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Climate-induced Labour Migration: The Case of India

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ABSTRACT: Climate change is an urgent issue that has been begging the attention of the world population in recent times. Multiple reports have brought to light that if climate change is not paid the attention that it rightly deserves, the damage would be irreversible. Moreover, the developed nations with increasing population, depleting economic resources, and weak governance shall be the hit the hardest through climatic change events. In this regard, the issue of the Indian subcontinent is unique as it is a climatic hotspot where the climatic situations are dynamic and vary across the country which has forced people to migrate. The Indian subcontinent has been coping constantly with climate change events starting from the north-western region of the Indus valley civilization to the present eastern states through adaptive labour migration. This paper is an attempt to explore the effects and consequences of human migration due to climate change whilst also taking a historical approach to compare and contrast human migration in the past to the present-day situation of migration due to the severe effects of climate change. The paper also discusses some key climatic change events as well as their consequences on the living standards of the human population due to migration.

KEYWORDS: climate change, labour migration, India, climate-induced migration.

I. INTRODUCTION

Human migration is not a new phenomenon. In fact, anthropological studies have confirmed that the worldwide distribution of the human population is a consequence of human migration from parts of Africa and elsewhere (Korisettar et al., 2015). Moreover, irrespective of people's cultural and spatial identity, humans have migrated to various parts of the world in the search of improved social, occupational, and standard of living conditions. The geological past of human civilization bears a testament to the fact that "the mass exodus of people from their place of habitat in search of a new homeland" is referred to as human migration (Sarkar, 2021).

People migrate due to a variety of reasons, however, discussing the multiple reasons behind human migration is beyond the scope of this paper. The current paper shall present a brief discussion of human migration induced by climate change in the context of the Indian subcontinent. It is already well known and understood by researchers and the scientific community at large that climate dictates people's liveability in a particular region. Additionally, people adapt and become accustomed to the climate of their place of living. In case the climate changes slowly or once in a while, communities and nations learn to cope with it. However, in extreme cases where the climate changes suddenly, it leaves no opportunity for people to find mechanisms of coping for the devastating and drastic conditions that climate change brings into people's lives thus forcing them to migrate. Rabbani et al. (2016) mentioned two types of climate change (a) the fast type and (b) the slow type. Under the first category of the fast or sudden climate change, the climatic events of flood, cyclone, river erosion can be included whereas the climatic events of sea-level rise, coastal erosion, changing rainfall pattern, drought, etc. would fall under the second category of the slow type of climate change.

With the change in socio-political and socio-economic conditions of different parts of the world since human migration began, it is time for policymakers and stakeholders to understand the needs, and requirements as well as the behavioural responses like resilience and adaptability of various communities who are forced by nature to migrate due to climate change to find suitable livelihood opportunities and living standards. Policymaking should be informed by the consideration of people's lived experiences of climate change. To aid in the same process, this paper shall explore the effects and consequences of human migration due to climate change whilst also taking a historical approach to compare and contrast human migration in the past to the present-day situation of migration due to the severe effects of climate change.



II. CLIMATE-INDUCED HUMAN MIGRATION IS AN OLD PHENOMENON

Geographically, South Asia is located within tropical and sub-tropical regions with the Himalayas present on the northern end and a vast oceanic body towards the southern end (Kathayat et al., 2017). It is a region that is constantly under atmospheric turmoil. In general, climate change results due to the interaction of land, water bodies, and the gaseous mass of the atmosphere (Khan & Gangawala, 2011).

A report of Science Daily (2016) clarifies that climate-induced human migration from parts of Africa was the reason behind the global distribution of the human population. Additionally, other researchers like Shaowu (2010) and Sarkar et al., (2016) have pointed out that extreme climatic events like aridification and drought have been the reason behind the collapse of multiple ancient civilizations. Moudgil (2017) reported the study conducted by the Indian Institute of Technology, Kharagpur in India recently published in *Nature* that showed that years ago it was climate change that induced the decline of the ancient civilization of Indus valley. The report further makes clear that as monsoons started weakening around 7000 years ago, a drought-hit around 4000 years ago forcing people to migrate to rural areas.

