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Research Article

ANALYSIS OF TECHNOLOGY IN DISASTER MANAGEMENT IN INDIA

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ABSTRACT

Every passing year is marked with one or more catastrophic disaster in world. Natural disasters results in adverse consequences as loss of life, property and economic disruptions. India is vulnerable, in varying degrees, to a large number of disasters. To manage such crisis situation during disasters, there is requirement of dissemination of timely information and knowledge. New emerging technologies are important tool to deal with such situations. This paper analyze role of Geological Information System (GIS) in disaster management. Increased usage of such technology can be effective in disaster management.

Key Words:

Disaster management, technology,
information

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INTRODUCTION

Natural disaster is defined as “a serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources” (ISDR, 2009). Disaster is a broad term that can include rapid-onset natural hazards such as cyclones and earthquakes, or slower ‘creeping crisis’ such as drought, famine, or disease (De Paratesi, 1989). India is vulnerable, in varying degrees, to a large number of disasters. According to National Disaster Management Authority of India, more than 58.6 per cent of the landmass is prone to earthquakes of moderate to very high intensity; over 40 million hectares (12%) of its land is prone to floods and river erosion; close to 5,700 kms, out of the 7,516 kms long coastline is prone to cyclones and tsunamis; 68% of its cultivable area is vulnerable to droughts; and, its hilly areas are at risk from landslides and avalanches. India is further considered to be vulnerable to disasters due to changing demographics and socio-economic conditions, unplanned urbanization, development within high-risk zones, environmental degradation, climate change, geological hazards, epidemics and pandemics. Disasters pose serious threat to India’s economy, its population and sustainable development.

Disaster management is comprehensive step-wise process to deal with natural calamities. In India, disaster management is done by the process of planning, mitigation, preparedness,

response and recovery. Planning include identifying any possible disaster and its likely consequences on society. In mitigation phase, long-term strategies are designed to reduce effects of unavoidable natural disaster. In the preparedness phase, governments, organizations, and individuals develop plans to save lives and minimize disaster damage. Response is the phase which is followed after disaster to stabilize the situation by providing emergency assistance. Recovery is planned short-term and long-term activities to restore life to normal in the affected area. Planning of disaster management steps requires comprehensive information. There is emerging need to compile accurate data on risk assessment of different regions in India.

Geographic information technology (GIS)

Disaster management requires timely decision making by policy makers. One approach of disaster managers is to incorporate Geographic information technology tools like Geographic Information Systems (GIS) and Remote sensing (RS) in effective preparedness, communication and training tool for disaster management. Such techniques make it possible to obtain and distribute information rapidly over large areas by means of sensors operating in several spectral bands, mounted on aircraft or satellites.

GIS technology is based on usage of satellite which orbits the Earth. Satellite during its orbit explore earth’s surface at regular intervals. For detailed information of a smaller area, an aircraft

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can be associated with GIS technology. The spectral bands used by these sensors cover the whole range between visible and microwaves. Observations from satellites can be processed through Remote Sensing (RS) in a spatial format of maps-both individually and along with tabular data and “crunch” them together to provide a new perception-the spatial visualization of information of natural resources (Jeyaseelan, 2003).

Disaster planning using GIS Modeling allows disaster managers to effectively gauge impact of disaster. It helps them in analyzing scope of a disaster, vulnerability of people and options for resource management during natural disasters. The specific GIS applications in the field of risk assessment are:- Hazard Mapping-Threat Maps-Disaster Management- Records Management. GIS and Remote Sensing have wide application in various disasters. GIS technology is crucial to prepare seismic hazard maps for earthquakes. GIS also has wide application in identification of the social vulnerability with the single hazard component during cyclone (Kamal, 2015).

CONCLUSION

Thus it can be concluded that disaster management in India requires accurate information for effective disaster management plans. Geographic Information System is emerging technology which can accurately assess vulnerability of population to disaster.

It can be useful tool for developing seismic maps and flood risk maps for different regions in India. Such technology should be further improved and used as a tool in disaster management strategies. Regional information based on GIS technology should be compiled into comprehensive national level disaster management plans.

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