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Emerging Vulnerability to Climate Change and its Impact on Human Migration Patterns in India

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Abstract

Climate change vulnerability is a global phenomenon that leads to catastrophic conditions, including shoreline erosion, coastal floods, and agricultural disruptions. These factors are altering migration patterns and impacting human lives. As per the United Nations' International Organisation for Migration report 2024, disasters linked to climate change are the main drivers of human migration, with over 200 million people expected to be displaced within their countries by such crises by the middle of the century. India is one of the worst-affected countries by climate-driven migration, placing fourth in the State of India's Environment Report 2022. Migration is increasing due to the impacts of rapid and slow-onset climate change events on agriculture, water resources, and infrastructure. The study examines the relationship between climate change-induced migration and human security through an analytical lens. It raises concerns about climate-driven migration from various parts of India, and advocates increased planning at all levels of governance.

***Keywords*:** Climate change, migration, human security, governance, India

Introduction

Environmental experts have already warned that the human race is approaching a tipping point beyond which a return is impossible. The adverse impacts of changing climatic conditions are visible in every nook and corner of the world, with different manifestations. However, some parts are more vulnerable to climate insecurity due to their geographical location, dependence on nature-based livelihoods, and limited adaptive capacity. Almost all developing countries fall in this category.

According to studies, climate change is a 'threat multiplier' that exacerbates other issues, such as food and water scarcity, depletion of natural resources, heightened risks of pandemics and other health issues, housing crises, and political conflicts.

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The devastating impacts of climate change are a pressing matter that already affects a considerable segment of the global population (United Nations [UN], 2019). Prompt action is required to avert or mitigate the effects of the climate catastrophe. It is important to note that the terms migration, displacement, mobility, and movement are used as synonyms in this study, and only internal migration is investigated. The first section of this article examines the nexus between climate change, migration, and human security, while the second investigates climate-driven migration in India.

Nexus Between Climate Change, Migration, and Human Security

The connection between climate change, migration, and human security is clear.

To develop practical solutions, it is essential to understand how these three elements interact. Before addressing this triad, it is important to highlight some climate change impacts to better understand the relationship. The sixth assessment report (2022) of the Intergovernmental Panel on Climate Change (IPCC) states that extreme weather events such as heatwaves, severe floods, droughts, and wildfires are becoming more frequent and intense due to the unprecedented rise in temperature and altered weather patterns. Furthermore, climate change has significantly increased the frequency of coastal floods, sea-level rise, and salinisation of coastal cultivable land, thus increasing survival risks for coastal residents. Additionally, there is a notable disparity in the effects of climate change across the planet, which is another concern. Areas already struggling with issues such as poverty, governance, limited access to basic amenities, and reliance on nature-based livelihoods are currently facing the adverse effects of a changing climate. According to the report, floods, droughts, and storms have claimed more lives in these regions over the last decade than in less vulnerable areas. (Intergovernmental Panel on Climate Change [IPCC], 2022)

Climate Change and Migration

Throughout history, environmental factors have been the primary drivers of human migration. Climate change has recently emerged as a prominent ecological driver of migration. There is considerable evidence linking climate change and migration. However, the relationship between the two is intricate and varied. Climate change's increasingly severe repercussions are driving more people to relocate. Rising sea levels have caused flooding, coastal erosion, and salinisation of agricultural land, demonstrating how climate change impacts migration patterns. Apparently, individuals are compelled to leave places where there is constant danger to their lives or where opportunities for livelihoods are dwindling. (Hauer et al., 2020). Additionally, people's decisions to move may be indirectly influenced by how climate change affects their means

of subsistence. Those who rely on nature-based sectors to earn a living are more likely to move away from places that have become infertile due to salinisation or drought. (Cattaneo & Peri, 2016).

