CLIMATE-INDUCED MIGRATION AND ASSOCIATED RISKS IN PAKISTAN: A SYSTEMATIC REVIEW

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Abstract

Climate change causes migration in many regions of the world, and it has become an imminent threat in Pakistan. Climate change refugees face exploitation, in-place alleviation, and social implications. Climate change's direct and indirect security challenges might cause significant economic losses. In Pakistan. due to shortages of resources and overpopulation climate-induced migration creates challenges for all areas of the country, from Gilgit-Baltistan to southern Punjab and significant portions of Sindh and Balochistan. This ground-breaking research explores the link between climate change and associated risks in Pakistan and evaluates how climate change affects the region from the community to the individual level. The assessment of this study is based on review articles from various database sources. Based on the PRISMA Statement 80 articles from 535 were selected for final analysis. The research examines climate-induced migration in Pakistan causing development issues such as poverty, food insecurity, water crisis, economic loss, gender inequalities, agricultural decline, etc. Existing frameworks and national policies have failed to establish a critical relationship between climate change and the frequency and severity of adverse climate conditions, environmental degradation, and human mobility. This study suggests a comprehensive approach that would address the need for assistance, and long-term solutions for persons displaced by climate change, as well as the management of climate hazards for those who stay and the promotion of possibilities.

Keywords: *climate change, climate-induced, migration, risk, Pakistan, development, health, food, gender*

INTRODUCTION

Climate and Migration Profile of Pakistan

Pakistan has a diverse topography and climate that spans from tropical to temperate (Salik et al., 2020). Pakistan has a population of approximately 208 million and an area of 796,000 square kilometers. The climate varies from semi-arid to humid in the high mountain ranges to arid to semi-arid in the fertile Indus plains, the hyper-arid Balochistan Plateau and Cholistan and Thar Deserts, and the sub-tropical Indus delta along the Arabian Sea (Janjua, 2009). The annual mean temperature in Pakistan has increased by 0.57°C since 1900, according to a historical analysis (GoP, 2010; Haensler, 2013; Sheikh et al., 2009; Abbas et al., 2018), with more pronounced warming trends during the winter in the northern, southern, and southwestern regions of the country (Sheikh et al., 2009; Haensler, 2013; Abbas et al., 2018). In addition, monsoon season precipitation has increased by 15 to 25 percent in northern Pakistan while decreasing slightly in the south (Sheikh et al., 2009; Haensler, 2013; Abbas et al., 2018). Additionally, both the frequency and intensity of extreme weather phenomena have increased (Krakauer et al., 2019; Abbas et al., 2014). The average annual temperature is projected to rise by 1.2°C in the 2020s, 2.5°C in the 2050s, and 4.5°C in the 2080s under extreme climate change conditions (Ali et al., 2019; IPCC, 2013; Abbas et al., 2018), as

indicated by projected trends (Ali et al., 2019; IPCC, 2013; Abbas et al., 2018). Northern glaciated regions are anticipated to experience a 3°C to 4°C increase in annual mean temperature, whereas southern Pakistan is predicted to experience a 2°C to 3°C increase (Iqbal and Zahid, 2014). Winter is anticipated to warm more than summer, and there may be an increase in mean precipitation as a result of increased interannual variability, particularly in southern Pakistan (Ali et al., 2019; Almazroui et al., 2020). The frequency of extreme precipitation events is likely to increase, notably in northern Pakistan (Ikram et al., 2016). There are also concerns that the number of consecutively arid days will increase in Sindh and South Punjab, which could exacerbate droughts (Ali et al., 2019; Abbas et al., 2018). Christensen et al. (2013) and Ikram et al. (2016) predict that the average and extreme precipitation levels, as well as spatial and temporal variability, will increase for summer monsoon patterns. Pakistan's migration patterns are influenced by its geography. Pakistan consists of four distinct geographical regions: the northern high mountain region, the western highlands, the Indus lowlands, and the eastern deserts. Each of these divisions is subdivided further into smaller geographical entities (Hasan, 2010). The literature on migration in Pakistan lacks an understanding of the relationship between climate change and migration. There is also limited knowledge about the function of migration as a coping strategy. Internal migratory movements have been studied primarily as an economic phenomenon, with a concentration on the causes of migration, the characteristics of migrants, and the effects of remittances. Human capital models and macro-level data have been utilized in these studies to examine individual-level human capital. The impact of remittances on asset accumulation, savings, and consumption behavior, and the effects of remittances on the poverty dynamics and income inequality of rural areas. Although research in Pakistan has demonstrated that environmental and climatic changes have led to a decline in agricultural production, increased food insecurity, and inequality, especially among the rural poor, few studies have examined the relationship between migration and climate change. This study focuses on regions that are particularly vulnerable to the effects of climate change, such as flooding, erratic precipitation patterns, unpredictable droughts, and increasing temperatures.

