system and the state of nature in the natural events system." (White, G.F.: 1973).

Likewise, Burten and Kates defined it as "those elements in the physical environment (which are) harmful to man and caused by the forces extraneous to him." (Burten, Ian and Kates, W. H.:1964).

It is now clear from the above definitions that natural hazards are mainly physical events which have the potential of making an impact on human beings and their environment and unless their conjunction occurs, there will be no hazard leading to disaster. The hazard involves the human population placing itself at risk from geophysical events. Hazards may be of various kinds namely: Biological Hazards, Geological hazard, Hydro meteorological hazards.

Now coming to disaster, it is defined as rapid and sudden natural calamity impacting the natural environment and socio-economic system that disrupts normal functioning of the community life. There is no single agreed definition of disaster. However, a number of scholars, organisations and dictionaries defined disaster differently, putting emphasis on certain key element of the concept. For instance, the World Health Organisation (WHO) refers to disaster as "an act of nature or an act of man which is or threatens to be sufficient severity and magnitude to warrant emergency assistance" (Quoted in Naidu, B. Raghavulu: 1989). Likewise, the Asian Development Bank (ADB, 1991) explains disaster as "an event, natural or man-made, sudden or progressive which impacts with such severity that the affected community has to respond by taking exceptional measures". Similarly, the Indian Red Cross Society (1977) and the League of Red Cross Societies define disaster as "catastrophic situation in which day-to-day patterns of life are, in many instances, suddenly disrupted and, people are plunged into helplessness and sufferings and as a result, need protection, food, clothing, shelter, medical and social care and other necessities of life". The focus of attention in all three definitions is expectedly on relief to mitigate human sufferings since these agencies are actively involved in disaster mitigation.

On the other hand, the definition given by Charles E. Fritz (1961) and also subscribed by the United Nations Disaster Relief Organisation (UNDRO, 1979) takes disaster as “an event, concentrated in time and space, in which a society (or a community) undergoes severe damages and incurs such losses to its members and physical appurtenances that the social structure is disrupted and the fulfilment of all or some of the essential functions of the society are prevented”. Further, World Food Programme (International Aid Agency) defines it as “an urgent situation in which there is clear evidence that an event has occurred which causes human sufferings or loss of livestock, and which the Government concerned has not the means of remedy, furthermore, that it is a demonstrably abnormal event which produces dislocations in the life of a community on an exceptional scale” (Reddy A V S. :1992). The definition of disaster given by Asian Disaster Preparedness Centre “as an event, natural or man-made, the impact of which is such that the affected society undergoes marked disruption, coping mechanism are strained and exceptional measures are required for response” (Carter:1990).

The Oxford Dictionary describes it “as sudden or great misfortune, calamity”. Further, the Webster Dictionary defines it “as sudden calamitous event producing great material damage, loss and distress”.

Among scholars, some emphasise the concertedness of disaster in time and space, apart from another thing. E. A. Turner (1976) specified the phenomenon more completely as “an event concentrated in time and space which threatens a society or a relatively self-sufficient sub-division of a society with major unwanted consequences as a result of the collapse of precautions which had hitherto been culturally accepted as adequate”.

Another variety of definitions is given by scholars whereby the point of stress is either the human or the material losses. For instance, giving stress to the human factor, O. P. Reefe, Westgate, Ken and Wisner, Ben, (1976) of the Disaster Research Unit of the Bradford University defined disaster as “the interface between an extreme physical phenomenon and a vulnerable human population”. On the contrary, the definition of Torrey emphasises only the physical loss and ignores the human factor completely. To Torrey (1978), disaster is the “events that cause physical damage to a community or communities so severe that most or all major public and private facilities no longer provide essential socio-economic services without extensive replacement or repair”.

Analysis of the above definition highlights that disaster is a sudden natural calamity that disrupts normal and smooth functioning of the community social life. Its impact and effects are alarming in all aspect of life whether it is physical, economic, social, political, psychological or cultural in a region. As it is so threatening that it causes a huge economic loss of life, property, habitat and human settlements, biodiversity and infrastructure which exceeds beyond carrying capacity of the affected society to cope with own resources and thus bring ecological stress.

It is also evident that due to result of various types of hazards, vulnerability and insufficient capacity to reduce the potentiality of risk, disasters impact individuals physically (through loss of life, injury, health, disability) as well as psychologically (fear, threat, stress, shock, trauma, behavioural and mental disorder, non-working of reflex action).

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and aggravated by increasing vulnerabilities due to fast changing demographic profile and socio-economic conditions, poor and unplanned urbanization, infrastructural development within catchment area of high risks zones, environmental pollution and degradation, climate change, geological hazards, epidemics and pandemics.

