Journal of Media Horizons
ISSN: 2710-4060 2710-4052 Volume 6, Issue 4, 2025

CLIMATE-INDUCED MIGRATION IN PAKISTAN: AN EMERGING CRISIS

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DOI:https://doi.org/10.5281/zenodo.17240408

Keywords
Climate-Induced Migration, National Security, Pakistan, Regional Security Complex Theory (RSCT), Human Security, Environmental Displacement, Climate Resilience.

Article History
Received on 11 July 2025
Accepted: 15 September 2025
Published: 30 September 2025

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Abstract
Climate-induced migration has become one of the most severe non-conventional challenges to the national security of Pakistan. As a geographically exposed state, Pakistan is exposed to catastrophic climate events like floods, droughts, glacial lake outburst floods (GLOFs), and sea-level rise, which have caused extensive internal displacement. These climate disruptions not only displace populations but also put extreme pressure on already weak urban infrastructure, water supplies, food systems, and state institutions. This research investigates the scale of climate-driven migration in Pakistan and analyzes how such migration processes strengthen socio-political tensions, economic disparities, and security weaknesses across the country. The thesis utilizes qualitative research and engages with the Regional Security Complex Theory (RSCT) to comprehend how internal climate-induced displacement is a conflict multiplier and source of insecurity. It emphasizes the gendered impact of migration, the rural-urban divide, and institutional inefficiencies in managing environmental problems. Moreover, the study pinpoints essential gaps in national planning and proposes holistic policy suggestions to incorporate climate migration into security and development models. By positioning climate-related migration as an issue of national security, this research adds to the larger debate on climate resilience, sustainable governance, and human security in Pakistan.

INTRODUCTION

Politically, peace, national security, and stability everywhere are perceived as under threat by climate change. One of the most perilous consequences of climate change is Climate-Induced Migration (CIM). Intense weather conditions, like sea level rise, floods, and droughts, displace individuals or groups of people, a situation that has extensive and severe impacts for national security. Climate-induced migration is a severe security threat to Pakistan, which is a geographically exposed country that is often hit by calamities due to climate. That seeks to examine the association between climate change-induced migration and the national security of Pakistan while shedding light on how climate change can exacerbate existing sociopolitical and economic.

One of the most vulnerable nations to both slow-onset and fast-onset climate change catastrophes is Pakistan. Climate-induced migration, cropping zone shifts, deterioration of ecosystem services, and a delayed decline in agricultural output are all consequences of slow-onset climate events (like average sea level rise and temperature increases). A decrease in soil fertility and an increase in crop water requirements lower farm profitability and labor needs (Sal, 2020).

Permanent migration in Pakistan as a result of climate change Livelihoods have been drastically affected by extreme weather conditions such as increasing floods, temperature rises, sea-level rise, and changing precipitation patterns that have led to the migration of many. Permanent climate-driven migration is a critical issue that has been influenced by an array of environmental factors in Pakistan. During the recent years, individuals have permanently relocated from their regions towards more important and more sustainable regions, especially the major urban centers of Pakistan. Forced migration and displacement due to climate change have affected every province of Pakistan. Still, due to riverine floods and Glacial Lake Outburst Floods (GLOF), people from K.P.K. and Gilgit Baltistan tend to move permanently at a relatively high frequency. The 2010 floods that resulted in the displacement of an estimated 20 million people represent the most evident example of this kind of flooding. In addition, approximately 4.5 million individuals in Sindh and Baluchistan were affected by the monsoon flooding in 2012 (Hashmi, 2023).

Literature Review

The author emphasized how the world is constantly changing due to unprecedented climate emergencies, which are causing the poor to face more hardship by destroying their means of subsistence and housing and affecting their access to basic necessities like food, water, education, health care, security, and transportation for women and children, especially those who are pregnant. The average global temperature in 2019 was 1.1°C, and this is predicted to rise in the near future, eventually surpassing the 2°C threshold (Sal, December 2020).

Literature emphasizes how climate change threatens not just the environment but also displacement and conflict. Lack of resources, such as water and fertile land, is typically linked to climate migration, which can lead to instability and intra-national conflicts (Adger et al., 2007). For Pakistan, political unrest, economic inequality, and natural disasters combine to create an ideal environment for the escalation of security risks through climate migration.

Numerous researches have examined climate migration. According to Renaud et al. (2007), migration rates are higher in regions that encounter climate events like droughts or floods. According to Ahmed (2019), climate change-related internal migration in Pakistan is caused by both slow-onset processes (like deserts) and sudden-onset calamities (like floods). Social disintegration and escalation of pre-existing conflicts between the host communities and migrants are caused by such migration movements. According to a 2007 assessment by Barnett and Adger, climate migration may lead to security issues like competition for scarce resources, particularly food, land, and water. Competition for resources in Pakistan, particularly between migrant and host groups, has the potential to exacerbate conflicts and jeopardize regional security.

There is sufficient evidence that Pakistan is susceptible to climate change. Pakistan recurrently faces drought, flooding, and other weather-related disasters, as indicated by the National Disaster Management Authority (NDMA, 2019). As per the International Organization for Migration (IOM, 2020), approximately 500,000 individuals get displaced every year due to climate-related disasters, especially in flood-hit areas such as Sindh and Baluchistan.

Climate change has also emerged as an important migration driver in South Asia, especially in Pakistan, with rural livelihoods increasingly being threatened. Nawaz and Iqbal (2020) identify that unpredictable weather conditions, like extended drought and unexpected floods, have led to mass displacement in rural communities. These environmental conditions lower agricultural production, dry up water sources, and compel households to move towards cities in search of new livelihoods. Yet this fast-paced migration to cities usually catches up with the local facilities and services and adds new vulnerabilities to the city, including the expansion of slums and greater poverty.

Moreover, the inability of institutions to cope with climate migration makes existing socio-political tensions worse. According to Farooq and Khan (2018), the absence of climate-responsive city planning in Pakistan has contributed to further marginalization of migrants. These groups tend to experience difficulties including restricted access to housing, labor, and public services, that can lead to resentment among hosting populations. The

competition for resources, particularly in already vulnerable areas, can exacerbate into local conflicts and security risks. Consequently, climate migration must be met with concerted policy action that blends disaster risk reduction, urban development, and social protection policies.

