

Natural Disasters, Social Vulnerability and Conflict in North East India

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Introduction

Disasters are as old as human history, but what is most alarming to the humanity today is the extreme rapidity with which such disastrous events are being repeated in recent times, more particularly in the vulnerable areas of South-East Asia. A disaster is a result from the combination of hazard, vulnerability and insufficient capacity or measures to reduce the potential chance of risk. A disaster happens when hazard impacts on the vulnerable population and causes damage, casualties and disruption. Any hazard such as flood, earthquake or cyclone may lead to disaster causing greater loss to life and property. Natural disasters are generally considered as a coincidence between natural hazards and conditions of vulnerability. There is a high risk of disaster when natural hazards occur in vulnerable situation (Maskrey 1989). Vulnerability aspects of the national disasters can be explained from two perspectives. One is, disasters are characteristics of natural hazards and the other views disasters as the characteristics not of hazards but of socio-economic and political structure and processes. Although, the socio-economic conditions of the people and political processes, to a great extent, determine the intensity of the impact, but the local specificity of vulnerability in areas which suffer different hazards has also to be noted. In 'natural' disasters, a geophysical or biological event is clearly implicated in some way in causing it. Yet, even where such natural hazards appear to be directly linked to the loss of life and damage to property, the social, economic, and political origins of disaster remain at the root causes (Davis 1994).

Vulnerability may be defined as the extent to which community, structure, services or geographic area are likely to be damaged or disrupted by the impact of a particular hazard, on account of their nature, construction and proximity to hazardous terrains or a disaster prone area. The degree to which a population is affected by a hazard will not merely lie in the physical components of vulnerability, but also on the socio economic positions. We find some groups of people in society are more prone than others to damage, loss and suffering in the context of different hazards. These variations of impact include class, ethnicity, gender, disability, age or seniority. In this paper an attempt is made to uncover the deeply rooted nature of vulnerability to disaster of different social groups in North east India .

Disaster Scenario in NE India

The North Eastern Region of India is characterized by a unique physical setting dominated by extremely dynamic earth processes, intensely powerful monsoon rainfall system, active seismicity and a rich biological and cultural diversity. This region of India and adjoining parts of Myanmar, China, Bhutan, and Bangladesh comprise one of the most active seismic regions of the world frequently rocked by earthquakes. The earthquakes of 1897 and 1950 - both of magnitude 8.7, that occurred in this region are among the largest in the world. These earthquakes cause widespread damage and destruction of public property and loss of life, besides triggering extensive landslides on the hill slopes, subsidence and fissuring in the valley, and changes in the course and configuration of tributary rivers as well as the main stream of the Brahmaputra river. The Brahmaputra is a major international river of the world that drains a vast area spread over parts of China(50.5%), India(33.6%), Bhutan(7.8%) and Bangladesh(8.1%) covering a total basin area of 580,000 sq.km. The Indian part of the basin is shared by Arunachal Pradesh(41.9%), Assam(36.3), Meghalaya(6.1), Nagaland(5.6%), Sikkim(3.8%) and West Bengal(6.3%). The river not only carries an immense water resources potential (estimated at 33% of the country's total) but its vast watershed is also endowed with an exceedingly rich biodiversity. Besides it also symbolizes extreme manifestation of nature's fury in the form of devastating flood and erosion hazards that create annual havoc of death and destruction for millions living in its valley in India and Bangladesh. The distinctive physical setting of the region vis a vis the eastern Himalayas, the highly powerful monsoon system, weak geology, active seismicity, accelerated erosion, rapid channel changes, widespread deforestation, intense land-use pressure and high population growth, especially in the floodplain belt, and adhoc type temporary flood control measures are some of the primary factors that intensify the flood hazard leading to disasters. The scenario is further aggravated by a multitude of social, environmental and economic factors that make riverine populations increasingly vulnerable. A number of ethnic communities such as the Mishings live in the riverine areas and are often exposed to the annual ravage of flood hazards. Sand deposition caused as a result of flooding and erosion has become a serious hazard in many riverine areas in the North-East, particularly in the Brahmaputra valley in Assam. Deposition of coarse sands by rivers has damaged large tracts of productive cropland, human habitats and infrastructural facilities causing considerable loss of property and misery to the people and huge cost to the exchequer.