Thus, disaster management requires the management of resource and responsibilities for dealing with all humanitarian aspects of emergencies; in particular, preparedness, response and recovery in order to reduce the impacts of disaster. Disasters are the consequences of natural and human hazards. Disaster planning should be aimed at prevention and reducing the effects of various disaster which do occur. The identification of post disaster tasks, allocation of these tasks to organisation and individual and coordination of planning efforts of all potential responders are the basic element of the disaster planning process so that the eventual response, when it is required is co-ordinated and effective (Patricia A O’riordan:1993).

### **Disaster Management and Disaster Cycle**

The unprecedented growth and expansion without comprehensive understanding or preparedness planning of disaster management has brought our urgent and immediate attention regarding various issues emerging out of it. Institutional and administrative weaknesses further created a situation of systematic vulnerabilities over times. Without full proof preventive and mitigation measures, increasing numbers in our population are at risk of various hazards. The safeguards within existing systems are limited and the risks involved high.

From the day of human existence on earth, man has

been fighting to protect himself, his community and belongings from various types of disasters. With the advancement of science and technology, today we are in a position to mitigate the effects of disasters on human beings considerably. Because of different types and characteristics of the disasters various approaches have been evolved to prevent and protect human lives and properties and also to mitigate the sufferings of victims from the disasters.

Disaster Management efforts are geared towards disaster risk management which “implies the systematic process of using administrative decisions, organisation, operational skills, and capacities to implement policies, strategies and coping capacities of the society and communities to lessen the impact of natural hazards and related environmental and technological disasters. These comprise all forms of activities including structural and non- structural measures to avoid (prevention) or to limit (mitigation and preparedness) adverse effects to hazards”. (UNISDR: 2004). For that matter it is better to have a conceptual clarity about stages/phases (key elements) of disaster management cycle.

There are **three key stages** of activities in disaster management:

**Before a disaster (Pre- disaster / advance activities and operations):** to reduce the potential for human, material, or environmental losses caused by hazards and to ensure that these losses are minimised when disaster strikes. It generally concerned with preventive and protective measures e.g. forecasting and early warning.

**During a disaster:** to ensure that the needs and provisions of victims are met to alleviate and minimise suffering; and

**After a disaster:** to achieve rapid and durable recovery which does not reproduce the original vulnerable conditions.

The Disaster Cycle which consists of aforesaid three stages/phases (key elements) embracing disaster management are namely, prevention, mitigation, preparedness, disaster impact, relief, responses, recovery, rehabilitation, reconstruction as well as development. These are inevitable and distinct steps in disaster management.

Here, it is important to understand two major factors firstly, in a particular set of circumstances, the amount of importance, priority and efforts allotted to one activity segment may be small when compared with that given to another activity segment. Secondly, it also not be allowed to give the impression that each activity segment is clearly and precisely divided from adjacent ones. On the contrary, what is more important to understand is that activity segments generally tend to overlap and / or merge. Further, it is worth to note that these two major factors are likely to trigger action in some or all of this segment. These factors may also affect the balance between activities and the priorities allotted to individual activities. Now, main activity segments within disaster cycle are discussed briefly,

### **Prevention**

Prevention is certain activities (action) designed prior to the eruption of the disaster to impede both the occurrence of a disaster event and to prevent such an occurrence having harmful effects on the societies, communities, and key installation even if a disaster occurs. These may include the construction of a dam to control flood waters; proper socio-economic development and participation of communities are ensured along the

disaster management continuum (all the phases of disaster management cycle).

### **Mitigation**

Mitigation refers to action (measures) which usually takes the form of specific programme intended to reduce (minimise) the destructive and disruptive effects of disaster on a nation and community. In this process, the scale of an effect of the hazard, the vulnerable conditions and the potency of a possible future disaster can be prevented, modified or reduced. In fact, with appropriate action and proper spatial planning, municipal management including conflict resolution through addressing issues like land ownership, tenancy rights, wealth distribution, etc. For instance, mitigation measures include the development and application of building codes so as to reduce losses in the event of heavy rains and strong winds associated with a cyclone; proper land use regulation to ensure communities not to develop on the vulnerable sites; developing and applying suitable agricultural programmes aimed at reducing the effects of hazards on crops.