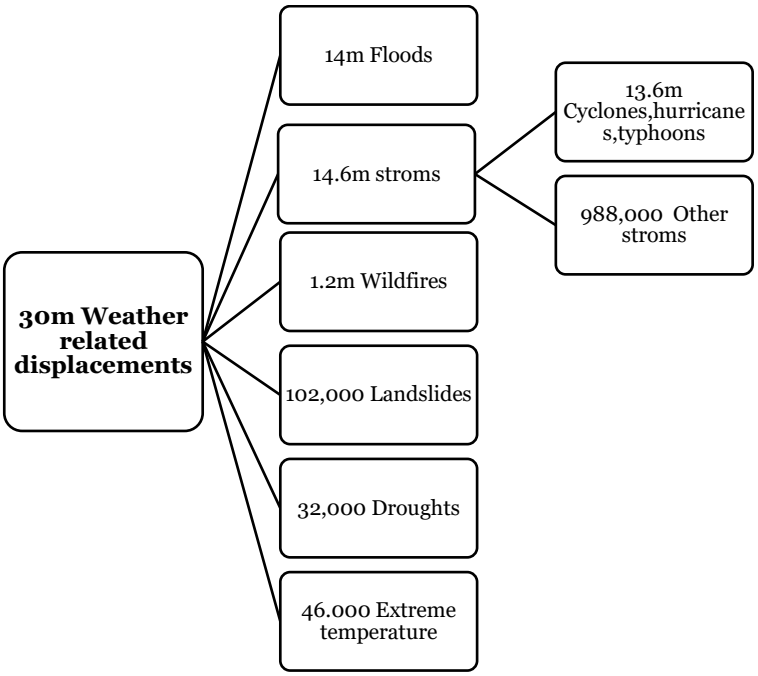
Natural events that occur gradually (slow-onset events) or abruptly (sudden-onset events) over a short period of time influence human migratory patterns. Studies reveal that slow processes, such as rising sea levels, are already driving people to leave their homes. Furthermore, the irreparable loss of land may uproot many people. (Greenpeace Germany, 2017). According to the Glacier Monitoring Service, melting of glaciers, one of the primary causes of rising sea levels, has doubled in recent years. The incursion of the sea into human habitable land forced millions of people to flee coastal areas. The climate catastrophe was the biggest driver of displacement, affecting 25 million people in the mid-1990s. (Brown, 2008). This number increased to more than 170 million between 2008 and 2015. Weather-related disasters uprooted nearly ninety per cent of people from their homes in 2015 (Bilak et al., 2016). The average annual displacement of people has remained around twenty-five million since 2008 (Global Report on International Displacement [GRID], 2021). As per the latest report of the Internal Displacement Monitoring Centre (IDMC), the world witnessed the displacement of approximately 30.7 million people by the end of 2020; floods and storms remained major drivers (GRID, 2021: p. 12) (fig.1). Climate vulnerability and change are the major contributors to these figures.

Weather-related events caused around 31.8 million internal displacements worldwide in 2022. This represents an increase of 1.8 million from 2020. Floods, storms, and droughts caused ninety-eight per cent of these displacements. (fig.2).

Undoubtedly, weather-related extremes play an important part in people's decisions to move; nevertheless, they are not the only factor. Economic factors, military conflict, disaster management strategies, and social linkages with climate change all contribute to a more severe pattern of mobility. Government policies and institutional frameworks have a substantial impact on immigration decisions. Migration rates tend to be lower in regions with high adaptive capacity and higher in areas with low adaptive ability. Numerous studies have shown that government measures that address the needs of vulnerable groups can help strengthen their adaptive skills and prevent migration.