Research Gap

While existing studies are centered on the intersection of climate change, migration, and security in Pakistan, several gaps exist. Little research is conducted on the daily lives of internally displaced persons (IDPs) and how they cope. Further, while urban migration patterns are taken into consideration, how urban planning failure leads to migrant vulnerability is not taken into account. Region-specific data on how different regions and vulnerable groups, such as women and children, are impacted by climate displacement are scarce. Furthermore, the long-term integration of climate migrants and their effects on host communities is under researched. Additional studies need to be done in order to establish holistic, interdisciplinary strategies for dealing with climate migration and its security concerns.

Theoretical Framework

It will apply Barry Buzan and Ole Waever's Regional Security Complex Theory (RSCT) to examine the security concerns of climate change migration in Pakistan. RSCT is relevant to examining Pakistan's climate migration dynamics since it considers the shared security threats that geographically contiguous states face.

Additionally, it treats major resource conflicts, urban violence, and social disorder brought on by displacement as non-traditional dangers while ignoring some traditional boundaries of geographically constrained consequences (such as cross-border migration and disputes over water resources with India). It is consistent with RSCT's strategy to identify its sources for important national security and regional geopolitical issues to frame climate migration as a security issue.

By including this method in the study's design objectives, it is possible to analyze the volume of migration and assess its security implications using the framework of cross-border climate vulnerability, which facilitates the development of policy solutions for adaptation and mitigation (Regional Security Complex Theory, n.d.).

Climate-Induced Migration in Pakistan

Climate-induced migration refers to the displacement of people due to the impacts of climate change, such as variability in extreme weather conditions, sea level rise, and changes in agricultural productivity. Climate-induced migration is relevant for Pakistan, which is highly exposed to climate change. This chapter analyzes the magnitude, factors, and implications of such migration in Pakistan, and reflects on the socio-economic effects on both migrants and host populations, and synthesizes government responses and global policy responses to displacement caused by climate. "Climate-induced migration" refers to all forms of human movement triggered by climate change, both gradual and sudden environmental changes. Even though "displacement" normally indicates the transitory relocation of people due to flooding or other disasters, it can also be applied to permanent resettlement. (Vighio, 2024)

Overview of Climate Change in Pakistan

Pakistan is among the most exposed nations to climate change, with a broad spectrum of environmental pressures ranging from rising temperatures, irregular rainfall, floods, droughts, and the melting of Himalayan glaciers. Climate change has worsened existing vulnerabilities such as poverty, food insecurity, and poor systems of governance. South Asia, and Pakistan in particular, are likely to experience more frequent and intense climate extremes in the future with attendant displacement and migration (IPCC, 2021) many had to move away. In addition, millions of livestock were lost worth more than US$ 2.5 billion. The drought of 2001 reduced economic growth from an average of 6% to only 2.6%. Again, a case of Tharparker in 2001 resulted in the deaths of hundreds of children due to malnutrition since January 2014 due to severe very less rains reported during the period from March 2013 to February 2014, i.e. 30 % below average [9, 53]. There were a few who believed that deaths were not only caused because of droughts but outbreak of disease and endemic poverty on an

extreme scale were among the factors as well. Due to climatic issues, many of various populations had to migrate. Climate migration overwhelmed the destinations, i.e., further exacerbates climate risks in Pakistan (1nabeela Farah, 2023). The planet's climate has changed over time through cycles, which have been repeated over long periods, and this is a natural process. There has been a rapid climate has changed in the past 50 years, however. There is evidence from science that the not been caused by the natural cycles of climate but by global warming and anthropogenic interventions. (Hashmi, 2023).

The UN High Commissioner for Refugees (UNHCR) has acknowledged that the effects of climate change have led individuals to leave their homes to pursue new lives elsewhere, and states that the UNHCR will take part on questions of human rights regarding climate change-induced population displacement and will adapt most of its environment-focussed planning and activity to the effects of climate change.2 The UNHCR has raised concern, however, since environmentally displaced people (EDPs), are excluded under the 1951 Refugee Convention and are not therefore covered by the UNHCR's charter. Politicians and the media refer to EDPs as 'climate refugees,' although there is no political, international, or academic consensus that EDPs are refugees by definition since they are so legally ambiguous. That ambiguity has created a legal protection gap. Environmental displacement is more than an ecological phenomenon. It is a multicausal phenomenon in which ecological and socioeconomic vulnerability converge to displace the marginal (Jayawardhan, 2017).

Floods: Pakistan is frequently afflicted by catastrophic flooding, particularly during monsoon. The 2010 floods, which were the country's worst floods ever, affected more than 20 million people and millions were left homeless (Zia, 2012). Flooding in Pakistan is the most destructive and detrimental Natural disaster and therefore results in heavy loss of human lives, infrastructure and natural resources. Floods generally occur in Pakistan due to tropical monsoon depression systems that begin from the Bay of Bengal from July to September. River floods specifically have a unique effect on Indus plain districts, while hill torrents prefer to strike hilly districts located in the northern and western parts of Pakistan. For example, the 2010 flood disaster codenamed Pakistan Flood 2010, was colossal, affecting 160,000 km² (1/5 of the land area of Pakistan). It resulted in an estimated US$ 9.7 billion worth of damages. According to the NDMA, the flood claimed 1,825 lives, 157 missing, 20 million people displaced and around 3,000 injured; more than 1.9 million houses damaged and more than 6.3 million acres (2.57 million ha) of cultivated areas destroyed up to October 4, 2010. A total of approximately 78 districts were flooded by the Pakistan Flood 2010, where 28 districts were extremely hit: 1 district of Azad Jammu & Kashmir, 10 districts in Khyber Pakhtunkhwa, 7 districts in Punjab, 2 numerous were compelled to migrate (Wahid Ullah*, 2016).

