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A Theoretical Review on Natural Hazard: An Anthropocentric Approach

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Abstract

Natural hazard is result of the conflict between geographical and geophysical processes with human. This interpretation gives a central role. First, through location, because it is only when people, their possession and what they value get in the way of natural processes that a risk of disaster exist. Second, through a general perception, human place a subjective judgment on natural processes as a part of general environment appraisal whenever they settle and use land. From the begging of human civilization, natural hazard have also been seen as 'Act of God'. Because of this the approach indicates that humans have no part to play in creating disaster, it implies they have little hope of mitigating them. Since the earth is a highly dynamic planet, most natural event show a wide range of variation through time in the use of energy and material for environmental processes. This perspective has not been helpful. It fails to recognize the threat in some way. The outer limit of this behaviour is called extremes and certain statistical measures notably magnitude- frequency relationship is used to describe such extremes. But extreme natural event are not considered disaster unless they cause large scale death and damage to humans.

Keywords: *Natural hazard, human, environmental process, disaster, damage*

Introduction

The term environmental hazard has the advantage of including both natural and human dimensions. It is also implies a spectrum of hazard type. Some attempts can also made to scale of hazard according to whether the impacts are also intense or local or diffuse and widespread within the society. Defining environmental hazard is a difficult task. Much of the disaster literature especially that written by geographers has concentrated on natural hazard which is defined by Burton and Kates (1964a) as those elements of physical environment harmful to man and caused by the forces extraneous to him. The extent to which hazards are voluntary are particularly important. The role of humans in any hazardous event seemingly obvious truth has long been recognized by some research workers. In early 20th century awareness of environmental hazard has well documented by a new generation of text books (Bryant 1991, Alexander 1993, Cutter 1993, Blaikie et al 1994).

Dynamic Concept of Hazard

Traditional concepts of natural event has been considered as hazard from an economical framework (Smith 1998). This differentiates between natural events and their interpretation as natural hazards. Since the earth is a highly dynamic planet, most natural event show a wide range of variation through time in the use of energy and material for environmental processes. The outer limit of this behaviour is called extremes and some statistical measures particularly, the hazard magnitude- frequency of hazard relationship is used to describe such extreme events. But extreme natural event are not considered or hazard disaster unless they cause large scale death and damage to humans.

From other views many hazards phenomena simply represent of a distribution of event that in a slightly different context would be regarded as a resource. This anthropocentric interpretation of hazard is well illustrated in the many hazard studies.

There is only often a fine line between environmental hazard and environmental resources for example between water out of control (flood hazard) water under control (reservoir resources). In reality

the weather is neither benign nor hostile. It is natural and it is only human location, action and perception, which identify resources and hazard within the range of natural event (Burton et al 1993). Within this range it is only a very high fraction of magnitude of geophysical events that create disaster. Geophysical setting can influence the impact associated with a particular hazard.

Human sensitivity to environmental hazards represents a combination of physical exposure and human vulnerability. Human population is most vulnerable on the margins of tolerance where small physical changes may create large socio-economic impact. However the threshold may not always be sharp boundary and it is most likely that the relation between event intensity and hazard impact will be linear once the demand threshold has been crossed.

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Many working definition like environmental hazards, extreme geophysical events, biological processes and major technological accidents characterized by concentrated release of energy or material which cause an unexpected threat to human life and can cause significant damage to goods and environment. In 1989 by the United Nations General Assembly declaring the 1990's International Decade for Natural Disaster Reduction (IDNDR) to reduce the losses from natural hazards. This was as an international action especially in developing countries to focus on the reduction of loss of life and damage to property caused by natural hazard and disaster such as earthquakes, windstorms, tsunamis floods, landslides volcanic eruption, wild fires, grasshoppers and locust infestation, drought and desertification and other calamities of natural origin

Human Response to Hazard

Most previous classification of hazard has been dominated by geophysical processes. It has also been useful to emphasize the impact of single element such as wind speed and rainfall, because it is relatively easy to do. In practice most severe hazard arises from compound or synergistic effects, as wind combined with snow to produce a blizzard or earthquakes set of landslides in steep terrain. The volcanic eruption of Mount St. Helens, U.S.A. in 1980 led to ash fall, landslides, floods and wild fires. Alternatively natural hazard can be divided into those of endogenous earth origin (such as earthquake and volcanic hazard) and of exogenous earth origin (such as flood, drought and avalanches). Such physically bound classification have limitations for disaster study although Hewitt and Burton itemized a variety of factors relating to damaging geophysical event which are not process specific.

This conveys a better idea of social stress created by disaster. Although no threshold or scale is given. It implies a major incident requiring the mobilization of emergency services. In a more widespread events the performance of emergency services is likely to be an important factor in mitigating loss.

Although community loss is a major characteristics of disaster, all this definitions ignore the fact that in virtually every disaster some gains also arises. According to Smith (1998), it is necessary to categorize hazard impact on the basis of gains and losses experienced from any event.

This concept of hazard was adopted from the subject of palaeontology by those geomorphologists anxious to recognize the significance of large rare events in modelling the landscapes. Physical geographers also saw a need to make their work more relevant to human affairs and natural hazard became a strong focus for the study of the relationship between the nature and society. Third, there was a growing believe that some of the apparent inability to cope with the hazard lay in differences between the real world and how it was viewed in practice by managers and decision makers. In turn this gave momentum to the research on environmental hazards perception already began by some human geographers (Smith 1998).

As for example, all streams are subject to flooding in the hydrological sense of inundation of riparian areas by stream flow which exceeds bank full capacity. The point at which the channel discharges an overbank surplus and causing damage to property or human activities. Floods are most universally experienced natural hazard, tend to be larger in spatial impact and involve greater loss of life than the other hazards. Floods can occur on both perennial and ephemeral stream beds. But human are attracted to settle in flood hazard prone areas by the beneficial conditions like water supply, flood plain terrain, and fertile alluvial land – which contribute to the damage potential.

The flood hazard comprises many aspects including structural and erosional damage, loss of life and property, contamination of floods, water and other materials, disruption of socio-economic activity including transport and communications and spoiling of agricultural land. Human response to any hazardous event is determined partly by nature of hazard or is the result of joint interaction between physical and socio-economic processes and partly by the characteristics of the decision maker like an individual i.e. farmer or Government officials, industrial worker etc. The extreme response to the flood hazard are, on the one hand, haphazard development of floodplains and flood –prone coastal areas, thereby inviting considerable damage, suffering and loss of life and on the other hand the complete abandonment of these areas which would clearly represent gross waste of valuable resources (Bue 1967).

Conclusion

Any natural event only became a hazard when it impinge unfavourably upon human activity, and this hazard must therefore be considered not simply as a physical but also as a socio- economic phenomenon. The costs of alleviating hardships and safeguarding health during a hazard, the money spent to reduce losses by the erection of temporary barriers or removal of goods, social dislocations and distress, airports temporarily out of service and added costs of rerouting rail and highway on longer detours are other form of indirect loss. Loss form any hazardous event brings unending miseries and distress to the people. Fruitful managerial strategies will be helpful for the reduction of community loss and detrimental effect of h hazard and disaster.

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