Figure 1

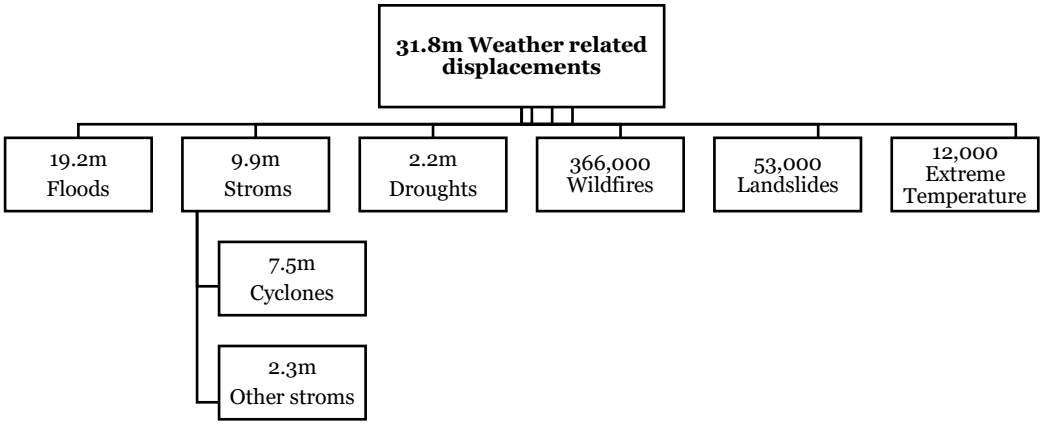
Weather-Related Displacements in 2020



Source: Internal Displacement Monitoring Centre (IDMC). https://www.internal-displacement.org/sites/default/files/publications/documents/grid2021_idmc.pdf

Figure 2

Weather-related Displacements in 2022



Source: Internal Displacement Monitoring Centre (IDMC). https://www.internal-displacement.org/global-report/grid2023/

Migration and Human Security

Migration involves leaving one's home to move to a new place. People migrate for various reasons, but this study focuses solely on climate change. Anticipated and well-organised migration can be managed effectively. However, sudden and large-scale migration can cause significant challenges, as seen during the COVID-19 pandemic in 2020. According to the IDMC's latest report, sudden-onset climate change events have triggered large migration flows within a short period. These events reduce the time available for evacuation and resettlement, leading to unplanned mobility. People lose their jobs, shelter, and other assets, which worsens issues like limited access to healthcare, schooling, and educational opportunities, resulting in high mortality, more child labour, and widespread poverty. Research indicates that climate migrants are mainly unskilled and impoverished populations (Food and Agriculture Organization [FAO], 2022), vulnerable to exploitation by unscrupulous employers, often willing to accept difficult and hazardous jobs. Sadly, these jobs typically pay low wages, continuing the cycle of exploitation. The lack of secure and safe shelter heightens the risks of human trafficking and sexual abuse. According to the 2016 Global Report on Trafficking in Persons, the most trafficked individuals are those in low-paying jobs and belonging to vulnerable groups, such as women and children (United Nations Office on Drugs and Crime [UNODC],2016). Slow-onset events, like sea-level rise and desertification, often lead to the complete relocation of affected communities. The destination faces challenges in managing the large influx of people due to limited natural and economic resources, often resulting in conflicts and violence.

Human security, which encompasses the absence of fear and threats from conflict, crime, natural disasters, diseases, and similar factors, as well as the fulfilment of basic needs such as freedom from poverty, malnutrition, inadequate education, and poor health, is negatively affected by climate-driven migration (United Nations Development Programme [UNDP], 1994). These migrants have no choice but to select a place where they can live happily and with dignity. However, another group of researchers views migration as an effective strategy for adaptability (Jha, 2017). People often turn to migratory measures to reduce their vulnerability and diversify their financial resources, thereby enhancing human security. In fact, for strategies to qualify as this, they must be planned and voluntary. Unfortunately, current studies indicate that changing climatic conditions often force people to migrate as a last resort when they lose access to essential services in their native environment.

Undoubtedly, there are complexities in the nexus mentioned above. However, we should not dismiss this vital connection simply because the exact cause-and-effect relationship remains unknown. We are now observing the impacts of anthropogenic climate change, and scientific evidence indicates that the severity will continue to escalate. Historically, threats to life and the loss of livelihoods have been major drivers of migration, and climate

change exacerbates both. The traditional approach to migration-related studies largely overlooked the impact of climate change on migration. Nevertheless, most discussions of migration and climate today focus on the harmful effects of changing climatic conditions on human displacement, and it is widely recognised that climate change will disproportionately affect the most vulnerable regions (IPCC, 2022a).

Climate Change and Migration in India

India is currently facing severe environmental problems, and environmental stress is evident in every aspect of life. The melting glaciers and increasing issues of avalanches, flash floods, and landslides have become more common in mountainous regions on the one hand (Kajal, 2021), while significant drought and desertification in arid and semi-arid parts of the country ("Desertification: Drought reduced", 2022) and rising sea levels and salinisation in coastal areas are common problems now (Sangomla, 2022). This evidence is enough to show that India is exposed to climate change on multiple fronts. The adverse effects of recent climate change accentuate the vulnerabilities of Indian populations, who are strongly reliant on nature-based sectors and reside in susceptible regions. According to the IPCC's 2021 assessment, climate change and extreme weather are increasing global population displacement, especially in vulnerable areas (IPCC, 2021). In India, nearly three million people were displaced by extreme weather in 2020–2021(Krishnan, 2023). Unfortunately, these figures are projected to rise further in the future. To better understand the instances of climate-induced migration, we have examined three distinct topographical areas of the country: coastal, plain, and mountainous.