Climate-Induced Migration

Climate change is an inexorable and present-day hazard with devastating effects on human survival and lifestyles. The relationship between climate change and migration is direct and profound (Ijaz, 2022). The term climate-induced migration is used to refer to all movements of people caused by climate change impacts, including those with gradual and abrupt onset. While the term displacement is commonly used to refer to the transient relocation of people in the event of inundation, it can also refer to permanent relocation. The term migration is used to refer to all climate-related migration to emphasize the magnitude of the problem (Islamic Relief, 2021). Global sustainability is threatened by climate change, particularly 1in rural communities of developing nations. In Pakistan, climate change has recently manifested itself in severe ways. In the past ten years, the Indus River system has been devastated by enormous floodwaters. Additionally, frequent droughts and heat surges are consequences of the country's changing climate (Ajani and van, 2021). Climate-induced migration exacerbates common migration patterns, such as:

- **Permanent Migration:** The movement of an individual and their family to a new location for permanent habitation.
- **Temporary Migration:** Families migrate to a new location for a while and then return to their previous residence. During the 2010-2014 period of flash and riverine flooding, many families relocated to other locations until their actual residential areas were rebuilt and restructured.
- **Seasonal Migration:** it is the periodic movement of a population from one location to another in response to varying climatic conditions. Pakistan has the highest prevalence of the disease. During extreme weather conditions, residents of Skardu, Chitral, and Gilgit relocate to urban cities or regions with viable economic opportunities. The same is true in Sindh and Balochistan, where villagers migrate to Karachi and other cities in search of work and sustenance.

According to the Global Climate Risk Index, Pakistan is still one of the ten most vulnerable countries to climate change. The country was ranked fifth on the list in 2020 (Eckstein, 2022). Pakistan faces high-level consequences like increasing temperatures, increased severity and frequency of weather-

related catastrophes and occurrences, melting of northern glaciers (particularly Himalayan glaciers), and increased variability of monsoon rainfall. Pakistan experienced 152 extreme weather events between 1999 and 2018 (Nisar, 2022). All regions of the country, from Gilgit-Baltistan to southern Punjab and significant portions of Sindh and Balochistan, are experiencing climate-induced migration pressures (Ali, 2021). Numerous surges of internal displacement and internal migration have been triggered by Pakistan's exposure to a wide variety of natural and man-made hazards.

