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Editors

Climate Change, Disaster and Adaptations

Contextualising Human Responses to Ecological Change

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About the Editors

Azizur Rahman Siddiqui is professor and head, Department of Geography, University of Allahabad. Having finished his BSc, MSc, MPhil, and PhD degrees from Aligarh Muslim University, Aligarh, Prof Siddiqui first joined Chaudhary Charan Singh University, Meerut, in the year 1999 as lecturer and later the University of Allahabad in 2001. Prof Siddiqui has completed NNRMS training course and three international training programmes sponsored by the United Nations. He has also obtained postgraduate diploma in geo-information science with specialisation in geo-hazards from IIRS, Dehradun, and ITC, the Netherlands. His specialisation is in arid zone research, urban environment issues, and application of remote sensing and GIS in land degradation studies. From 2016, he has served as the secretary of Indian Institute of Geomorphologists (IGI). Prof Siddiqui has visited France, Russia, China, Belgium, the Netherlands, Switzerland, Italy, Austria, Greece, and Nepal for academic purposes and is a recipient of an excellence award in the year 2018 by the University of Allahabad.

Avijit Sahay is currently a postdoctoral scholar in the Department of Humanities and Social Sciences, Indian Institute of Technology Bombay. He did his PhD on riverbank erosion in Majuli Island of Assam in the Department of Geography, University of Allahabad, Allahabad. His works on Majuli Island have been presented in international conferences and published in national and international journals. He is also associate editor of *the Oriental Anthropologist* – an international journal of the science of man and now published by SAGE Publications.

1 Introduction: Resilience, Adaptation, and Migration – Exploring the Range of Human Response to Climatic Change

Avijit Sahay and Azizur Rahman Siddiqui

Introduction

Climate change and extreme natural events have become a major problem across the globe. The capacity of societies to adapt to such changes in the environment is called resilience, but sometimes, extreme natural events make settlements inhospitable, unproductive, and uninhabitable, which lead to abandonment of settlement and therefore, cause mass migration of populations (Hugo, 2010; Adamo & de Sherbinin, 2011; McLeman, 2011; Wrathall, 2012; Ferris, 2020). Such environment-induced migration is most pronounced in developing regions of the world as high disaster risk and a general poverty of the population have rendered societies increasingly vulnerable to climate change. The problem has got exacerbated with the recent multiple earthquake events in Himalayan region, extreme cyclones in the tropics, and the continuing riverbank erosion of Brahmaputra in India and Bangladesh.

Resilience and adaptation are inter-related concepts used in climate science and disaster studies to describe the capacity of a society to adjust to changing environment. Relationships between the two terms have been subject of extensive academic research (Adger, 2006; Folke, 2006; Berkes, 2007; Kuenzer et al., 2020), and they have been explored to understand the linkages between vulnerability and adaptive capacity in global change science (Gallopín, 2006; Vogel et al., 2007; Lei et al., 2013). Other works have focused on the nexus of vulnerability, resilience, and adaptation to integrate sustainability studies within a coupled human-environment system (Turner II, 2010; Endfield, 2012).

While linkages between resilience and adaptation are well established, there is an understanding that migration is the result of low adaptation capacity (Klepp, 2017; Kaczan & Orgill-Meyer, 2020). Such simplistic explanation of migration fails to interpret that in certain situations, in situ adaptation to climatic and environmental change becomes prohibitive and thus, the only adaptive strategy available to affected communities is migration. This is especially true in the case of slow-onset hazards and displacement of population in the context of climate change. Slow-onset disasters refer to environmental degradation processes such as droughts and desertification, increased salinisation, rising sea levels, or thawing of permafrost. Each of these is related to climate change and causes progressive degradation of land to the limit that it causes the carrying capacity of a place to diminish and thus, human habitation becomes challenging.

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