Sindh and Balochistan provinces are susceptible to recurring droughts that affect agricultural livelihood and lead to rural out-migration (Saleem et al., 2019). Drought is a multi-faceted phenomenon because it has higher correlations with socio-economic factors and is usually also highly correlated with poverty and on-adaptive land, water and agriculture practices leading to overuse of groundwater, deforestation and declination Larsen et al., in his report cited (Global Facility for Disaster Risk Reduction) that the 2000 and 2002 droughts in Pakistan were so severe, it devastated people's livelihoods. More than 3 million were severely affected in the Baluchistan and Sindh provinces, of pasture land many were forced to migrate (Wahid Ullah, 2016).

Larsen et al., has said in his report that most of the areas of Pakistan are open and susceptible to climate-induced landslides especially Kashmir, Northern Areas and parts of the Khyber Pakhtunkhwa province. Low strength of mountain range soils, excessive deforestation, agriculture and illogical constructions are also among prominent reasons for an increase in landslide cases. Small isolated landslide dangers happen regularly in the aforementioned areas. There have been 13 landslide accidents that happened between 1926 and the loss of 413 lives (Wahid Ullah, Climate Change Vulnerability of Pakistan Towards Natural, 2016)

Heatwaves: Rising temperatures and recurring heatwaves have rendered some regions uninhabitable, while forcing populations to move to colder areas. These climatic occurrences result in

displacement, adding to internal migration in Pakistan and mounting pressure on urban centers, especially major cities such as Karachi, Lahore, and Islamabad.

For a low-middle-income country like Pakistan, where one-third of its 188 million population is relying on climate-sensitive sectors like agriculture and energy for their livelihood, the quantification of the climate-related hazards like HWs becomes a matter of paramount importance. Regrettably, published literature contains very few studies focusing on the HWs over the nation. There is currently no research addressing HWs' future forecasts over the country; the sole published work in the peer-reviewed literature to date is by Zahid and Rasul (2012), who used station-based data to examine historical trends of HWs over Pakistan. K. Vighio (2024). A thorough analysis of the relationship between migration and climate. With an average global near-surface temperature of 1.0–1.1°C higher than pre-industrial levels, the 2011–2020 decade was the warmest to date.

Additionally, there were numerous extreme heatwaves around the world, some of which were directly caused by or significantly exacerbated by human-caused climate change. With the aim of "holding the increase in global average temperature to well below the 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels," countries agreed to reduce greenhouse gas (GHG) emissions under the terms of the Paris Agreement. Nonetheless, current climate plans predict 2.7°C of warming this century. The global mean temperature may rise even further if current pledges are not met. The body's ability to thermoregulate is hampered by external heat increases, which can have physiological repercussions that worsen pre-existing conditions or cause a range of cardiovascular, respiratory, cerebrovascular, renal, psychological, and hormonal effects that can ultimately result in early death and disability.

Thus, it is reasonable to believe that there are biophysical limitations to surviving in extremely hot environments. Humans have responded to rising temperatures in a number of ways, including adaptation in situ, short-term migration during the hottest months, longer-seasonal migration, and permanent out-migration. According to scholarly research, heat stress and associated illnesses can limit in situ adaptation, leading to both internal and cross-border migration in reaction to extreme heat [6] and to mitigate the negative health effects of rising temperatures (Issa et al., 2023). Migration of humans on a warming planet.

Causes of Climate-Induced Migration

Climate-induced migration in Pakistan is driven by both slow-onset changes and rapid, extreme events. The primary causes include:

Extreme Weather Events

As has been noted previously, the most direct reason for displacement in Pakistan is floods and heatwaves. Other than floods, storms and cyclones are frequent and cause people to migrate from their homes to find alternative safer places. Migration acts as a survival mechanism after such occurrences. Droughts and monsoons are not the only causes of migration. The increase in sea levels, floods, heatwaves and wildfires across the nation as well compel these. An increasing number of people are moving from the rural to the cities as a result of the rising temperatures. In 2020, 806,000 people were forced to relocate due to climate change, according to the Internal Displacement Monitoring Centre (IDMC). After Bangladesh and India, Pakistan ranks third on the list of countries affected by disaster-related migration, and if global warming continues to increase, it is estimated that 2 million people will be migratory by 2050. In 2010, floods in Pakistan affected 20 million people and destroyed $1 billion worth of crops. Approximately 200,000 people were sent to internal displacement camps, while another 14 million people had to be temporarily relocated. Some of them were permanently moved (Abbasi, 2022).

Drought and Agricultural Decline

Agriculture is heavily reliant in many areas of Pakistan. In areas where irrigation systems have failed as a result of droughts or water scarcity, rural communities tend to migrate to urban centers in search of improved opportunities. The decreased amount of water available for agriculture impacts food security and livelihoods, leading to migration as an adaptive measure. The average global temperature

over the last century has increased by around 0.8°C due to greenhouse gas emissions, and in recent years, it has been declared to be the hottest on record. Precipitation levels have fluctuated over the past few decades due to an increase in global temperatures. As a result, sub-humid and humid regions are likely to experience monsoon rains, but coastal and hyper-arid regions are likely to experience a decline in winter and summer rainfall. Low-level glaciers are melting as a result of rising temperatures brought on by global warming. In high altitude, there are roughly 76 lakes with an average area of 545 ha.

Mountainous regions were examined. It was suggested that regular glacier observation would help with water management in the face of climate variability. This century, temperatures are predicted to increase by 2% to 6% Celsius, which would have an especially negative impact on Central Asian water supplies, which normally depend on river water for farming (Climate Change, Water Quality and Water-Related, 2020).

Droughts are natural disaster. It may happen for short or long duration which will depend on situation of that place. Since the early 2000 droughts primarily happen in Baluchistan and Sindh provinces because of scant rainfall. As a result of drought situation grassland is diminishing. In Pakistan drought is exacerbating food insecurity since our economy is agriculture based. It also triggers massive migration and lead to deprivation and fatalities. Numerous instances discovered in history regarding extreme effects of droughts such as droughts of 2000 and 2002 in Pakistan was so bad that reason to ruin living of individuals. Numerous individuals were affected because of these droughts and many were forced to migrate. These droughts also affect livestock (Najaf batool, 2024).

Sea-Level Rise

The increase in sea levels, especially along the coastal areas such as Karachi and the Makran Coast, is threatening low-lying land. Intrusion of saltwater into groundwater and loss of cultivated land are driving rural coastal settlements towards the interior (GOP, 203).