Natural catastrophes harm approximately three million people in Pakistan every year, accounting for that 1.6% of the entire population (Ebrahim, 2020). Pakistan has the highest pace of urbanization in South Asia, and the UNFP division forecasts that about half of the country's population will live in cities by 2025 (UNDP, 2019). Climate change is expected to cause between 25 million and 1 billion people to migrate by 2050. In 2022, climate-related calamities displaced 30 million people worldwide. According to Anadolu Agency, a Turkish news agency, around 0.7 million people move annually from rural to urban regions in Pakistan owing to floods and droughts (Mahesar, 2022). Studies conducted by the Sustainable Development Policy Institute (SDPI) and Climate Action Network South Asia (CANSA) concluded that rural communities displaced in Pakistan were the least equipped to cope with floods and droughts (Kunbhar, 2022). Flood in Pakistan this year is not the first natural disaster to force people from their dwellings but heat waves, droughts, rising sea levels, and many other climate change contributors affect communities, and these conditions force individuals to make the challenging decision to migrate, whether to safeguard their families from environmental dangers or to improve their economic situation. In urban areas, however, they face new challenges as they compete for limited space and resources, thereby aggravating the inequalities that made them vulnerable to climate change in the first place (Joles, 2022). Apart from hosting a large number of displaced people and refugees from neighboring countries, Pakistan has a rich history of voluntary migration. This migration is primarily driven by unskilled laborers moving to the United Arab Emirates and Dubai, and skilled professionals traveling to Europe and the United States. Pakistani diasporas are among the most extensive globally and contribute significantly to the economy, with $12 billion remitted annually to their families back home. The Intergovernmental Panel on Climate Change (IPCC) predicts that circular migration patterns, such as those marked by an influx of migrants following extreme weather events, can be expected. The Asia Development Bank corroborates this, stating that environmental factors are already a crucial driver of migration. In recent years, floods, cyclones, and desertification have caused significant population movements, primarily from rural to urban areas (Climate and migration coalition). Drought and water scarcity are additional climate-related causes of migration, particularly in Balochistan and Sindh. Since the year 2000, droughts and arid periods have negatively impacted the livelihoods of millions of residents (Nisar, 2022).

Methodology

To identify and evaluate the literature on climate change and associated risks PRISMA framework, (the Preferred Reporting Item for Systematic Reviews) is considered an authenticated model. Several studies in the environment have adopted PRISMA guidelines (Hassan et al., 2019; Liberati et al., 2009) The PRISMA model employs systematic methods and helps to reduce bias by providing reliable findings from which to draw conclusions and make decisions. To identify the relevant articles, searches were conducted using terms such as climate change, migration, food and water security, health, gender inequalities, climate variability, and the impact of climate change on livelihoods from various electronic databases such as Scopus, Web of Science, Google Scholar, Sage Publisher, JSTOR, Springer, and ISI Proceedings, yielded relevant peer-reviewed literature. The search for keywords and phrases was guided by the review's purpose. After entering keywords, 535 articles were retrieved from various databases by the current endeavor.

Below the PRISMA framework explained the structure of the articles' selection criteria for this review paper.

