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Roopa Kale

Ph.D. Scholar, Shri
Jagdishprasad Jhabarmal
Tibrewala University,
Vidyanagari, Jhunjhunu,
Rajasthan, India

Dr. Anupama Vinay Oka

Associate Professor, KDA
College of Nursing, Andheri
(W), Mumbai, Maharashtra,
India

Corresponding Author:

Roopa Kale

Ph.D. Scholar, Shri
Jagdishprasad Jhabarmal
Tibrewala University,
Vidyanagari, Jhunjhunu,
Rajasthan, India

Disaster management: A review

Roopa Kale and Dr. Anupama Vinay Oka

Abstract

A disaster is not just the occurrence of an event such as an earthquake, flood, conflict, health epidemic or an industrial accident; a disaster occurs that event negatively impacts human populations. Disasters are not confined to a particular part of the world; they can occur anywhere and at any time. Major emergencies and disasters have occurred throughout. India is one of the most disasters prone countries of the world, almost 80 % of India's geographical area is considered at risk to one or more type of natural disaster. Primarily disasters are divided into Natural and Man-made disasters. "Disaster management is a multidisciplinary area in which a wide range of issues that rang, which includes forecasting, warning evacuation, search and rescue, relief, reconstruction and rehabilitation are included. Disasters cannot be prevented but their impact on people's lives can be reduced to a considerable extent. Disaster management covers all aspects of preventive and protective measures, preparedness, rescue, relief, and rehabilitation operations. It is the community that has to respond immediately to any disaster, and hence, a culture of preparedness needs to be inculcated in the minds of citizens.

Keywords: Disaster, natural and manmade disasters, disaster management, rehabilitation

Introduction

A disaster is a consequence of a sudden disastrous event which seriously disrupts the normal function of the society or the community to the extent that it cannot subsist without outside help. A disaster is not just the occurrence of an event such as an earthquake, flood, conflict, health epidemic or an industrial accident; a disaster occurs that event negatively impacts human populations. Disasters are not confined to a particular part of the world; they can occur anywhere and at any time. Major emergencies and disasters have occurred throughout. The world's population grows and resources become more limited, communities are increasingly becoming vulnerable to the hazards that cause disaster.

Background of disaster

National level statistical data

India is one of the most disasters prone countries of the world, almost 80 % of India's geographical area is considered at risk to one or more type of natural disaster. In 2021 Uttarakhand flood, also known as the Chamoli disaster, began on 7 February 2021 in the environs of the Nanda Devi National Park and 72 people were died.

A series of floods took place across the Indian state of Maharashtra in 2021. As of 28 July 2021, around 251 people have died and over 100 are still missing due to floods and landslides. Thirteen districts have been affected in the western Maharashtra.

State and District level statistical data

In 2020 heavy rainfall in Karnataka on 21 Sept caused flooding in other districts of the state including Uttara Kannada, Kalaburagi and Haveri. Flooding struck after heavy rainfall from 19 Sept, affecting the city of Udupi and the surrounding areas. Around 135 people stranded in the floods were rescued by personnel from NDRF. In 2021, Karnataka has seen particularly heavy rainfall from 22 July. Ankola in Uttara Kannada District recorded 541 mm of rain. Thirthahalli in Shimoga district saw 355 mm of rain. In Uttara Kannada district, the Navy teams evacuated 165 people from Singudda and Bhaire villages near Kadra Dam, while 70 people from low lying areas of Kaiga. As of 25 July, 31,360 people had evacuated from low-lying areas across the state. 9 people have died and 3 people were missed. Fatalities were reported in the districts of Uttara Kannada district, Belagavi, and Chikkamagaluru, Dharwad and Kodagu.

Meaning of disaster

The term disaster owes its origin to the French word “Desastre” which is a combination of two words ‘des’ meaning bad and ‘aster’ meaning star. Thus the term refers to ‘Bad or Evil star’.

Disaster

“A disaster can be defined as any occurrence that causes damage, ecological disruption, loss of human life, deterioration of health and health services on a scale, sufficient to warrant an extraordinary response from outside the affected community or area”. (W.H.O.).

Types of Disaster

Primarily disasters are divided into Natural and Man-made disaster.

Natural disasters are large-scale geological or meteorological events that have the potential to cause loss of life or property. These types of disasters include: floods, earthquakes, cyclones, land-slides, volcanic eruptions, tornadoes, fires, hurricanes, snow storms, severe air pollution, epidemics, and nuclear accidents.

Man-made disasters are usually associated with a criminal attack such as an active shooter incident, or a terrorist attack using weapons such as explosive, biological, or chemical agents. However, man-made disasters can also refer to human-based technological incidents, such as a building or bridge collapse, or events related to the manufacture, transportation, storage, and use of hazardous materials.

General effects of disaster

- Loss of life and Injury.
- Damage to and destruction of property.
- Damage to and destruction of production.
- Disruption of lifestyle.
- Loss of livelihood.
- Disruption to essential services.
- Damage to national infrastructure.
- Disruption to governmental systems.
- National economic loss.
- Sociological and psychological after effect.

Common injuries associated with disasters

- Crush injuries, bruises.
- Fracture pelvis, thorax, spine, arms, skull.
- Burns.
- Suffocation.
- Hypothermia.

Disaster Management

“Disaster management is a multidisciplinary area in which a wide range of issues that rang, which includes forecasting, warning evacuation, search and rescue, relief, reconstruction and rehabilitation are included. Disaster Risk Management includes sum total of all activities, programmes and measures which can be taken up before, during and after a disaster with the purpose to avoid a disaster, reduce its impact or recover from its losses.