Migration in Coastal Areas

India's extensive coastal land, which spans 7,500 kilometres and includes thirteen states and union territories (Jha, 2022a), is experiencing shoreline erosion, flooding, salinisation of freshwater and agricultural land, and increased storm hazards as sea levels rise. It poses a significant danger to the millions of residents who rely on this ecosystem for their existence. According to studies, the decrease in landmass and the increase in inundation fuelled the migration of coastal dwellers. Though the land's deterioration began decades ago, the inhabitants encountered its bitter reality in the last decade of the twentieth century. Studies conducted over the past two decades suggest that about 30 per cent of Odisha's 485 kilometres of coastline has been experiencing erosion (Sebastian, 2022). Initially, the severity experienced by the inhabitants of *Sanagahiramatha, Mohanpur, Habeli Chintamanipur, Gobindpur, Kaduanasi, Saheb Nagar,* and *Paramanandapur* villages of the *Satabhaya gram panchayat* of the *Kendrapara* district, which at one time covered about 900 acres of land (excluding farmland). The continuous seawater intrusion into these villages, along with the region's retreating coastline, renders them uninhabitable. Hundreds of households relocated to *Kanhupur*, *Satabhaya*, *Barahipur*, *Rabindrapalli*, and *Magarakanda*,

which were only a few kilometres away. After a few decades of serving as a home for the earlier displaced population, these villages were unable to survive; *Satabhaya* is the only one that remains. The most recent submersion occurred in 2011, when *Kanhupur* disappeared under the water (Sahu, 2018).

In response to the area's growing sensitivity to climate change and its effects on people, the state government began managing retreat in 2008. At present, over 500 families have been effectively rehabilitated in *Bagapatai*, a destination situated twelve kilometres away from the original site. The recent studies indicate that more areas are emerging that require similar solutions. In March 2023, the state administration of Odisha disclosed that sixteen villages from various coastal regions had either submerged into the sea or were experiencing severe erosion, prompting people to evacuate the area and raising the figure of climate-driven population.

When compared with coastal villages in Odisha, the Sundarbans in its adjacent state of West Bengal confronts more severe climate change-related threats owing to the region's dense population and a faster rate of sea-level rise than other coastal parts of the country (Ghosh, 2017). It is evident that more people need more land to survive; nevertheless, this region's population is increasing while its land area is shrinking. The submergence of the habitable islands Lohachara and Bedford in recent decades compelled thousands of people to move to the already densely populated islands Ghoramara and Sagar, thereby posing a significant threat to the area's carrying capacity (Ghosh et. al, 2014). The figures show that Ghoramara lost half of its land area over a four-decade period, resulting in the submersion of five villages and the permanent departure of around 4,000 people from the island have been reported (Ghosh, et. al, 2014a). Many people left in search of livelihoods, as most islanders depend on water and land resources that are rapidly depleting. Storms caused by rising sea levels damage embankments and increase soil salinisation, which is devastating for crops. The decision of islanders to migrate has also been influenced by the disappearance of uninhabitable islands, as these areas provide essential natural services for their survival. Due to its proximity to vulnerable regions, Sagar Island is currently experiencing a rapid population growth. In recent years, about 1100 families have relocated from Lohachara to Sagar. However, rising sea levels have also reduced the land area of Sagar Island from 246.76 to 230.98 square kilometres over the past two decades (Bera et. al 2021: p. 222).