Sea level rise (SLR) poses significant environmental and economic values within the coastal region at risk. Sea level rise will elevate estuary, coastal wetland and aquifer salinity, which will disrupt marine biota and potentially jeopardize surface/sub-surface drinking water resources. Sea level rise also promise to flood low-lying land and would accelerate coastal erosion process. At the global level, an increase in sea level by up to one meter during the course of the next century may greatly harm human habitations, agriculture, fresh water resources, fisheries, health and coastal ecosystems. One billion individuals and a third of the global crop-growing regions will be impacted that will threaten the food supply for 200 million individuals and it may cause 50 million environmental refugees. UNEP (United Nations Environment Programme) Pakistan has been identified as one of the nations most vulnerable to the consequences of sea level rise through its OCA/PAC initiative for regional seas (1989). According to IPCC (1995) forecasts, the global temperature may increase by 1°C to 3.5°C by 2100. from 1961 and 2003, the average annual rise in the global mean sea level was 1.8 [1.3 to 2.3] mm, and from 1993 and 2003, it was roughly 3.1 [2.4 to 3.8]

It is unclear if the increased rate from 1993 to 2003 represents an acceleration of the longer-term trend or decadal variability. Around 57% of the projected total individual contributions to sea level rise since 1993 have been from oceanic thermal expansion, with the remaining 28% coming from glacier and ice cap declines and the remaining 7% from polar ice sheet losses. The sum of these climate-related contributions between 1993 and 2003 agrees, within uncertainty, with the total sea level rise that was directly measured. More than 20% of Pakistan's coastal land is relatively developed, 40% of industry is located on or near the shore, and more than 10% of the country's population lives near the coast.

The cost of protecting these human resources will be high, particularly if the effects of climate change materialize abruptly rather than gradually. Although not a concern, a few millimeters of sea level rise annually would have a major impact on coastal resources for sustainable coastal zone management, both directly and indirectly. Coastal ecosystems can be rapidly destroyed or destroyed by direct land loss in low-lying coastal locations. In addition to sea level rise, tropical cyclones will become more frequent due to global warming, which will worsen the suffering of coastal states(M. M. Rabbani & Tabrez, 2008).

Melting Glaciers and River System

In Pakistan's north (Gilgit-Baltistan), the rapid melting of glaciers has grown to be a serious problem. Communities living downstream are being displaced as a result of glacial lake outburst floods (GLOFs), which are a hazard caused by glaciers generated by ice melting (UNEP, 2020). In the region, glacier surge is a common occurrence. The Khurdopin glacial lake was created by the 2017 Khurdopin Glacier surge in the Shimshal Valley of the Hunza River basin. In some locations, glacial lakes are a significant source of fresh water, but when their dams abruptly fail, they can cause catastrophic floods that pose a serious threat to downstream communities and infrastructure.

As the glacial lakes' volume and elevation increase, as well as if infrastructure and settlements downstream are close by, the severity of GLOF damage increases. The majority of the prospective lakes in the research area have the capacity to demolish roads and other infrastructure. Numerous GLOF incidents have been reported in the area throughout the past 50 years, especially in the eastern half of the CPEC zone. The Karakoram Highway was damaged and temporarily closed during the recent GLOF event, which was caused by the surge of the Shisper Glacier.

Temperature increase is one of the key driving factors leading to glacial lake expansion. The glaciers in this region are also retreating. Further examination of the surges of Khurdopin Glacier brought to light both that there is evidence of the thermal effect – once basal ice begins to melt, it leads to basal sliding that subsequently triggers these surges – and that glacier retreat is causing the growth of Passu glacial lake. The research also indicated that the maximum increase in lake area was below 3500 masl, showing a condition favorable for water resource management (Saifullah, 2021).

In accordance with a report released in Nature Communications, four nations are under greater risk to GLOF, which has nearly15 million people prone to harm. Pakistan is one of these exposed nations with an estimated population of 13 million at risk, from whom 7.3 million residents belong to GB and Khyber Pakhtunkhwa (KP).

National Disaster Management Authority (NDMA) in its recent press note on July 17, 2024, alerted GB and KP regions about the looming danger of GLOFs in monsoons in 2024. NDMA had directed Provincial Disaster Management Authorities (PDMAs) to keep safety ensured and take precautionary measures to assuage any risk.

As per NDMA rising temperature, excessive rain, and glacial lake overflow may be the prime reason for floods and it may result in a rise in water level of rivers, landslides, and flash floods. It may result in extensive damage such as destroying infrastructure, damaging crops, and fatalities. In reaction departments were instructed to warn native communities and commuters to reduce unnecessary journeys. NDMA has also introduced an online application to supply timely warnings and offer guidelines to take care of risks (Adminwaadi, 2024)

Intensity of Climate-Induced Migration

In Pakistan, the extent of migration brought on by climate change is a complicated issue that differs depending on the location and period. People who are temporarily displaced by floods or storms usually return to their houses once the crisis has passed. On the other hand, gradual occurrences such as droughts or sea level rise sometimes lead to longer-term, permanent displacement, with entire villages moving to cities or overseas.

Intensity of climate induced migration in 2022

Almost 61 million new internal displacements, or movements, were recorded in 2022, a 60 per cent rise from last year, said a just-released Internal Displacement Monitoring Centre (IDMC) report. This is the highest on record, and indicates the number of not only new displacements, but also recurring ones. millions of individuals are displaced due to calamities. In the last year, disasters such as the Pakistan floods and the Philippines' typhoon Noru resulted in 32.6 million internal displacements, a record high. The figure is set to increase as the occurrence, duration and frequency of natural hazards increase in the scenario of climate change (www.iom.int, 2023)

Intensity of climate induced migration in 2023

Disasters accounted for 56% of the 46.9 million new internal displacements that were recorded in 2023 (IDMC, 2024). Disaster-related displacement in IDMC statistics collection includes both geophysical disasters (such as earthquakes, volcanoes, and

tsunamis) and weather-related disasters (such as storms, floods, and fires) (IDMC, n.d.). At least 7.7 million people were internally displaced as of December 31, 2023, throughout 82 nations and territories as a result of disasters that happened both in 2023 and in previous years. Compared to the number of internally displaced people (IDPs) brought on by disasters in 2022, this represents an 11% decrease. Despite a third fewer displacements due to weather-related risks in 2023—partly because of the conclusion of La Niña and the start of El Niño—disaster displacement was the third highest of the previous ten years. (IDMC, 2024) intensity of migration brought on by climate change in 2023

