

Disaster Management in High Risk Regions: A Case Study of the Indian Himalayas Region

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ABSTRACT

The occurrence of several cases of natural disaster and its impact on high-risk regions remains an issue that continues to attract continued research, most especially from a global perspective. Despite the devastating impact of several known natural phenomenon such as flooding, tsunamis, earthquakes, glaciers and tornadoes, there seem not to be well-structured disaster management approach from stakeholders in high-risk disaster-prone regions to cope with eventual disaster cases. The Indian Himalayan region under review within this research article has been conducted investigated, and a review on how the build of poorly constructed residences have impacted the lives of people living within this region. This article addresses this problem in a line with well-structured thematic sections that examines community resilience, effective stakeholder communication and community preparedness can result in effective disaster management approach.

KEYWORDS

Climate Change, Community Resilience, Disaster, Disaster Management, Indian Himalayas, Poorly Constructed Residential Buildings

INTRODUCTION

The concepts of sustainable development and resilience are sometimes used interchangeably (Farsi et al., 2017; Hosseinian-Far & Jahankhani, 2015), and have routes in disaster management as a subject area. The concept of resilience refers to the ability of a system to sustain its operation when affected by external forces. The same concept applies within the context of resilience to disasters. After the disastrous Tsunami that hit the Indian Ocean region in December 2004 (Suppasri et al., 2015), there has been an increased sensitization in recent years on the likely damaging impacts of tsunamis (Older, 2015) and several life-threatening natural events (Stephan et al., 2017). Communities along the coastal lines are the most vulnerable to naturally induced disaster situations (Mallick et al., 2017) partly due to climate change (Aliagha et al., 2015) and some unnatural causes resulting from human activities on their environment (Noy, 2015). However, research in the area of disaster management is becoming

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intensified, as global development agencies are focused on formulating relief frameworks and actions (Managi and Guan, 2017) to prevent the adverse impact of natural disasters (Witvorapong et al., 2015).

Intriguingly, over the past decade, there have been a rise in the number of natural disasters across the world (Cassar et al., 2017). Figures released by the Emergency Events Database (EM-DAT) in 2018 indicates a 62.9% increase in global disaster rates, with death tolls margin around 84.3% (Auzzir et al., 2018) resulting to economic damage of about 120% in the same year (Lahai and Lahai, 2019). An average of 32.3 million people around the world was displaced by disasters associated with weather or climate changes (Hossain, 2015).

Statistics from 2012 showed that the global disaster levels rose by approximately 2.4% against the preceding year (Jeppesen et al., 2015), this was majorly attributed to weather-related events (Kelman et al., 2016). The mortality index ratio for people residing in high-risk disaster-prone regions has also increased in recent times (Wong et al., 2016). Finding between the late '80s and a decade of a millennium confirms that in Canada, there was at least 41.9% known incidents of floods and 31.8% resulting from wildfire (Townshend et al., 2015). However, incorporating a modern approach to managing disaster and it's after effect poses a huge concern to stakeholders across the world (Ferraro and George, 2016). The adverse impact of global warming and climate change (Johnson et al., 2018) on the ecosystem further stresses the demand for the adoption of preventive measures to alleviate future catastrophes (Cutter et al., 2013; Shao, 2016; Hosseinian-Far et al., 2011; Hosseinian-Far et al., 2010).

Over the years, several natural events have resulted in individuals and communities being exposed and prone to disaster situations (Alfred et al., 2015; Ostadtaghizadeh et al., 2016; Linnenluecke and McKnight, 2017). This level of vulnerability which has been widely researched area examines the extent of susceptibility of a defined group, society or community (Bergstrand et al., 2015; Gil-Rivas and Kilmer, 2016) to natural disasters (Maikhuri et al., 2017; Kang and Skidmore, 2018) and accessing their response framework (Himes-Cornell et al., 2018; Serfilippi and Ramnath, 2018).

It is believed that decades of social ideals and routine practices (Cretney, 2016; Rogers et al., 2016) have played significant roles in helping communities cope with their vulnerability to known devastating natural catastrophes (Manning et al., 2015; Weichselgartner and Kelman, 2015; Kelman et al., 2016). This further establishes the fact that in order to survive (Misanya and Øyhus, 2015; Landry et al., 2016), it is imperative that residents in hazard-prone communities unite (Baytiyeh, 2017; Ramos-Castillo et al., 2017) as multiple factors such as marginalization (McKinnon et al., 2016) and inadequate access to resources (Deen, 2015; Dumenu and Obeng, 2016) as an individualistic approach could prove insufficient (Lowe et al., 2015; Tint et al., 2015).

In recent times, there have been increased global concerns over the Himalayan region which has often been hit by series of natural and anthropogenic calamities (Malik et al., 2016; Agnihotri et al., 2017; Haq et al., 2019) thereby making it one of the most disaster-prone regions in this modern era (Elalem and Pal, 2015; Shrestha et al., 2015; Stanley and Kirschbaum, 2017). Also, the influence of global warming within the Himalayas has impacted negatively on the region (Li et al., 2016; Sigdel et al., 2018) resulting in glacial retreats and unpredictable seasons (Gao et al., 2016; Kattel et al., 2017; You et al., 2017). Understanding the interconnectivity between people and their natural environment has remained a much-explored topic of intensive academic and practical research discussion for many decades (Oken et al., 2015). The conceptualisation of this interaction gives a clear insight into the perceived affinity people have regarding their environment. However, this supposed relationship between humans and their environment could be impacted by notable change such as rise in sea levels, wetland loss, desertification (Silver and Grek-Martin, 2015).

Above and beyond the recurrent reports of forest fires and environmental degradation that has characterised the Himalayan regions (Bali et al., 2017), subjective disaster cases of massive flash flooding in 2013 which wrecked the Kedarnath valley of Uttarakhand (Shekhar et al., 2015). This led to the devastating loss of life and property, one that was documented as the biggest disaster in the history of the Indian Himalayan region (Mehta et al., 2016). Although, previous research around the region have revealed that 90% of the disasters recorded in the Indian Himalayan region

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