### **Preparedness**

In preparedness process some appropriate steps are designed, initiated and taken prior to disaster event which aims at minimising loss of life, disruption of critical services, and damage when the disaster occurs. It comprises of measures which enables state, institutions, communities and individuals to respond quickly and effectively to disaster situations. It is described as "logistical readiness" and "developing a coping mechanism" to deal with disasters through maintenance of inventories of resources and training of personnel to manage disasters. These can be enhanced by developing long-term and short-term strategies, as well as by developing public education and early warning

systems. Preparedness can also take the form of ensuring that strategic reserves of food, equipment, water, medicines and other essential materials are maintained during the period of such national or local disasters by setting up of organisations for managing disaster situation. For example, it includes formulation & maintenance of valid, up-to-date counter disaster plans; special provisions for emergency action such as the evacuation of populations or their temporary movement to the safe heavens; provision of early warning system; emergency communications; public education and awareness; training programmes including exercises, tests, mock drills, and rehearsal including individual and / or family preparedness.

Hence, preparedness is measure to organise and facilitate timely and effective rescue, relief and rehabilitation in case of disaster.

### **Disaster Impact**

This refers to the real-time event of a hazard occurring and affecting the 'elements at risk'. Disasters brings tremendous modifying impact on the landscape and within a few minutes, an entire region is reduced to rubble. However, impacts can vary between different types of disasters. The duration of the event will depend on the type of threat, for instance, an earthquake may give no warning and its impact time can be short as shaking may only occur for a few seconds but result can be very severe. On the other hand, a flood may take place over a longer period of time and may provide long warning periods and its impact time (i.e. the time during which it has destructive and damaging effects) can be protracted, thereby minimising the adverse effects.

### **Relief**

Relief activities undertaken during and immediately

after a disaster with a purpose to meet the needs of survivors in terms of food, water, shelter and providing medical facilities. For instance, it includes, immediate relief, rescue, damage and needs assessment and debris clearance. Rescue and relief are critical elements of response. Recognition and institutionalisations of voluntary participation of local people to supplement government effort to minimise loss of life. Institutional/ organisational improvements by delegating authority to field agencies, improvements in decision-making and improved communication processes across involved agencies, incorporation of indigenous traditional knowledge on warning signs, a cartographic knowledge of safe and unsafe areas, survival methods, and traditional forms of insurance built around kinship and families.

### **Responses**

Responses refers to measures (activities) that are usually taken immediately after the eruption of the disaster. All such measures are mainly directed towards saving life and protecting property, and to dealing with the immediate disruptions, damage and other effects caused by the disaster. This activity applies to a fairly short period when emergency measures are necessary to deal with the immediate effects of disaster. Search and rescue plans need to be quite clear and that all officials should visualise their role properly during such crisis situation. Basic needs such as shelter, water, food and medical care have to be provided within a clearly planned manner. Typical measures include formulation of contingency plan; implementation of plans; activation of counter disaster system; search, and rescue; provision of emergency food, shelter, medical assistance; survey and assessment; and evacuation measures.

## Recovery

Recovery is the process, after the disaster, by which communities and the nation are assisted in returning to their proper level of functioning after a disaster and implementation of actions to promote sustainable redevelopment in terms of restoration, rehabilitation, reconstruction. It is a process undertaken by a disaster-affected community to fully restore itself to pre-disaster level designed to return life to normal or improved levels after a disaster.

The recovery process may be very long-drawn and takes 5-10 years or even more. The typical activities of this segment include restoration of essential services; provision of temporary housing; measures to assist the physical and psychological rehabilitation of persons who have suffered from the bad effects of disaster; and long-term measures of reconstructions including the replacement of building & infrastructure which have been destroyed by the disaster.

## Rehabilitation

The rehabilitation activities begin after the eruption of the disaster. Rehabilitation activities designed with purpose to support victim by which they can return either to their normal life or re-integrating themselves in regular community functions.

Rehabilitation programmes also include physical, economic, psycho-social rehabilitation through temporary housing and developing public utilities, livelihood support actions, help in finding alternate employment options and psychosocial counselling or medication for those who are traumatised. Some major activities in this regard includes, providing temporary employment and restoration of lost livelihoods; construction and provision of temporary housing and public utilities as interim

measures; and operations of public works programmes.

## Reconstruction

Reconstruction aims to attempt such activities by which communities return to improved pre-disaster situation and functioning. In this process we do not reproduce the similar conditions which made an area prone to more vulnerable in the first place.

For example, it includes the replacement of buildings, infrastructure, lifeline facilities and communication links like roads, bridges to enhance long-term development prospects.

## Development

Development segment provide the link between disaster related activities and national development. Its inclusion in the disaster cycle is intended to ensure that the results of disaster, hazards, vulnerability are effectively reflected in future developmental policies in the interests of overall national progress so that it does not create further disaster problems.

## Conclusion

Thus, disaster management requires strenuous efforts and strong commitment on the part of government officials as well as local volunteer groups and the NGOs. There is an urgent need to develop special skills, techniques, and attitudes on the part of government officials and local groups to deal with various activities concerning disaster management. Education, public awareness and training, in fact constitutes the three important pillars of disaster management policy.

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