Intensity of climate caused migration in 2024

Warming temperatures are the prime cause of increased and intense extreme weather conditions such as tropical cyclones, floods, and droughts globally, which in 2024 caused a record-breaking number of new displacements for the last 16 years, the UN weather office has stated. 605 extreme weather events took place last year worldwide, as per records by the World Meteorological Organization (WMO). 824,500 people were displaced and approximately 1,700 individuals lost their lives as a consequence, while 1.1 million people were said to have been injured. 148 were "unprecedented" and 289 "unusual" out of all these events. A rare or unusual event is one that is either unusual with regard to size, pl ace, time, or scope.

Since pre-industrial times, some weather and climate extremes have become more frequent and intense due to human-generated emissions of greenhouse gases, as required by the Intergovernmental group on Climate Change (IPCC), the most reputable scientific group on the subject. This is especially true for temperature extremes (Igini, 2025).

Short-Term vs. Long-Term Migration

Short-term migration, often in response to sudden flooding or cyclones, is intense but typically less permanent. These migrants may return to their homes once the disaster has passed, although the damage to infrastructure and agriculture may make their return difficult.

Long-term migration is usually driven by slow-onset processes such as prolonged drought, desertification, Intensity of climate caused migration in 2024

Rural to Urban Migration

Owing to the dearth of livelihood opportunities in villages, most displaced individuals migrate towards cities. Karachi, Lahore, and Islamabad are the main cities where rural migrants go. Urban migration puts pressure on already overburdened resources and infrastructure, which results in congested slums, unemployment, and social tensions. Globally, the number of people moving from rural to urban areas is rapidly growing. More and more people are moving from rural to urban areas in the majority of emerging countries, including Pakistan. Currently, between 35 and 40 percent of Pakistan's population is thought to live in urban areas.

This migration of people from rural to urban places is caused by various reasons, and with cities developing rapidly, the migration results in widening the environmental issues by causing climate change in the manner of the population density hike of pollution, increased emissions by automobiles. This causes higher levels of air pollution and makes it hard to inhale fresh air. The existence of smog and fog in urban areas is on the rise, and air quality in most urban areas is not good. Such pollution is also responsible for global warming (Rafi, 2024).

Economic adversity and crop problems Agriculture, the mainstay of Pakistan's rural economy, suffers from the falling productivity of the land due to soil erosion, water shortages, and inefficient agricultural practices. Several smallholder farmers barely manage to get a sustainable living, and hence their migration as a strategy to diversify income streams. Sindh farmers who are not in a position to compete with intensive agribusinesses have migrated to towns to work as laborers in the manufacturing and construction industries. (Farahnaz, 2024)

8 million people were displaced by the 2022 floods, many of whom migrated to cities following the loss of agricultural land and homes. Besides, desertification and diminishing water resources in Sindh and Balochistan have rendered agriculture unviable for most smallholders, pushing them into other city livelihoods. Improved sanitation facilities are available to only 58% of rural Pakistanis, as

opposed to 83% in cities. Also, literacy levels are greater in urban areas (76%) compared to rural areas (51%), promoting migration because of educational opportunities. Urban living, entertainment, and more personal liberties especially entice the youth, resulting in a constant flow of migrants. Rural-urban migration in Pakistan is economically, socially, environmentally, and technologically driven. The economic issues are still the main reason, as the rural regions, home to more than 60% of Pakistan's population, face poor agricultural wages, seasonal work, and few non-farm employment opportunities. Small farms, unproductive irrigation, and market inaccessibility also drive individuals into cities. (Lashari, 2025)

International Migration

Some Pakistanis, especially those from rural communities, might leave their countries to avoid the worsening impacts of climate change. Middle Eastern nations, most especially those in the Gulf, have been the primary destination for Pakistani migrants. This type of migration can also be explained by labor market needs and remittance flows (Khan, 2016). In 2023, the Philippines (2.1 million) and China (4.6 million) experienced the greatest number of displacements due to weather-related factors. Over a million people were impacted by Typhoon Doksuri, one of the season's biggest storms, which also claimed hundreds of lives. With two million people displaced, Somalia has the largest number of displacements in Africa. The "worst floods in decades" forced hundreds of thousands of people to flee their homes.

Weather-related incidents also elevate threats for already at-risk populations, such as those experiencing conflict, added Ezekiel Simperingham, International Federation of the Red Cross global manager for migration and displacement. In an interview with Al Jazeera, he stated, "The compounding effects impact lives, health, and livelihoods," adding that these populations also have trouble getting the help they need. The five nations with the greatest number of internal displacements throughout the course of the 16-year period—China, the Philippines, India, Bangladesh, and Pakistan—accounted for 67% of all international displacements.

The World Bank estimates that during the previous 20 years, at least one natural disaster, such as a flood, drought, or cyclone, has impacted 750 million people, or more than half of South Asia's population.

The region is projected to experience annual losses averaging $160bn by 2030 if current trends continue (Usaid Siddiqui, 2024). Bangladesh, with more than 174 million people, experiences internal migration because of climate change. It has impacted 50 million citizens residing in the coastal regions as climate-driven displacement results from riverbank erosion and increasing tides. The large-scale migration resulted in congested cities, social tensions and scarce resources. In Nepal, climate-driven disaster-induced migration indicated that by 2025, 1.3 million would be displaced. Unemployment and many economic factors have forever remained the main drivers of migration but currently climate change is now speeding up the rate of migration due to climatic hazards. Rural-urban migration is especially on the rise, resulting in loss of human resources in agricultural sectors and putting a strain on urban infrastructure. In India, floods, cyclones and other climatic conditions are precipitating climate-induced migration. Between 1990 and 2016, 235 square kilometers of land were eroded by coastal erosion, and residents had to move to safe areas. As per a report by ActionAid and the Climate Action Network South Asia, as many as 45 million Indians might be displaced by climate crises by 2050, three times more people than are already leaving due to extreme weather events. Climate change has resulted in huge internal displacement in South Asia, with more than 40 million people moving to their countries based on climate-related reasons. This accounts for approximately 1.8% of the population. Projections suggest that by the year 2050, over 62 million people would be displaced if trends continue as they are (Dhawan, 2025).