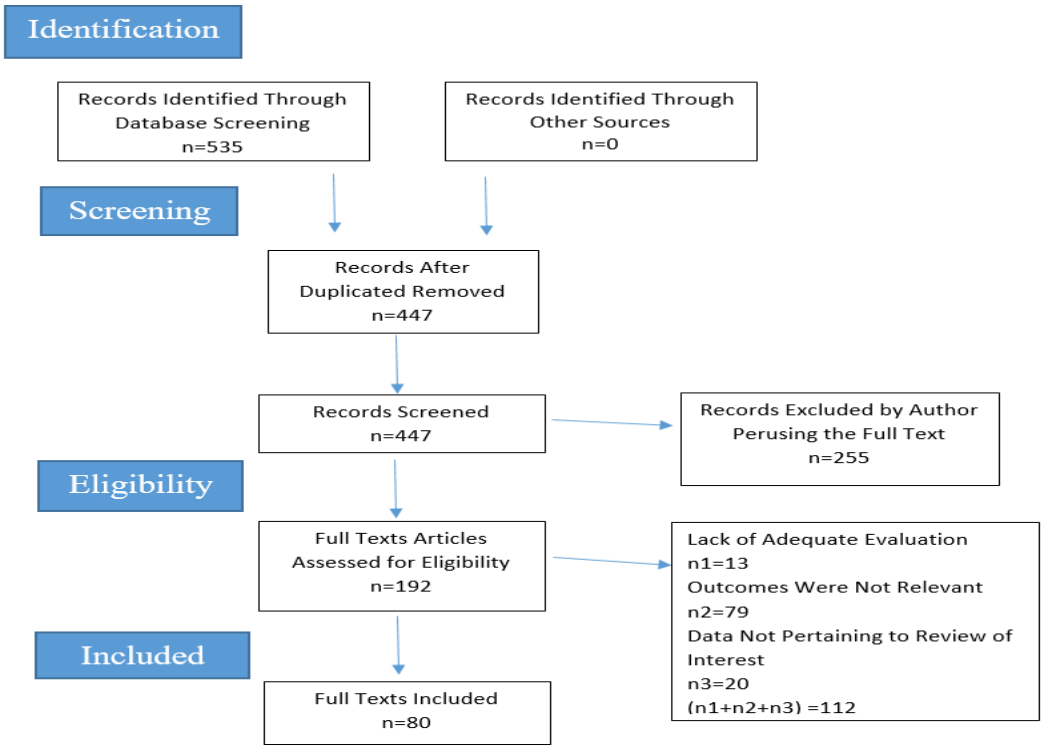

Fig:1

Based on the PRISMA Statement 535 database articles were selected. On the initial screening, 88 articles were eliminated and 447 articles were added. This screening was performed to eliminate duplicates. From A total of 447, Records excluded by author perusing the full text was 255. A total of 192 articles were assessed for eligibility. Due to a lack of adequate evaluation, the author excluded 13 articles, outcomes were not relevant, the author excluded 79 articles, and data not about the review of interest author excluded 20 articles. The author selected 80 articles for final analysis. Inclusion and exclusion criteria were utilized to avoid duplicates and select relevant articles. Peer-reviewed articles were included in the study. English-language peer-review journals were included while non-English articles were excluded. Articles that lacked a full-text version were also excluded.

Discussion

The research underscores the fact that Pakistan is being unfairly impacted by the negative externalities of such practices, which are not only detrimental to the country's environment but the well-being of its citizens. The impact of climate change on Pakistan has been a subject of concern for many years. For the past two decades, Pakistan has continuously been among the top ten vulnerable countries. The climate debate is linked to security issues and poverty. These challenges have hindered Pakistan's progress toward achieving its development goals and have created a sense of insecurity among its citizens. The aforementioned factors have a significant influence on the government and its institutional capabilities. Due to climate issues, a significant number of individuals experienced physical debilitation after enduring prolonged periods of starvation, as they awaited the arrival of food supplies via aircraft delivery to their location. The displacement of families due to floods has resulted in their relocation to areas that lack adequate shelter and sanitation amenities. In the face of difficult circumstances, it has been observed that a minimum of one male member from each family has migrated to either rural or urban areas in search of employment opportunities. Climate change and migration are significantly associated, as evidenced by this study, and we must deal with this relationship. Climate impacts, both immediate and delayed, are exacerbated by a variety of circumstances, including social, economic, political, and even cultural features within a community, which may force migration. Climate-induced migration stressed the destinations, that is further compounds climate risks in Pakistan. The findings of this

review paper are divided in form of risks, those occurring due to climate-induced migration in Pakistan, and determine the magnitude of the costs and consequences that we will face.

