

DISASTER MANAGEMENT AND INFORMATION TECHNOLOGY

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ABSTRACT

This paper highlights the role of information technology in disaster management. It briefly discusses the concepts of disaster, disaster management and information technology. Disasters strike countries causing tremendous destruction creating number of human problems and producing negative impacts on national economy. It can be minimized with the help of IT. The author asserts that despite the importance of information technology in disaster management, affected areas are suffering too much from disasters. In this paper attempt has been made to create awareness of application of IT sources like GIS, remote sensing, etc. Nilam hits the coastal area of Tamil Nadu on October 31. It affected Bihar, Jharkhand and Bengal. On the background of this event, author feels that there should be improvement in the application of advanced sources of information technology at the time of such disasters.

INTRODUCTION

Nilam hits the coastal area of Tamil Nadu on October 31. It has weakened gradually and has turned into a low-pressure area and developed cloud cover over Bihar, Jharkhand and Bengal. 22 people have been killed in rain-related incidents in Andhra Pradesh as heavy rains continued to batter several regions under the influence of 'Cyclone Nilam'. While the super cyclone Sandy got the attention of the entire world, Nilam, which hit the Indian East coast, could not attain stardom. But in terms of impact, Sandy and Nilam were almost equal. Y.K. Narasimhamurthy, duty officer at India Meteorology Department, Bangalore, told DNA, "It was clearly an after-effect of the Nilam cyclone, the Cyclonic Circulation is spread over five states of Andhra Pradesh, Tamil Nadu, Karnataka, parts of Kerala and Maharashtra and surely is one of the biggest Cyclonic Circulation in the recent years in terms of size and coverage." Such national disasters strike countries causing tremendous destruction creating number of human problems and producing negative impacts on national economy. It is not possible to avoid the natural disasters, but suffering can be minimized by applying effective disaster management. In such situations role of advanced techniques of information technology such as internet, GIS, Satellite Communication, etc. is important. It will create proper awareness amongst the public as well as decision makers.

Disaster- A Concept

Disaster is an event which threatens society with unwanted consequences. It is associated with disruption of normal pattern of life, negative effects on human life and social structure. It victimizes large number of people and cause social and economical losses. The United Nations defines disaster as, "the occurrence of a sudden or major misfortune which disrupts the basic fabric and normal functioning of society or community"

Disasters are characterized by the scope of an emergency. An emergency becomes a disaster when it exceeds the capability of the local resources to manage it. Disasters often result in great damage, loss, or destruction.

Natural disasters include those unplanned events that occur as a result of natural processes such as earthquakes, tornadoes, tsunamis, freezes, blizzards, extreme heat or cold, drought, or insect infestation. Man-made disasters include chemical disasters, biological disasters and nuclear disasters. In simple terms we can define disaster as a hazard causing heavy loss to life, property and livelihood.

Disaster Management- A Concept

The disaster management is the range of activities to maintain control over disaster and provide a framework to help, avoid or recover from the impact of the disaster. Disaster management includes Prevention, Mitigation, Preparedness, Response, Recovery and Rehabilitation. Disaster management involves all levels of government. All government, nongovernmental and community-based organizations play a vital role in the process. Modern disaster management goes beyond post-disaster assistance. It now includes pre-disaster planning and preparedness activities, organizational planning, training, information management and public relations

Information Technology- A Concept

Information Technology Association of America defines information technology (IT) as "the study, design, development, application, implementation, support or management of computer-based information systems",] but the term has also been applied more narrowly to describe a branch of engineering dealing with the use of computers and telecommunications equipment to store, retrieve, transmit and manipulate data. Although commonly used to refer to computers and computer networks, IT encompasses other information-distribution technologies such as television and telephones. Information Technology deals with computer applications. The common work environment today is totally dependent on computers. Information technology leads to storage and protection of content, processing and transmitting of dedicated information and the secured retrieval of information, when and as required.

Role of Information Technology in Disaster Management

IT is changing every aspect of human life. it enhances the quality and effectiveness of trade, manufacturing, services , other aspects of human life such as education, research , culture, entertainment, communication, national security, etc. Disaster management needs drastic improvements in its sources to decrease damage and save the life of people. To achieve this main object, disaster management has to face challenges for data collection, data management, translation integration and communication. IT pays crucial role in this respect.

The advanced techniques of information technology such as remote sensing, satellite communication, GIS, etc. can help in planning and implementation of disaster management.

Application of Information Technology in Disaster Management

Natural disasters and its effects can be minimized with the help of recent tools of information technology. GIS, remote sensing and internet can of immense use. Following are the areas of disaster where recent techniques of electronic communication can be used.

- Drought: advanced tools of information technology such as GIS, remote sensing can be used in drought area. It will help to plan for organizing relief work. It can be used to locate, assess, and monitor drought conditions of specific areas.
- Flood: GIS, remote sensing can be used in flood area for mappings and monitoring flood areas, damage conditions and other flood effects. It can also be used to conduct post flood surveys. Flood forecast and warnings can be used to alert public and for taking appropriate actions
- Landslide: Electronic tools can be used to provide help concerning location, extent of slop area to be affected and trend of mass movement of the slop mass.
- Earthquake: An earthquake (also known as a quake or tremor) is a violent movement of the rocks in the earth's crust. This creates seismic waves, waves of energy that travel through the Earth. GIS and remote sensing can be used for preparing hazards maps in order to assess the nature of risk.
- Cyclone: A cyclone is a storm accompanied by high speed whistling and howling winds. It brings torrential rains. A cyclone causes heavy floods. It uproots electricity supply and telecommunication lines. Road and rail movements come to halt. Ships overturn Winds bends and plucks out trees and plants. Houses collapse. Bridges, dams and embankments suffer serious damages. There can be outbreak of diseases like Cholera, Jaundice or Viral fever. Advanced techniques like, GIS, remote sensing tools can be used to identify the vulnerable population with the single hazard component. These tools can be used to calculate state level population affected by different type of storms. But, calculating vulnerability by GIS with multiple hazards and coping capacity is not easy job for decision makers.

CONCLUSION

Disaster management activities depend on large volumes of accurate, relevant, on-time geo-information that various organizations systematically create and maintain. The Advanced sources of information technology can be used to minimize the effects of disasters.

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