Objectives of disaster management

- To minimize deaths and losses.
- Minimum level of preparedness & planning can do it.
- Without identification of Risk & vulnerability, only knowledge of hazards is of no use.

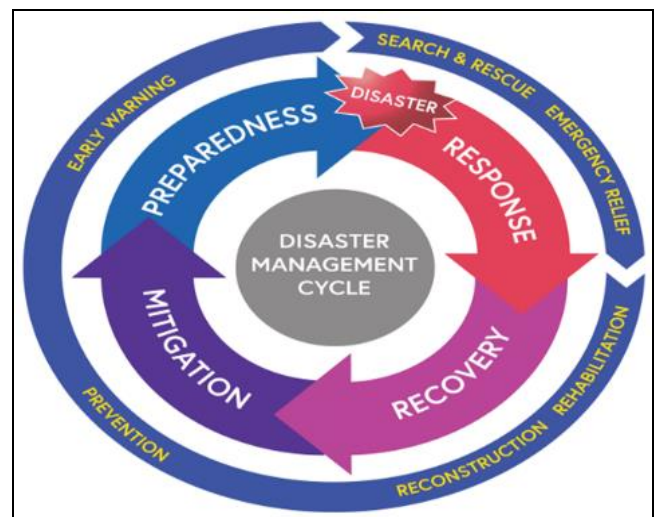
- Normal procedures are insufficient to handle grave situations.

Characteristics of disaster management as follows

- Early Warning, Maps, Satellite inputs, Information Dissemination.
- Evacuation of People and Animals.
- Search and Rescue of People and Animals.
- Medical Care.
- Drinking Water / Dewatering Pumps / Sanitation Facilities / Public Health.
- Food & Essential Supplies.
- Communication.
- Housing and Temporary Shelters.

Phases of disasters management

There are 4 phases in the disaster management.



Phase 1: Mitigation

Phase 2: Preparedness

Phase 3: Response

Phase 4: Recovery

Fig 1: Disaster management

Phase 1: Mitigation

Mitigation means measures to prevent future emergencies and take steps to minimize their effects. The “mitigation” phase occurs before a disaster takes place. Here, an organization will take steps to protect people and property, while also decreasing risks and consequences from a given disaster situation. The main goal is to reduce vulnerability to disaster impacts such as property damage, injuries and loss of life.

Phase 2: Preparedness

Preparedness means measures to take ahead of time to be ready for an emergency. The “preparedness” phase also occurs before a disaster takes place. That is, to predict and where possible prevent them, mitigate their impact on vulnerable populations, and respond to and effectively cope with their consequences. It is a continuous and integrated process resulting from a wide range of activities and resources. The objective of disaster preparedness encompasses increasing the efficiency, effectiveness and impact of disaster emergency response mechanisms at the community, national and Federation level.

Disaster preparedness strategies

- Hazard, risk and vulnerability assessments.
- Response and mechanism strategies.
- Preparedness plans.
- Coordination.
- Information management.
- Early warning system.
- Resource mobilization.
- Public education, training, & rehearsals.
- Community-Based disaster preparedness.

Phase 3: Response

Response means to protect people and property in the wake of an emergency, disaster or crisis. The “response” phase occurs in the immediate aftermath of a disaster. Organizations must focus their attention on addressing immediate threats to people, property and business. Occupant safety and wellbeing largely depends on its preparedness levels before disaster strikes. The most notable example of the response phase is to ensure that people are out of harm.

The response measures will then move on to assess damages, implement disaster response plans, triage clean-up efforts and start resource distribution as necessary. As the response period progresses, focus will typically shift from immediate emergency issues to conducting repairs, restoring utilities, re-establishing operations and cleaning up. The organization will also need to begin planning the reconstruction of damaged infrastructure.

Triage

In mass casualties as in disasters the principle of “first come first treated” may not be feasible. In triage rapid classification of injured is done based on the severity of injuries and their likelihood for survival. In the higher priority granted to victims with higher chance of survival on providing simple intensive care. Seriously injured patients more likely to death are given lowest priority. Ideally local health workers should be educated on “Triage” as a part of disaster training.

Color code system

- Red - High priority of transfer.
- Yellow - Medium priority.
- Green - Ambulatory patients.
- Black – Dead.

Phase 4: Recovery

Means measures to rebuild after a disaster in an effort to return operations back to normal. The “recovery” phase takes place after a disaster. This phase is the restoration of an organization following any impacts from a disaster. By this time, the organization has achieved at least some degree of physical, environmental, economic and social stability. The recovery phase of a disaster can last anywhere from six months to a year or even longer depending on the severity of the incident.

Relief phase

This phase as assistance from external agencies reaching the disaster affected area. This external response could be a national international.

Rehabilitation Phase

This phase involves restoration of Pre-disaster conditions.

Measures involved may be divided into: A Sanitary measures and b. medical measures.

Conclusion

“Disaster is a natural or man-made event that negatively affects life, property, livelihood or industry often resulting in permanent changes to human societies, ecosystems and environment”. Disasters are highly events that cause suffering, deprivation, hardship and even death. Disasters cannot be prevented but their impact on people's lives can be reduced to a considerable extent. Disaster management covers all aspects of preventive and protective measures, preparedness, rescue, relief, and rehabilitation operations. It is the community that has to respond immediately to any disaster, and hence, a culture of preparedness needs to be inculcated in the minds of citizens.

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