The increasing intensity and frequency of cyclones have also worsened human displacement from the coasts, which, unlike rising sea levels, allows little opportunity for planned retreat. They cause more destruction in a shorter period. In 2020, two deadly cyclones, Amphan and Nisarga, struck India's shores within a month, displacing nearly 2.5 million people (GRID 2021a: p. 53). Cyclone Amphan severely impacted West Bengal, destroying 2.8 million houses (GRID 2021b: p. 78). India is only beginning to address the destruction caused by these disasters;

the following year (2021), its coasts experienced three more cyclones: Yaas, Tauktae, and Gulab, with one being a category four storm (Tauktae). In addition to claiming thousands of lives and demolishing homes, these regions saw the displacement of about 2.5 million people (GRID, 2022a). In 2022, cyclones Asani, Sitrang, and Mandous forced approximately 80,000 people to evacuate their homes (GRID, 2023a). There are few well-devised strategies to manage such large-scale migration. Though these movements are generally temporary, repeated risks can solidify them as permanent. The gradual inundation of islands and the rapid reduction in land area, coupled with their connection to climate change, are key issues for policymakers, especially as future climate forecasts suggest increasingly catastrophic scenarios.

Although climate change is often blamed for coastal erosion, many analysts believe that development efforts in these regions are also exacerbating the problem. The loss of mangroves, which shield the coastline from cyclones and storms, paves the way for extensive damage to the coastal regions. Many studies confirm that the shoreline has become significantly vulnerable due to developmental activities. The correlation between the construction of the *Paradip* port and the escalating erosion in the *Satabhaya* region is hard to overlook. Studies largely confirm that this structure produces larger sea waves, which worsen the erosion of the area (Sahu, 2018c). Nevertheless, these findings have little impact on the government's development initiatives; since the beginning of the twenty-first century, the country's coasts have witnessed the construction of massive infrastructure.

Migration in the Plain Areas

In 2021, researchers from the International Institute of Environment and Development (IIED) surveyed Rajasthan, Uttar Pradesh (UP), and Madhya Pradesh (MP). The findings showed that nearly 30% of the population studied in these states had to leave their homes due to drought. Rajasthan, UP, and MP had respective shares of 28.33 per cent, 8.08 per cent, and 8.30 per cent. There is a high likelihood that these figures will rise in the future, as the survey results indicate that, among environmental factors influencing migration, every respondent in Rajasthan expressed a desire to migrate due to increasing droughts. Meanwhile, eighty per cent of participants in UP and nearly fifty per cent in MP shared similar intentions (Bharadwaj, 2021). When a drought occurs, the supply of food and water is most affected, followed by people's ability to earn a living. India is highly vulnerable to drought, with around 30% of its land area susceptible to this phenomenon (Salas, 2024). Climate change is worsening the issue, and its impacts are visible across the country. India is currently facing its worst water crisis ever. Every year, thousands of lives are lost due to a lack of access to clean water, while millions experience high to severe water stress (Ministry of *Jal Shakti* [MoJS] & Ministry of Rural Development [MoRD], 2019).

In an effort to address this situation scientifically, the government is imple menting a number of policies and strat

egies, including the Jal Jeevan Mission. The mission's goal is to provide safe, adequate drinking water to each household by the end of this year (MoJS).

However, there is little planning for dwindling water resources, which are critical to the success of the above-mentioned schemes. Furthermore, the plans focus solely on human consumption, even though human survival depends on a variety of other necessities, such as food production and livestock raising, which are not covered by these schemes.

The monsoon plays a vital role in addressing water-related challenges and managing water resources in a country. However, in the current era, the regularity of this phenomenon is being disrupted by climate change. It becomes increasingly unpredictable and erratic. There is a drop in overall rainfall, along with an increase in extreme rainfall events. More short-duration rain gives rise to floods in most plain areas in India. Floods are well-known disasters that displace large numbers of people every year. The IDMC's 2023 report indicates that South Asia accounts for 90% of its disaster-related displacements due to floods. (GRID, 2023) In fact, floods account for over 50 per cent of all natural disasters in India, making them the most prevalent in the country. India ranks second only to Bangladesh in terms of flood impact (Chowdhury, 2022).

The frequency of extreme rainfall events in central India has increased by a factor of 3 over 66 years (1950–2015). The country saw 268 flooding incidents during this period, affecting around 825 million people and leaving 17 million homeless, in addition to 69,000 fatalities (Roxy, 2017). Recently, floods have increased in intensity and frequency. Almost five million people in the northeastern state of Assam were impacted by the floods in May 2022. An estimated 742,000 people were displaced by flooding between mid-May and mid-July, following flooding in the same areas in June 2022 (GRID, 2022b). More rain in a short period is increasing the threat to regions already prone to floods. Many regions of the country are facing more than one natural disaster, and these disasters are becoming more complex as climatic conditions change.