Social and Economic Implications of Climate-Induced Migration

The social and economic consequences of climate-induced migration in Pakistan are manifold, affecting both the migrants and the host populations.

Strain on Urban Infrastructure

As individuals move from rural to urban environments, the migration leads to the expansion of slums and informal settlements. Basic services such as healthcare, education, water, and sanitation become harder to provide, placing burdens on local authorities and further impoverishing displaced individuals (Siddiqi, 2020). One of the most serious issues in slum development is supporting livelihoods in the urban slums. Informal economic activities on which most slum dwellers are reliant are precarious, and prone to external shocks like economic recessions, natural disasters, and policy reforms. The primary problems revolve around the absence of formal and stable employment, poor access to financial services, Poverty and joblessness are first-order problems that contribute to the livelihoods of slum dwellers. Slums are poverty areas: Individuals reside in slums, for example, because they lack access to steady jobs. The informal economy consists of low pay, whereas the unemployment level is high, hence exiting the poverty shackles is not easy Slum economies are comprised of informal sector employment such as minimal job security, limited privileges, and unpredictable income streams Chronic poverty, & the inability to access excellence health care, quality education, and decent accommodation follow this economic instability. The second most significant obstacle to attaining better livelihoods in slum urban centers is, nevertheless, insufficient infrastructure and availability of basic services. Since there is no access to clean water, sanitation, electricity, or any facilities for waste management, conditions are substandard and lead to health issues that hinder life and work for the inhabitants (Dr. Venkanna Babu. G.1, november 2024).

Impact on Livelihoods

Climate migration can also result in serious economic problems. Migrants find it difficult to secure steady jobs in cities, resulting in higher levels of poverty and susceptibility (Tariq, 2021). They are also discriminated against and subjected to exploitation in the informal sector.

It has denied many Pakistanis their source of livelihood due to climate change, especially those whose livelihood depends on fishing and agriculture. Agriculture, cattle rearing, and fishing are the main sources of livelihood for Pakistan's rural community. Their livelihood is interrupted by migration, which also reduces their income and access to food. Severe weather events like droughts and floods have slaughtered livestock, destroyed crops, and destroyed infrastructure, leading to poverty and economic losses. Pakistan is a rural state that depends on agriculture for its export earnings and food security. f numerous migrants being forced to move into cities for work because of environmental degradation, climate change-induced migration has added poverty to Pakistan. But they are also often subjected to prejudice, exploitation, and sub-standard living conditions, making them even more vulnerable and poor. Due to competition between migrants and natives for employment, resources, and services, climate-induced migration has caused social tensions in Pakistan. Violence, conflicts, and discrimination against migrants, especially women, children, and minorities, have been the consequences of these events (Nagdev, 2021).

Gendered Effect

Women and children are disproportionately hit by climate-caused migration. Women tend to be more vulnerable because of cultural constraints, restricted access to resources, and being the primary caregivers in the household. Gender-sensitive policy interventions must take account of the unique needs of female migrants (Gohar & Mansoor, 2018).

It impacts women, men and children in different ways. Women and children are the most susceptible groups to climate migration. Studies have proven that women migrants lose their education and suffer severe health problems because of malnourishment, added workload, and other financial issues. In addition to this, women are also subjected to sexual harassment and assault in both situations, i.e., when merely their male family members emigrate or when the whole family emigrates. Similarly, the kids are forced into the labor market to help bear the family load. Poor infrastructure renders people's migration cumbersome and tough due to lack of convenient transportation, impacting their health. Additionally, the migration centers lack enough medical facilities and drugs to treat the most prevalent illnesses among climate migrants, such as respiratory, skin, and eye

infections, diarrhea, and eye infections, which can be fatal. In addition to the challenges faced by migrants, the majority of people believe that climate migration puts local communities at risk for security issues. The migrants who come from different ethnicities and cultures to work pose a threat to local populations.

In a research where district Thatta was chosen as a sample zone, it was reasoned and demonstrated that the scarcity of resources generates conflict between migrants and the host community, particularly where population density is high. The high level of population growth resulting from economic or climate migrants in the urban cities leads to energy insecurity and water scarcity primarily because of inefficient governance and management by the respective stakeholders (Nisar, 2022).

Due to the consequences of climate change on agriculture, women are often left to shoulder the majority of the burden of providing for their families. Millions of people are now hungry as a result of extreme and frequent weather patterns, with pregnant women suffering the most from malnutrition. Additionally, vector-borne diseases like malaria, which are associated with worse maternal and newborn health, have become more common as a result of climate change. Food, water, and fuel are typically provided primarily by rural women and girls. Climate change has aggravated scarcity of resources, making these activities more arduous and hazardous. For example, in times of droughts, women and girls will go long distances to find water, thus exposing them to gender-based violence more. Girls are also compelled to withdraw from school due to heightened pressure to cater for their families (Bloche, 2022).

Government Response to Climate-Induced Migration

Pakistan's government has recognized the need to address the issue of climate-induced migration, but significant challenges remain in terms of policy and infrastructure. The **National Disaster Management Authority (NDMA)** plays a crucial role in coordinating disaster response, but there is a lack of comprehensive policies addressing the long-term implications of climate-induced migration (GOP, 2019).

- The government has taken several actions, such as: • Creating initiatives for climate change adaptation that include reforestation, better water management, and agricultural diversification.
  Engaging in global climate talks and coordinating national policy with the Sendai Framework for disaster risk reduction are two examples.
- Working together to create displacement response plans with international organizations such as the United Nations High Commissioner for Refugees (UNHCR).

An Emerging Threat to Pakistan's National Security

In More and more people believe that climate migration poses a major threat to Pakistan's national security. The country is seeing increased displacement due to extreme weather events, including as drought, floods, and sea level rise. The present chapter examines the extensive effects of climate migration on Pakistan's national security from a political, social, economic, and security standpoint.