III. POST ADAPTIVE STRATEGIES TO COPE WITH CLIMATE CHANGE IN INDIA

Taking the case study of Indus Valley civilization by integrating research that was conducted as a part of the Land, Water, and Settlement Project in north-western India from 2007 to 2014, Petrie et al., (2019) showed the adaptive strategies that the ancient society employed to cope with the diverse and drastic change that was produced as a result of climate change events during the height of the Indus Valley Civilization (ca. 2500–1900 BC). As rainfall started weakening, people replaced water-loving crops with harder varieties of rice, millets, wheat, and barley which germinate during the period of spring and winter. Thus, in order to cope with climatic difficulties, the people of Indus valley employed the strategy of changing the variety of food grains. Moudgil (2017) also noted a similar pattern where people shifted cropping patterns from a single season-based strategy to depending on both seasons as summers and winters started overlapping in Indus valley. Additionally, to highlight how Indians have adapted to climate changes in the past, Kumar (2014) has put forward a paper that made visible the indigenous knowledge systems of north-western India that people frequently employ to mitigate and adapt to the changing climatic conditions of the local environment. The north-western part of India has been characterised as facing severe droughts for centuries now. The rich cultural values and local knowledge allows the people of north-western Indian communities to adapt to this changing environment. The author also brings to light the importance of using local knowledge and integrating the same into formal climate change mitigation and adaptation strategies. This is of particular importance as people's lived experience should be given more importance in combating the effects of climatic changes.

In an extensive research, Singh et al. (2021) reviewed the city plans of 53 Indian cities with a population of more than one million in India found that 67% of the cities that reported adaptation actions were already in the implementation phase, and those implementable adaptive strategies are mostly focused on particular risks. Additionally, a unique finding of their research also includes the identification of certain interventions that enhanced sustainable development and mitigation plans thereby producing opportunities for mutual benefits. It is also worth noting that the IPCC report of 2014 also made visible the strategies of crop rotation for coping with extreme climatic changes in the Indian subcontinent. The report also brought to light the local and indigenous knowledge that Indian farmers apply in order to grow crops that allows them to easily adapt and cope with the dynamic climatic conditions.

Maharjan (2020) showed that climate-induced labour migration had a positive effect on household adaptation with a significant effect on agriculture in four river basins, Gandaki, Indus, Upper Ganga, and Teesta, in the Hindu Kush Himalayan (HKH) region in South Asia. Moreover, the study also showed the influence of labour migration on household adaptation through indirect ways like livelihood diversification.

IV. VULNERABLE REGIONS OF INDIA FACING CLIMATE CHANGES

The ADB report (2009) identified certain climatic 'hot spots' in South-Asia wherein the urban centres of coastal Indian megacities like Mumbai, Chennai, Kolkata were included. Other than these, deltaic regions having a higher population in rural areas, as well as semi-arid or low-humidity regions, were included too.



The World Bank report of 2013 predicted that India's summer monsoon would become highly unpredictable due to the 2-degree Celsius rise in the world's average temperature with abrupt changes in the monsoons causing a crisis leading to droughts and flooding in major parts of the country. Additionally, in India, dry areas were expected to be drier and wet areas to be wetter similarly. The northwest coast and southeast coast were predicted to be receiving higher than average rainfall in a year.

The IPCC report of 2021 has highlighted that by 2040 the global warming temperature shall reach or exceed 1.5 degrees Celsius. The report also mentions that in South Asia including India, heat waves might be more intense as well as frequent in the 21st century. In addition to that, the precipitation in summer and monsoon might increase and shall become more frequent as well. Extreme climatic events like incessant rainfalls, erratic floods, cyclonic events, drought, etc. might become a common sight in India. Moreover, as global sea levels continue to rise, six Indian port cities including Chennai, Kolkata, Mumbai, Surat, and Kochi with a population of 28.6 million people might face coastal level flooding (Agarwal & Ghosh, 2021).

Similarly, a report by reputed Indian institutions under the project of "Climate vulnerability and risk assessment at the national level using a common framework" spanned across 2019 and 2020 found that certain states in the eastern part of the country were more prone to climatic changes and thereby required urgent adaptation strategies. The states included in this category are Jharkhand, Mizoram, Orissa, Chhattisgarh, Assam, Bihar, Arunachal Pradesh, and West Bengal. Moreover, in these eastern Indian states, Assam, Bihar, and Jharkhand were found to have more than 60% of districts falling in the category of highly vulnerable districts. This vulnerability assessment report is the pioneering step in initiating adaptation planning. The report also highlighted the need for the development of a climate change risk index where risk is the function of hazard, exposure, and vulnerability.