Migration in the Indian Himalayan Region

A 2500-km-long stretch that provides refuge to 50 million people and is one of four biodiversity hotspots, the Indian Himalayan Region (IHR) is highly vulnerable to the effects of climate change. The region is among those experiencing rapid global warming, leading to the rapid melting of seasonal snow, the retreat of glaciers, and altered seasonal patterns of glacier melt. Furthermore, a phenomenon that is becoming more noticeable in this area is the shortening of the snowfall period. (Matta, 2024) The water supply, which is dependent on snowmelt and glacier runoff, is currently facing two main challenges. Firstly, excessive runoff in a short period can cause downstream rivers to swell. Secondly, there is a risk of a long-term acute water shortage.

Water shortages and shifting precipitation patterns adversely affect people who depend on agriculture.

There has been a massive exodus from rural areas as people lose their traditional means of livelihood and are forced to seek work in cities. In such a scenario, the growing tourism industry poses an additional risk to the area with limited resources. Financially speaking, it undoubtedly helps, but its advantages are limited to certain groups, whereas the effects of ecological disruptions are more widespread. Coordination between the government and the local population seems like an ideal choice in this circumstance.

The impact of climate change on agriculture and other nature-based practices in the region adds to the region's already-livelihood-deficient status. Increasing climate change-induced seasonal irregularities, extreme events, and regular crop failures contribute to rural outmigration from several other parts of the region.

A study carried out in the *Ramgad* watershed area of Uttarakhand identifies the leading causes of rural migration as a lack of livelihood opportunities, declining agricultural production, and an increase in extreme weather events and natural disasters. The first two factors are among the main contributors to rural exodus since independence (Sati, 2021); the rising frequency and severity of natural catastrophes have been a more recent development. Additionally, climate change is accelerating the downward trend in crop output, which is detrimental to the region's livelihood options. Over 12 years, from 2001 to 2013, the number of people who left the region increased fivefold, from 401 to 2,425. Additionally, more than 700 villages in the state have been totally abandoned in the last two decades (Biella, 2022). Notably, a sizable fraction of these people were transient migrants.

In the field of climate research, the link between human migration and climate change is often seen as a vulnerability. Due to its geographical location, the region (IHR) and its residents are particularly at risk from climate change. Migration is unavoidable in areas more affected by its negative impacts. Besides the region's high sensitivity and exposure to climate change, the widespread inability of its residents to adapt further exacerbates the danger. Most people in this region rely on agriculture and related work, with limited alternatives. The mounting adverse effects of climate change on agriculture make it increasingly difficult for people to sustain themselves with the income sources they once had.

Undoubtedly, factors such as better economic benefits, improved health, and greater educational opportunities play a crucial role in driving migration in these regions. But new factors, such as the frequency of landslides, forest fires, flash floods, and declining water and other resource availability, are becoming more important and must be considered.

Finding Solutions: Institutional Response to Climate-Induced Migration

Livelihood Schemes

The assessment of the aforementioned areas reveals that the impact of climate-induced factors on livelihood is a leading driver of migration decisions. The Mahatma Gandhi National Rural

Employment Guarantee Act of 2005 (MGNREGA) would offer a solution in this case. Research indicates that persons associated with nature-based livelihoods constitute the bulk of distressed migrants (GRID, 2023b: p. 18). Compared to people who depend on agriculture, the population associated with the MGNREGA has a low intention to migrate (GRID, 2023c). This act guarantees 100 days of work annually to unskilled rural workers and provides for an unemployment allowance if work is not provided within fifteen days. To enhance the efficacy of the act for climate change-affected populations, the central government implemented an additional 50 days of work in areas prone to drought in 2015 ('Government Says 50 Days', 2015a). Several state governments also allocate additional employment days to workers under the MGNREGA scheme, specifically in regions affected by drought.