Risk-1: Flood-Induced Population Displacements

Floods and heat stress are the primary causes of climate-induced migration in Pakistan, forcing people to migrate temporarily or permanently. Numerous Pakistanis are forcibly displaced as a result of natural calamities involving flooding (Joles, 2021). In Gilgit-Baltistan, extreme weather conditions have been unpredictable in recent years, resulting in torrential downpours, sudden floods, and landslides. These circumstances compelled individuals to migrate. Pakistan's monsoon and precipitation patterns have shifted in recent decades as a result of a temperature rise. The summer monsoon has shifted toward the season's end, and the winter rainfall has shifted toward late February and March. Similarly, the snowfall season in Pakistan, which typically begins in November and concludes in December, now lasts until March (Ijaz, 2017). These conditions force individuals to make the challenging decision to migrate, whether to safeguard their families from environmental dangers or to improve their economic situation. In urban areas, however, they face new challenges as they compete for limited space and resources, thereby aggravating the inequalities that made them vulnerable to 7climate change in the first place (Joles, 2022). Floods have submerged one-third of Pakistan, forcing people in affected areas to relocate to survive. Floods have already caused the sufficient human and economic loss. Whenever local migration occurs, the government is responsible for the migrants' requirements, but the government itself is experiencing economic difficulties. Pakistan cannot provide for the requirements of the migrants without the help of NGOs and international aid. If the migrants, who have already endured the trauma caused by the disasters, are not cared for, their frustration may also lead to conflict. Their primary need is survival, and they will go to any lengths to achieve it. Unless the government meets all of its requirements, it will have complaints. People are migrating to urban areas, particularly the largest cities. If their requirements are not met, there is a high likelihood that crime rates will also be high (Seyyed, 2022). Patterns of coerced displacement and migration can be observed in all Pakistani provinces, though their causes vary. Residents of Khyber Pakhtunkhwa and Gilgit Baltistan migrate seasonally or permanently as a result of Glacial Lake Outburst Floods (GLOF). In 2010. the worst climate-related calamities ever recorded and more than 20 million individuals were categorized as climate-related refugees. Sea intrusion in the coastal regions of Sindh is also destroying the land as a result of deforestation, resulting in the displacement of local communities. (Nasir, 2022).

Risk-2: Disasters and Economic Collapse

Pakistan is unjustly suffering the effects of negligent environmental practices in other parts of the world (Kunbhar, 2022). Since its inception, Pakistan has been afflicted by both major and minor natural disasters. These catastrophes included floods, earthquakes, windstorms, and droughts, among others; they annihilated infrastructure, lives, livestock, means of subsistence, health, education, communication, and businesses, among other things (Mahesar, 2022). Half of Pakistan's population relies on agriculture, animal husbandry, and fishing as their primary source of income. All of these are negatively affected by global warming. Poverty is the most significant determinant of climate change vulnerability and a primary cause of displacement (Labor Force Survey, 2018). Due to climate change catastrophes, Pakistan loses more than $4 billion annually, according to the Ministry of Climate Change, Pakistan lost $80 billion between 1996 and 2016. Climate migration is taking place in all provinces of Pakistan, as well as the northern Gilgit-Baltistan region (Latif, 2019). Pakistan has experienced several natural calamities in the past, including the 2005 earthquake, the Hunza landslide, and numerous cyclones. These catastrophes have varied characteristics, but they have all resulted in substantial loss of life and property devastation. Pakistan faces issues such as terrorism and political unpredictability. All of these factors have significant effects on the government and its institutional capacity. In August 2022, torrential rainfall and flooding in Pakistan affected an estimated 33 million people and caused over $40 billion in economic damages (Burke et al., 2023). The economic losses incurred due to flooding were severe, with shops, kiosks, poultry shelters, livestock, and other assets being washed away by floodwaters. Those who were able to save their buffaloes, goats, or other livestock faced a lack of forage and were compelled to sell them at

significantly reduced prices. The impoverished, during and after disasters, faced challenges in accessing aid due to its delayed arrival and mismanagement. For instance, people suffered from malnourishment after days of starvation while waiting for food to be delivered by aircraft to the affected region. Floods forced families to relocate to areas with inadequate shelter and sanitation facilities. In such dire circumstances, at least one male member of each family migrated in search of work, either to a rural or urban area, to send money back home and support their remaining family members (Salik et al., 2020). Natural vulnerabilities Floods, rainfall, wind, and storms are not rare occurrences with negative outcomes (Fomby et al., 2013). Children are excluded from school whenever natural disasters cause large-scale population disruption, which increases the neonatal mortality rate (Jonkman, 2005). Moreover, in Bangladesh and India, high rates of diarrhea and AIDS were reported as a result of the flooding (Rahman et al., 2012). Numerous variables make Pakistan susceptible to the effects of climate change. There is substantial rural poverty, urban unrest, land degradation, and food production deficiencies, and nearly half of the population relies on agriculture for subsistence. Additional urbanization and industrialization place additional stress on water supplies already imperiled by climate change (Climate and Migration Coalition). China and the United States are undoubtedly accelerating climate change, whereas countries like Pakistan are facing a critical climate crisis (Hayat, 2021).