Landslide is another dominant hazard in the North-east region, especially in the populated hill slopes in and around the urban centers and along the hill sections of highways. The principal factors that are responsible for triggering landslide hazard in the Northeastern region are heavy and

prolonged rainfall, destabilization of hill slopes by removal of soil and vegetation cover for settlement and infrastructure development or due to deforestation, impact of earthquake tremors, and increased land-use pressure. The increased frequency of occurrence of massive cloudbursts (localized systems of intensely powerful rainfall events of limited duration) followed by flash floods and large landslides are some of the alarming hazards in the region.

Disaster Management Perspectives :

Disaster management in a highly vulnerable region like the Northeast with its exceptionally dynamic and sensitive physical, ecological, socio-economic and ethno-cultural character is no doubt a serious challenge. The problem becomes more complex in view of the multi-hazard character of the region where communities are exposed mainly to hazards that are interacting in nature. Presence of socially vulnerable groups and marginalized communities, slow pace of economic growth, increasing rate of population , underutilization of natural resources, institutional and systemic inadequacies are some of the aspects that shape the hazard scenario in the region. In the face of the inherent complexities and challenges involved, there needs to be a sustained effort towards making the Northeastern region less susceptible to disaster related risks so that a reasonable measure of safety and security can be provided to the people and the various ecological, socio-economic and cultural systems that support them. In order to accomplish this difficult task, a holistic and integrated approach in the management of hazards with a shift in emphasis from the traditional relief-driven to a more desirable preparedness-driven approach has to be adopted. Besides, effective use of traditional and local knowledge base, generation of awareness, participation and capacity building of various stake holders, data and information sharing at regional/ trans boundary levels should be adopted as essential components. With regard to flood hazard management in the region, there appears to be a strong case in favour of basinwise integrated water management strategy based on the principles of water and soil conservation and sustainable development as against the adhoc type, short term structural measures adopted so far. Proper assessment and reduction of vulnerability, empowering local populations, strengthening existing institutions and appropriate reorientation of policies are essential for disaster management in the region. In case of the Brahmaputra and Barak basins of Assam with their diverse background of natural and human heritage and vast resource base, such a plan may contribute immensely towards ensuring food, health and ecological security of the region besides providing safeguard against damaging impact of hazards. As a long term strategy for hazard management and resource utilization, a careful blend of structural and non-structural measures with an emphasis on the latter should form the core of the watershed-based regional plan for resource management and hazard reduction. Being an international river of immense

size, huge resource base and high hazard potential, only effective cooperation and coordination among the basin countries will be able to create an effective response mechanism to the problems of flood and erosion hazards and bring about an era of progress and prosperity to the region (Goswami,2009)

In the case of the scores of large dams that are currently in various stages of planning and development in the lower Himalayan sector of the NE region, basically for hydropower development, there is growing concern about the possible negative impact of such large structural interventions on delicate natural systems like the Himalayan basin of the Brahmaputra in terms of their viability and sustainability in the background of existing physical, social and economic conditions. The downstream riparian states like Assam face a serious challenge from these new developments in the eastern Himalayas. Interstate as well as transboundary river waters and related disasters appear to be the most potential breeding ground for discord and conflict in the region, the rumblings of which sound increasingly louder in recent times.

Increased Public awareness, improved scientific knowledge base and education on disasters and their management, sophisticated research and development infrastructure in the region will go a long way in creating better preparedness and mitigation in regard to any impending disaster in the region. Understanding the determinants of vulnerability requires insights from a range of disciplines across the natural and social sciences. Research on environmental insecurity can reduce uncertainty about the human dimension of disasters impacts in the region and can enhance knowledge of potential adaptation strategies to avoid human insecurity as well as increased risk of violent conflict.