The increasing temperature globally as well as the drastic climatic change events from droughts to extreme rainfall, tornadoes, heat, and cold waves threaten the human population of increased vulnerability to falling victims to climate changes. Although many nations across the world are leaving no stone unturned to plan and strategize interventions, countries like India in South Asia do have a risk for adaptation failure as it shows low resilience capacities of victims. When these factors become repetitive in frequency, they act as 'push factors' for labour migration (Sarkar, 2021).

Kaur and Harpreet (2018) pointed out that labour migration as an adaptive strategy of climate change has been adopted by multiple countries in South Asia including those of India, Bangladesh, Pakistan, Nepal, Afghanistan, etc. As per the 2018 estimates, a population of 3,230,025 and 810,172 migrated to the Indian subcontinent from Bangladesh and Nepal, respectively. However, it must be noted that it is not easy to verify if the reason behind this migration has been climate-induced.

V. CONSEQUENCES OF CLIMATE CHANGE IN TERMS OF LIVING STANDARDS

This section shall present a brief discussion on the effects of climate change on people's living standards including their socio-economic status and food security issues. The discussion of these factors will aid in our understanding of the reason why humans are forced to migrate as a result of climate change events.

Climate change produces a lack of employment opportunities, shows weak governance, and can also induce inter-community violence. As survival is put at stake and people struggle for livelihoods due to climatic events, they migrate in search of better opportunities for improving their living standards (Chakrabarti, 2018). The IOM report (2008) delineated a few factors which force people to migrate. Some of the factors detailed in the report include the quantity of greenhouse gas emissions, population growth, meteorological evolution of climate change, and effectiveness of adaptation strategies at both local and national levels.

The IPCC report (2014) also pointed out that at least 15% of the population of South Asian countries like India, Pakistan, and Bangladesh might be adversely affected due to the unhealthy high temperatures. Certain reports of mass migration from Indian cities came into light after the severe drought of 2015-2016 in which 330 million were affected. Similarly, in the past people moved to rural areas to deal with the changing climate thereby resulting in the formations of small settlements in the Himalayan foothills (Sarkar, 2021).

Moudgil (2017) estimated that the impact of climate change on the global economy will be 60 trillion US dollars wherein developing countries with poor health conditions, low agricultural production, and extreme weather would be



most affected. It also needs to be noted that due to extreme weather conditions a total of 161 countries have reported mass migration since 2008. There is also a report from the United Nations High Commissioner for Refugees (UNHCR) mentioning that around 36 million people were displaced due to natural disasters in 2009. In 2014, 19.3 million people were forced to locate due to natural hazards with most of the population belonging to the global south areas (Bridson, 2017). Kaur and Harpreet (2018) also pointed out that the number of environmental migrants shall increase from 25 million to 1 billion by 2050 of which the majority of the population would be from the developing countries only.

Commenting on the effects of climate change on the socio-economic status of the migrants, it needs to be mentioned that countries in South Asia including India show higher levels of poverty and population growth as compared to the other developed nations. The IPCC Report (2014) also mentioned that businesses will have to take particular approaches to cope with the climatic risks wherein they must strive to integrate climate adaptation and disaster risk reduction to face repercussions of climate change in terms of human security and economic development.

VI. CONCLUSION

Climate change is invisible and oftentimes remains unrealized by people. It is also the single greatest risk coming in the way of the achievement of the Millennium Development Goals. It threatens lives and increases vulnerability to endangered livelihoods. Thus, it calls for urgent attention from policymakers, government bodies, multilateral organizations for the planning of adaptation strategies to mitigate the risk as well as for the development of resilient communities that can withstand the devastating consequences of climate change and are not forced to migrate. Lastly, the socio-political environment that further victimizes and marginalizes migrant populations also needs to be intersectional in terms of policies and certain protective regulations for the most marginalized communities facing the threat of climate change. To conclude, the indigenous and local knowledge of communities across the world should be integrated with formal climate change policies in order to make visible their resilience.

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