Risk-3: Food Security Paradigm

Climate action is essential. The effects of climate change on agricultural productivity and food security are extensive. It is one of the primary causes of the record number of people forced to migrate from rural areas to urban areas across the globe (United Nations Climate Change, 2017). Pakistan is already in the midst of an economic crisis characterized by a high level of deprivation, and inflation. In this way, climate change, and food insecurity exacerbate the nation's existing issues (Malik, 2021). Beddow et al., (2012) explained that climate change threats to crops and their pattern of cultivation as well as massively affects food security, safety, and human health. As an agricultural nation, Pakistan is susceptible to climate-sensitive commodities such as rice, vegetables, cereals, spices, and other grains. Menhas et al., (2016) stated that increasing temperatures and fluctuating precipitation lead to water scarcity, which in turn causes food security issues due to low productivity, particularly in the cropped food sector. Climate change affects all aspects of food security. First, it strains the physical access to food because of low production and indirectly affects food production through floods, droughts, and extreme weather conditions. Second, when food production and supply chains are disrupted, food prices rise, reducing economic access to food as a result of inflation. When physical and economic access is disrupted by climate change, the nutritional aspect is also affected (Malik, 2023). The Indus Basin, which is the foundation of agriculture in Pakistan, is gravely threatened by adverse climate change effects. The changing weather patterns may reduce crop yields "(15–20% in cereals) and livestock (20–30%)" (Zhang et al., 2020), impacting negatively dairy and poultry as the agriculture and livestock sectors are the "backbone of Pakistan's economy" (23% of GDP and 60% of exports) (Akhtar et al., 202). 71% of Pakistani families are food insecure, with the poorest fifth being the hardest affected. Due to climate-related disasters, an increase in deficiency cases is anticipated. Young children and women are especially vulnerable to food insecurity (Siddiqui et al., 2012; Ahmed and Schmit, 2011; Gorst et al., 2018; Asif, 2013; Tariq et al., 2014; Rasul et al., 2011), and a decline in nutritional status (Integrated Food Security Phase Classification, 2021). Pakistan's consumer price inflation reached 24.9 percent in July 2022, substantially reducing the purchasing power of the populace. The rising cost of inputs, energy, and transportation has affected the agricultural sector as a result of rising fuel prices. Fertilizers and locally assembled tractors have become prohibitively expensive for farmers to purchase (Malik, 2022).

Risk-4: Water Crisis

Temporary migration is a traditional adaptation strategy to seasonal water stress, those exposed to prolonged water insecurity could migrate permanently. The impacts of migration on water sources are largely discussed in negative terms, mainly focusing on the increased demand for water in areas of destination. The governance of water and climate-induced migration are interconnected (Environmental Migration Portal, 2022). Water security directly impacts food and energy security in

agrarian societies like Pakistan, which accounts for over 23% of the country's gross domestic product. Agriculture provides livelihood to more than 40 million people and ensures food supply. In the past, the loss of important river systems had a cascading impact on thriving civilizations, leading to their collapse. However, Pakistan is transitioning from a water-stressed to a water-scarce nation with declining per capita pure drinking water, less than 1800 cubic meters per year (m3/y), and an expected decrease to 800 m3/y by 2026 due to the rising population. This emerging threat to Pakistan's water security is compounded by the fact that the country depends on nature and other nations for river water. India has constructed over fifty large and minor dams on rivers flowing into Pakistan, causing tension in bilateral relations and affecting Pakistan's water and energy security. Similarly, Afghanistan's proposed construction of structures on the Kabul River may pose additional challenges. Pakistan's two main dams, Tarbela and Mangla, constructed in the late 1960s and early 1970s, are decreasing in capacity due to silting. While the construction of new dams is politicized and unlikely to happen soon, reduced water availability can worsen food shortages and result in conflict between federating units and the federation. Climate change can exacerbate these issues, leading to the melting of glaciers and unusual rain patterns, which can cause flooding, as witnessed in 2022.