Resettlement and Rehabilitation

The Resettlement and Rehabilitation (R&R) Policy, initiated by the Indian plan in 1985 to address the needs of those displaced by developmental projects, was approved in 2003 and implemented the following year. It was later revised as the National Rehabilitation and Resettlement Policy (NRRP) in 2007 (Samling,2015). The policy gives preference to low-displacement options. Those who are involuntarily displaced due to land acquisition or other reasons are provided with appropriate benefits and compensation (MoRD, 2007). The Lok Sabha introduced the Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation, and Resettlement Bill in 2011 after incorporating R&R provisions. Implemented in 2014. This statute prioritises the resettlement and rehabilitation of the landowner and the families who relied on it (Tiwari, 2023).

After the 2001 Gujarat earthquake and 2004 Indian Ocean Tsunami, the Disaster Management Act (DMA) 2005 was passed. The law created national, state, and district disaster management authorities to collaborate on disaster management. It shifted government priorities from relief to prevention, mitigation, restoration and reconstruction. The NRRP focuses on development-driven displacements, whereas DMA is more pervasive. It encourages research on climate change-related disasters and the development of novel solutions. In addition to extending the DMA, most Indian states have institutional and financial mechanisms for disaster-related relocation ('Government Says 50 Days', 2015b). By anticipating disasters, resettling seasonal migrants, and rehabilitating permanently displaced people, DMA helps climate-induced displacement-related issues.

Timely Evacuation and Early Relief

The detrimental consequences of disasters linked to climate change-induced displacement can be prevented or significantly reduced with the use of an early warning system. An early warning system can help people avoid involuntary displacement. *Biparjoy*, a severe cyclonic storm, recently hit Gujarat, causing substantial damage to infrastructure, injuries, and livestock losses. Nonetheless, casualties were kept to a minimum, illustrating the

efficiency of the IMD's (Indian Meteorological Department) early warning system. Authorities successfully evacuated over 1,00,000 people from vulnerable areas of Gujarat during four days ('Preparedness Pays Off', 2023), averted a major loss of life. When Cyclone Fani hit India's eastern coast in 2019, an early warning system helped evacuate 1.2 million people in Odisha within 24 hours (Jha, 2022b).

According to research conducted over the last fifteen years, India has successfully reduced cyclone-related mortality by 90%. Clearly, India's early warning system has improved. The system safeguards against floods, droughts, and heat waves. An early warning system makes it feasible to plan an evacuation in a timely manner. The Central Water Commission is currently providing a five-day flood forecast for 20 major river basins in the country (MoJS, 2022). Statistics show that the early warning system has enormous potential for mitigating the effects of severe weather events.

Summing Up

Climate change is directly or indirectly displacing many people within India, and surprisingly, no institutional arrangement exclusively addresses this threat. The legislation mentioned above was established primarily to fulfil other purposes but is proving useful for this new and drastic driver of migration. Apart from the need for amendments to already established laws, like an increase in days of work under MGNREGA during other natural calamities besides drought and a spike in wages, as the current wage rate is not helping the workers cope with increasing prices of basic amenities, the issue of climate-driven migration needs new policies at every level of governance. Employment must be available at the new location. Separating the area more susceptible to catastrophes caused by slow-onset events from that more susceptible to catastrophes caused by rapid-onset events is necessary to increase the effectiveness of the relocation and rehabilitation program. Undoubtedly, the intricate connection between migration and climate change has kept this work on hold until now; yet it makes no sense to overlook this problem. It is time for India to build an institutional system that focuses solely on this issue.

According to the Global Risk Report 2023, large-scale involuntary migration is a severe short- and long-term concern that climate change may intensify. The 2020 COVID-19 pandemic served as a stark warning of the harmful effects of unmanaged human movements. Climate-driven migration has far-reaching consequences for the lower strata of society, including negative social and economic ramifications.

Until now, the complicated and multidimensional nature of climate-induced migration has served as a practical justification for inaction. Currently, area-specific research is playing a critical role in increasing policymakers' attention and concern for this issue. India is taking proactive initiatives to address the issue; the most recent is the inclusion of questions about natural catastrophes as a cause of migration in its next census. (Singh, 2023) It is a great start, but to fully address the impact of

climate change on migration, these natural hazards must be further broken down into weather-related and geophysical hazards, as the IDMC does. Collecting migrants' data immediately after disasters will also be beneficial. This issue necessitates a combination of research and policy, and integrating both is critical to overcoming it.

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