Pakistan is also one of the most populous countries in the world. According to the 2017 census, the country's population has grown by 2.4% over the previous 20 years. Those under 30 make up over half of the population. This youth bulge presents opportunities as well as challenges. Although it has put a pressure on the economy, public services, and natural resources, Pakistan's youth bulge may be a major factor in migration and other activities. A concerted youth focus is critical for our future development. In the past, societal taboos, political ownership, and the failure of national awareness campaigns have all hampered population management. In addition, Pakistan is one of the South Asian countries that is urbanizing the fastest.

Within the next two decades, almost 50 per cent of Pakistanis will be dwelling in our big cities. Urban migration calls for special attention by way of population stabilization and regulation, visionary urbanization planning, and commensurate investment in rural economy development and smaller city development to reduce urban migratory pressures on greater metropolitan cities (Yusuf, 2022).

Political and Social Implications

The influx of climate migrants into urban centers has profound political and social consequences:

Resource Strain: The unexpected population growth is putting strain on the infrastructure, healthcare, and educational systems of cities like Karachi and Lahore. Degradation of the ecosystem is also largely caused by overpopulation. Natural ecosystems are destroyed, biodiversity is lost, and deforestation occurs as a result of increased land demand. According to World Bank estimates, Pakistan loses over 9% of its GDP each year as a result of environmental degradation.

Another significant problem associated with overpopulation is food security. Growing demand requires an increase in agricultural production, yet obstacles including water scarcity, soil degradation, and antiquated farming practices limit productivity. Without sustainable agricultural methods, Pakistan may have serious food shortages in the ensuing decades, according to the Food and Agriculture Organization (FAO). Overpopulation tends to increase the income disparity. While the impoverished find it difficult to meet their fundamental necessities, the wealthy can afford better living conditions, healthcare, and education. This discrepancy impedes economic growth by fostering social unrest and raising the possibility of instability (SYED UMAID AHMED, 2024).

The urban population of Pakistan has been increasing at one of the fastest rates in South Asia, at about 3% each year. Nearly 40% of Pakistan's population currently resides in urban areas, according to estimates from the Pakistan Bureau of Statistics. Regretfully, the rate of urbanization has surpassed cities' ability to supply sufficient housing.

The demand for housing in places like Karachi and Lahore is much higher than the availability. Millions of people now live in katchi abadis, or informal communities, where they lack access to essential facilities like power, clean water, and sanitary facilities. This has resulted in an alarming increase in these settlements. According to World Bank estimates, almost 30% of Pakistan's urban population resides in these informal settlements, underscoring the seriousness of the housing crisis.

The formal housing market is haunted by soaring property prices, rendering homeownership out of reach for most middle- and lower-income households. Property prices in Karachi, for example, have soared over the last decade, fueled by speculation and a lack of regulation in the real estate market. For most residents, rental becomes the only alternative, but even that is now growing more expensive.

In addition, Pakistan's housing shortage is expected to increase in the years to come if the existing trend persists. The nation, the State Bank of Pakistan report states, has a housing deficiency of more than 10 million units. Unless drastic measures are taken, the deficiency will continue to increase, precipitating further overcrowding, homelessness, and the spread of slums (Kashif, 2024).

Ethnic and Sectarian Tensions

Migrants tend to be of a different ethnic or sectarian background, resulting in possible conflict with host populations. Severe weather conditions and conflict are the world's two leading causes of forced displacement, accounting for jointly causing the yearly migration of almost 30 million individuals out of their homes.10 There exists a high correlation between regions and countries that are most at risk from climate change and those that are fragile and/or wracked by conflict or violence. Climate impacts can further strain vulnerable communities, escalating the risk of conflict and displacement should prevention not be undertaken, and vice versa. Climate impacts also present an elevated threat to conflict-displaced marginalized communities affected by climate change impacts. This is more intensely felt where there are inadequate governance and dispute resolution mechanisms, and in expanding peri-urban settlements into which most migrants are moving. Additionally, shifts in biodiversity have powerful linkages with climate change that also may impact migration, and endanger food and economic security. The ensuing displacement of large numbers of people, coerced or voluntary, places new populations in contact with each other, potentially reconfiguring the balance of power, exacerbating further scarcity of resources, or reigniting conflict between hitherto separated groups. Where climatic migrations take place within or close to population areas, or in areas critical for political or economic stability, such as within the coastal areas of most

countries, **the** destabilizing forces associated with climate change may result in outsized affects overall (HOUSE, 2021).

Pakistan, positioned at the crossroads of geopolitical pressures and environmental susceptibility, possesses a complex challenge. The geographical position of Pakistan, with varying geography including coastal plains and mountains, renders it highly vulnerable to the negative effects of climate change. There are many issues with the environment in the country, including recurring floods, droughts, and glacial melting. These environmental stresses place a burden on vital resources such as fresh water and farm land, thus worsening socioeconomic disparities and risking greater potential for instability. The link between climate change and conflict represents a complex web of cause and effect wherein environmental drivers serve as catalysts to intensify existing social, economic, and political conflicts. Climate-related alterations like weather extremes, water shortages, and food shortages have the potential to become conflict enablers where there is no proper governance mechanism in placeto effectively utilize natural resources.

With the dwindling of these resources, the race for water and land intensifies, fueled by competition and tension, and thus conflicts between communities, regions, and sometimes nations. Societies that cannot cope with changed conditions have two choices: resist or flee. The first method involves the use of force to augment the distribution of scarce resources. It further encompasses Homer-Dixon's so-called mechanism of 'resource capture', by which the affluents appropriate control over the more valuable resources at the expense of the poor, though it pertains to resource competitiveness. Various mechanisms are responsible for the relationship between climate change and interstate conflict. In the present context, relative deprivation caused by climate change in the guise of food security, health security, economic insecurity due to a lack of food, loss of income, or damage to health infrastructure, among others, has often been found to be a significant contributory pathway The explanation is that widespread individual deprivation can either lead to violence else get manipulated by terrorist and insurgent organizations to swell their cadre strength. By reducing the opportunity cost of violence, relative deprivation significantly enhances the affected' inclination to seek a zero-sum course. It should be noted here that 15 out of the 20 most food-insecure districts are in Baluchistan and ex-FATA (now KP) are highly vulnerable to climate change because of high exposure and sensitivity and low adaptive capacity, and are also Taliban and insurgent strongholds (Mian, 2024).