Risk-5: Harsh Climate Worsening the Health Sector

The health effects have been linked to harsh weather conditions and climate change. As harsh weather conditions create challenges for health sectors and the well-being of humans. According to Paavola (2017), the health impacts of severe climate conditions affect human health due to sensitivity and weather vulnerabilities (Winter et al., 2022). The impacts of climate change on health encompass a broad range of issues, including respiratory and cardiovascular illnesses, the spread of vector-borne diseases such as West Nile Virus and Lyme disease, water and food-borne illnesses, and injuries and fatalities. The elevated temperatures resulting from climate change exacerbate the risk of contracting water and vector-borne diseases. Additionally, climate change has been associated with an increase in violent crimes, as well as overall poor mental health. (United States Environmental Protection Agency, 2023). In this situation, people face issues of social challenges like mobility and migration. Hence, climate conditions increase the chances and risks of human health and diseases. Severe climate conditions increase the risks of floods and affect urban living standards (Winter et al., 2022). The severity of climate change resulted to worsen social living conditions for people (Shah et al., 2020). The chance of chronic disease also increased during floods because harsh climate conditions have a direct impact on human mental as well as physical health (Callender et al., 2022). (Save the Children, 2011) Extreme climate events generally cause melancholy, distress, aggression, etc. The frequency and duration of heat waves are projected to increase (Chaudhry et al., 2015). Changes in temperature and precipitation may increase the number of mosquito reproductive sites, increasing the incidence of dengue and malaria (Khalid and Ghaffar, 2013; RCRC, 2021). Four months after the advent of floods, the prevalence of Malaria in Pakistan was reported to have increased dramatically. This distressing situation was exacerbated by a breakdown in health services and a paucity of qualified health personnel (Malik et al., 2012). Dengue Fever outbreaks are a significant public health concern, as seen during the 2019 pandemic that lasted from July to November, resulting in 47,120 cases and 75 fatalities (WHO, 2019). The impact of climate change is likely to exacerbate water-related issues, such as quality and quantity. Drought conditions and reduced precipitation can lead to water scarcity, resulting in increased concentration of pollutants in the water and households resorting to low-quality alternative water sources (Liu and Chan 2015; Ahmed and Suphachalasai 2014; Ministry of Climate Change 2012; Shah et al. 2020; Weeks and Harrison 2020), which can further complicate the situation.

Risk-6: Gender Inequalities as a Cost of Climate-Induced Migration

Climate change may not discriminate based on socioeconomic status, gender, age, ethnicity, etc (Terry, 2009). However, global political, economic, and social institutions can and do exacerbate the effects of climate change (Islamic Relief, 2021) and worsen gender inequalities. Research and policy have widely acknowledged the gendered effects of climate change (Chindarkar, 2012). Literature on gender and mobility elucidates the varied roles and responsibilities undertaken by men and women,

their diverse access to resources for migration, and how the migration process differs for men and women (Deshingkar, 2006). When it comes to climate-induced migrations, the intersection of climate, gender, and migration renders women more susceptible to the negative effects of migration due to their limited resources and limited capacity to migrate (Chindarkar, 2012). Low-income women who rely on agriculture are the most vulnerable to the effects of climate change, according to a 2009 report by Buechler. Particularly in developing countries, where women are consumers and administrators of fundamental natural resources (they are responsible for managing water, timber, and other forest products), environmental degradation has a devastating impact on women. Similarly, households dependent on women for revenue crops or plantations are severely impacted by droughts and cyclones (Nelson et al., 2002).

