

EDITORIAL

# Editorial to the special issue on environment and population dynamics in South Asia

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In the last few decades (particularly after 1950), the world's population doubled from three billion to six billion-plus population. This increased the pressure on land use and resource depletion continued. Further, it fuelled with habitat destruction, loss of biodiversity, water scarcity and water pollution, air pollution, global warming, and climate change across the globe.

Climate change is a global trend impacting both developed and developing nations, ranging from wealthy to poor, marginalized communities from women, infants, the disabled to the elderly population. The World Health Organization (2018) notified that all populations will be affected by climate change, but some are more vulnerable than others, and areas with poor health systems – mostly in developing countries – would be the least likely to cope without preparedness assistance. South Asia is predicted as one of the worst affected regions from global warming and climate change because of geophysical factors and socio-economic and -demographic backwardness. The area is home to around 1.8 billion people in the world and a portion of the world's poor. The UN estimates that the population of the region will grow by 40% by 2050 (United Nations, 2019). It would have a very strong effect on the agriculture sector across countries in South Asia. The vast reliance of life on agriculture and natural resources makes this region's communities very vulnerable to climate change. South Asia is gravely threatened by rising sea levels and the growing occurrence of severe climate events such as floods, droughts, cyclones, storms, earthquakes, and monsoon irregularities. Countries in the Greater Himalayan Region, including Bangladesh, Bhutan, Northern India, and Nepal, are facing increased frequency and magnitude of severe weather events resulting in floods, landslides, property and infrastructure destruction, agricultural crop degradation, reduction in hydropower generation, and adverse human health impacts (Asian Development Bank, 2015). The coastal regions of Bangladesh, India, the Maldives, and Sri Lanka are at high risk from the expected rise in sea level, which could lead to the displacement of human settlements, the loss of agricultural land and wetlands, intrusion of saltwater, and negative impacts on tourism and fisheries. Agriculture is one of the most important sectors in South Asia. It provides stable food sources, income and livelihoods, and a social safety net for rural populations.

Large sections of the population of South Asian region lack basic human needs such as sufficient food and nutrition, clean water, adequate shelter, and access to education and health care. However, the current changing environment and frequent occurrence of extreme weather events posing a serious challenge to socioeconomic development, food security, livelihoods and health hazards among the population in the region along with the resilience mechanisms. Improved understanding of the impacts of climate change in agriculture and adaptation practices to cope with these impacts of climate change and natural disasters are therefore necessary to enhance agriculture's sustainability and to develop policies that reduce the vulnerability of poor farmers to climate change at South Asia. Hence, it is necessary to investigate these issues through the lenses of research, which may help in formulating better policies and programs at the local and regional level. We herein have invited researchers from the international community working in the areas of environment, climate change,

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and population dynamics to contribute to this special issue on “Environment and Population Dynamics in South Asia.” This special issue has broadly covered the issues related to population dynamics and its relationship with various environmental issues (but may not limit to) such as climate change and resilience, natural disasters, disaster management, waste management, WASH, urbanization and air pollution, climate change and migration, and climate change and public health.

The first research article authored by Patel *et al.* explored the effects of, and resilience to, cyclones, floods, droughts, and heatwaves in Odisha, India, and identifies government strategies that help mitigate these natural disasters. The findings described that the impacts of natural disasters are calamitous – affected the communities in a different way, particularly on livelihoods, food security, health, water, and sanitation. There is an urgent need to focus on reducing people’s underlying vulnerabilities by taking proactive measures, engaging the community in decision-making, and generating alternative and sustainable livelihoods. The second research article authored by Patel and Pradhan aimed to estimate urban exposure level and examine the inequalities in the availability of infrastructure and the provision of services in million-plus cities in India by using the data from the 2011 Census for 40 million-plus cities. This study pointed out that population, health, educational infrastructure, and built environments contributed the most to the inequalities in a million plus cities. Unless addressed urgently, these inequalities in infrastructure and services will affect the sustainability of these million-plus cities and may hinder the country’s achievement of Sustainable Development Goal (SDG) 13 on climate change. The third research article authored by Acharya and Das attempted to comprehend the impact of climate vulnerability on household nutrition status through agriculture production systems in Odisha, India. The study suggested that climate vulnerability has a much greater role in influencing household nutrition status, particularly with women and child nutrition through the agriculture production system. Appropriate policy level measures for climate-sensitive and adaptive action are the need of the hour to make agriculture production ecosystem contributes positively to nutrition status. The fourth research article authored by Taneja and Taneja tried to draw important lessons and a deeper understanding of issues and challenges in planning and implementing scientifically simulated Earthquake Damage Scenario (EDS) and Shakeout exercises in a highly populous developing country like India. The study highlighted that scientific EDS exercises followed by mega shakeout exercises not only helped the community up to some extent but also helped administration, government agencies in generating awareness of earthquakes and their possible risk. The fifth research article authored by Arora conducted life history interviews and focus group discussions with community members to examine social values and their linkages with climate adaptation decision-making among Raika community in Rajasthan, India. The findings demonstrated that the community’s livelihood, health, and social cohesion are severely affected by environmental change, entwined with social, economic, and political stressors. There was a parallel change taking place in their social values. New adaptation options, such as urban migration, have emerged. The sixth review article authored by Patel *et al.* attempted to understand the impact of natural and man-made disasters on the people of Jammu and Kashmir and Ladakh region in India as well as examines resilience mechanisms. The review suggested that the region is afflicted not only by multiple natural disasters such as floods, earthquakes, avalanches, and landslides but also by the terrorism and violence, which had adversely affected most aspects of life and development in the region. To mitigate the risks, effective disaster risk reduction and management plans, early warning systems and infrastructure need to be strengthened along with community engagement needs to enhance to design of sustainable development programs. The seventh and last review article authored by Patel, Agrawal, and Mathew tried to understand the linkages between natural disasters and their impacts on the mental health of people as well as associated resilience mechanisms in India. The review documented the different pathways for disasters to adversely affect mental health, particularly among vulnerable populations. This research also outlined that better policies need to be designed for prevention, services, and psychological counseling of mental health problems due to disasters.

This special issue has covered a wide range of research on natural disasters, man-made disasters, and climate change in South Asia with a special focus on India. Along with climate change, the main natural disasters explored in this special issue are floods, cyclones, hurricanes, droughts, heatwaves, earthquakes, avalanches, landslides, and lightning. These pieces of research in the special issue have explored the impacts of these disasters on livelihoods, employment, food security, nutrition, physical health, mental health, education, water, sanitation, roads, infrastructures, etc. Along with the impacts, these studies have also tried to cover the resilience mechanism adopted by the communities, as well as the government measures to these effects. This special issue indicates that climate change and natural disasters have impacted the population of South Asia, socioeconomically, physically, and psychologically. There is an urgent need to focus on reducing people’s underlying vulnerabilities by taking proactive measures, engaging the community in decision-making, and generating alternative and sustainable livelihoods. It is also apparent that the state-driven policies and strategies should be conceived and designed in accordance with the framework of SDGs to ensure a better and healthy life for all.

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