Economic Consequences

Businesses are Migrating due to Climate Change

Migration and entrepreneurship are coping mechanisms with climate stress resulting from variations in climatic change that includes alteration in the pattern of rainfall, floods, and drought. They have adverse impacts on livelihood practices mainly of people in rural areas who are largely reliant on natural resources to make a living and engage in agriculture. In these circumstances, migration is regarded as an adaptive strategy to drought. For instance, in northern Nigeria, with increased indications of drought and desertification, herdsmen have to undertake a north–south drought-induced migration because of a shortage of grass and water to graze their cows. Consequently, there is a significant increase in forced migration from rural areas when climate stress is combined with economic stress (Akinbami, 2021).

Increased Poverty

Migrants often face unemployment and lack access to social services, leading to heightened poverty levels. The economic impact of drought will be evident across multiple sectors. Food prices will surge due to reduced agricultural output, leading to higher inflation. Furthermore, Pakistan's import bill will increase significantly due to the need for additional wheat and other food products, placing further pressure on foreign exchange reserves. The increasing cost of essential commodities will disproportionately affect lower-income groups, causing socio-economic disparities. Crop failures will lead to financial distress among farmers, causing many to be impoverished. As a result, migration from rural areas to urban centres will increase, straining urban infrastructure and public services even further (Salik, 2025).

Economic Disparities

The unequal allocation of resources between migrants and host communities can worsen economic disparities. Global Climate Risk Index projects that Pakistan would remain the fifth most climate-impacted country in the world during the period from 1999 to 2018 at an economic loss of about $3.8 billion besides ten thousand individuals losing their lives (reliefweb, 2023). Majorly, alone in 2022 flood affected 33 million people, in which 1500 people lost their lives. Despite, a large amount of capital lost by Pakistan around $30 billion including 269 bridges, and 18590 schools were destroyed. However, Pakistan suffered from food shortage due to the flood as a result roughly loss in crop total worth $2.3 billion, still scarcity of food is ongoing because of the war in Ukraine (Abdul Aziz, 2024).

Security Concerns

The security landscape is increasingly influenced by climate-induced migration

Raising Security Threats to Human Security

But although the link between human insecurity and heightened chances of violent conflict does appear fairly robust, this is no way to imply that the existence of generalized human insecurity, even when combined with all other potential risk factors, equates to violence being more likely than not throughout history the majority of directly violent activities which have resulted in trauma and death have been perpetrated by the poor the modes of structural violence (see Galtung, 1969) responsible for the great majority of morbidity and mortality are the decisions and actions of the poor; and violent conflicts in developing nations are wholly local and produced solely through endogenous causes. It does imply, however, that in some situations, while it harms human security, climate change has the potential to heighten the threat of violent conflict. One thing that is often a common factor in most internal conflicts is that armed movements consist of young men whose aspirations for an enhanced existence have been thwarted as a result of shrinkages in their ways of life. This renders membership in an armed group a comparatively more logical choice to attain some status within society, especially when leadership is able to attribute their poverty to Other (ethnic, political, geographic, class) groups (Adger, 2007).

Non-Traditional Threats to National Security

In addition to the immediate effects of climate disasters, the indirect effects cause Pakistan's national security through non-conventional threat matrix and act as a conflict multiplier. The climate-driven displacement and migration strain the already scarce resources and infrastructure. This creates social tensions, competition for the limited resources, and possible conflicts among the affected people. Such disasters predominantly consist of landslides, cyclones, floods, heatwaves and other types of extreme weather occurrences. These climatic phenomena destroy the essential infrastructure such as the highways, bridges, dams and power plants, which in turn impair the operational efficiency and economic activities thus posing dangers to the national security. These interruptions of the infrastructure can render the country vulnerable to food and water shortages, displacement of the population, and livelihood loss, heightening social unrest and rendering a region more susceptible to outside threats (younas, 2024).

Internal Conflicts

Competition over scarce resources causes conflict among migrants and host populations, destabilizing the region. Scarcity in the environment is increasingly a prime force behind the fast growth and fragmentation of the urban population and behind the increasing inability of the state to satisfy this population's needs. In the Pakistani urban setting, possibilities for competition between competing groups increase, conflicts over limited urban resources intensify, and complaints multiply. But as the comparative capability of the state deteriorates, avenues for resolving grievances and peaceful mechanisms for articulating them are progressively withdrawn. The consequence in Pakistan is an ongoing intensification of urban violence (Homer-Dixon, 1996).

Conclusion

Climate-induced displacement has emerged as the most severe non-traditional security challenge to

Pakistan's national security. Increasing frequency and severity of extreme weather events such as floods, droughts, heatwaves, sea-level rise, and GLOFs have displaced millions of Pakistanis on a temporary as well as long-term scale. These displacements carry serious implications, not just for the displaced people and communities, but also for the political, social, economic, and security stability of the country.

Migration caused by climate stress has been demonstrated by the study to be both a cause and an effect of systemic exposure. It puts pressure on urban infrastructure, ignites resource conflict, expands socio-economic disparities, and heightens inter-ethnic and sectarian tensions in already vulnerable urban settings. The trend in migration also erodes human security through food insecurity, livelihood losses, deprivation of access to services, and social fragmentation—elements that can cumulatively enhance the likelihood of internal instability and conflict.

Pakistan's situation is compounded by poor urban planning, weak institutional coordination, weak environmental management, and weak climate adaptation policy. In the absence of a comprehensive policy to guide climate migration, it has resulted in sporadic and reactive responses, typically inadequate to the scale of displacement. In addition, women and vulnerable populations remain disproportionately affected by socio-economic and health consequences of climate migration, highlighting the urgency of responsiveness and gender-aware planning.

Climate change-driven migration is not only an environmental or humanitarian problem—climate change-driven migration is a national security issue that requires cross-cutting focus and policy convergence. If neglected, the repercussions may erode the state's ability to provide stability, sovereignty, and sustainable development.

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