Understanding the impact of gender on mobility and vice versa has been regarded as fundamental to mobility studies (Borràs, 2019). Gender rights concerning access and opportunity to resources are intertwined, resulting in social inequalities that affect migration (Rothe, 2017). Frequent attention is paid to the varying effects of climate change on gender, but migration is largely ignored. Migration is considered a crucial adaptation strategy in response to climate change's extreme events. Women and men experience migration differently; therefore, a gendered perspective is essential for policy formulation. Gender plays an evident role in the development of migration policies, and its significance was even acknowledged in the 2015 Paris Agreement (Matthew, 2016). Climate change-induced migration in Pakistan disproportionately affects women, leading to physical and emotional health impairment, increased domestic burden, limited mobility, and loss of earning potential, especially for rural women who work in the agricultural sector. The article 'Climate-Induced Migration in Sindh, Pakistan' sheds light on the daily struggles of climate migrants, such as exposure to wild animals, snakes, and vector-borne diseases, vulnerability to sexual harassment, lack of privacy, and the constant emotional trauma of being forced to leave their homes. (Hayyat, 2021). Brown (2008) asserts that similar to other internally displaced women, climate-induced female migrants face a larger risk of sexual and gender-based violence. After natural disasters, a secure sanctuary is a top priority for many women. In addition, women must address their mental health concerns due to security concerns (Mitchel et al., 2007), resulting in anxiety and post-traumatic stress in migrant women. The disintegration of social structures and families has a significant impact on women as well. In the event of extreme events 4such as floods, droughts, or other climatic events, which result in decreased production, it was found that women suffer from nutritional and food deficiencies. Therefore, increasing burden and protracted malnutrition harm the physical and mental health of women, particularly pregnant and nursing mothers (Bhandri et al., 2007). From the FGDs and KIIs, it is evident that the predominant concern of women who migrated due to floods or drought was their safety at their destination. The majority of women reported not having access to secure sanctuaries. In Pakistan, the impact of climate change on the agriculture sector harms rural women by threatening their means of subsistence and imposing additional responsibilities. In contrast, seasonal migration within agro-pastoral communities increased the vulnerability of women by increasing their labor (Ghaus and Ahmed, 2013).

Risk-7: Global Perspectives versus Local Realities

There are several perspectives and debates regarding the causes and characteristics of climate-induced migration. However, many of the dominant global perspectives are hypothesized and colonial, which hinder the development of national policies, international laws, and investments in climate solutions necessary to safeguard the lives and dignity of people worldwide, particularly those disproportionately affected by climate change (Islamic Relief, 2021).

Recent research shows that the majority of individuals displaced by climate impacts do not leave their countries, a crucial finding often overlooked in global discussions. Although climate change-induced resource loss can lead to conflict, most climate migrants are forced to flee due to habitat loss and the loss of livelihood opportunities rather than persecution, as defined in the Refugee Convention. Furthermore, most climate-vulnerable migrants prefer to relocate within their country of origin (The Nansen Initiative, 2015), except for small island nations affected by rising sea levels, which will inevitably necessitate external migration. As the majority of climate-induced migration

occurs within countries, the term "climate refugee" is misleading and does not reflect the need for countries to manage internal climate-related migration. The study of climate-induced migration in climate-vulnerable Pakistan underscores this point and emphasizes the need for greater attention to internal climate-induced migrations.

CONCLUSION

Apart from the aforementioned risks and challenges, climate-induced migration poses a security threat to indigenous communities where migrants settle. The presence of migrants from different ethnic and cultural backgrounds taking up jobs in these communities causes a sense of threat for the indigenous people. The lack of resources often results in conflicts between the migrants and the host community, particularly in areas with high population density. The rapid increase in population due to climate migrants can lead to food insecurity, water shortage, displacement, gender inequalities, and economic crisis, mainly due to poor governance and mismanagement by the concerned stakeholders. While certain kinds of migration may be adaptive, others may suggest a failure to adapt, according to the article. Furthermore, this review article investigates the policy discourse around the link between disasters and migration, emphasizing the crucial role of governance structures in allowing the establishment of international and national disaster risk management organizations. The importance of good governance and management in preventing climate-induced migration cannot be underestimated. According to the article, well-planned relocation methods can be a successful adaptation approach. Climate adaptation necessitates sophisticated research, political will, investment, and a rethink of obsolete infrastructure and ineffective policies in all affected institutions, including agriculture, water, and energy.

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