

The nexus between climate change and political stability: Security challenges to Pakistan

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ABSTRACT

Climate change has emerged as a significant security concern for nation-states, shifting the traditional understanding of security beyond military threats and territorial integrity. Taking into consideration the severity of climate change on various aspects of human life, including social, economic, and political dimensions, extensive literature has regarded it as a non-traditional security threat. This study is based on Norman Myer's environmental security framework in order to find the implications of climate change on Pakistan's political stability. To this end the data was acquired through semi-structured interviews by using qualitative study design. At the end the study found that while numerous literature documented climate change a severe security problem. However, it has been politically overlooked in Pakistan. Moreover, significant finding of the study highlights the linked hazards between water and food scarcity. With the potential to intensify social discontent, driving migration, and even straining governance.



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1. Introduction

The security paradigm has shifted significantly in recent decades. The 21st century has brought forth a new concept of security challenges that went beyond and defied conventional categorization. For a long time, Pakistan has been dealing with non-traditional security challenges, including shortages of food and water (ISSI, 2018). Non-traditional security challenges arise from non-military factors such as climate change, resource scarcity, infectious diseases, natural disasters, irregular migration, and food shortages, posing threats to the survival and well-being of both individuals and nations (Caballero-Anthony, 2016). Non-traditional security threats refer to challenges that may not come under the domain of traditional military or state-centric models but still pose a high risk to the security and well-being of nations and the international community (Singh & Nunes, 2016). These are cyber threats, pandemics, climate change, and resource scarcity (Yaacob et al., 2022). Climate change is a phenomenon that alters the Earth's atmosphere, resulting in changes to the global ecosystems and biospheres (Shahid & Adnan, 2021). It has been driven by factors such as greenhouse gas emissions, deforestation, and industrialization (World Bank, 2021). In the Global Climate Risk Index 2021, Pakistan was identified as the eighth most vulnerable country worldwide to long-term climate risks. The 2010 monsoon flood disaster in Pakistan was enormous and unprecedented. It has impacted more than 20 percent of the country's land area, affecting over 20 million individuals (Government of Pakistan, 2010). However, 2022 was a devastating flood, surpassing previous records. National rainfall for August 2022 was excessively (+243%) above average and stands as the record wettest August since 1961 (Pakistan Meteorological Department, 2022). Between June and August 2022, Pakistan experienced a catastrophic event due to heavy rains and various types of flooding. The National Disaster Management Authority NDMA reported that the floods affected approximately 33 million individuals, equivalent to one in seven people. This crisis resulted in nearly 8 million people being displaced and claimed the lives of over 1,700 individuals, with children accounting for one-third of the casualties.

Table 1: *Loss and needs by region*

Region	Loss (Million US\$)	Needs (Million US\$)
Baluchistan	2,516	2,286
Khyber Pakhtunkhwa	658	780
Punjab	566	746
Sindh	11,376	7,860
Cross-Provincial	67	4,540
Special Regions	49	48
Grand Total	15,233	16,261

Source: (Post-Disaster Needs Assessment, 2022).

The estimated total loss amounts to \$15.2 billion, while the overall requirements stand at \$16.3 billion. Among the hardest-hit sectors are housing, with losses totalling \$5.6 billion, followed by agriculture, food, livestock, and fisheries at \$3.7 billion, and transport and communications at \$3.3 billion. The transportation and communications sector requires the most substantial reconstruction and recovery funding, needing \$5.0 billion, followed by agriculture, food, livestock, and fisheries at \$4.0 billion and housing at \$2.8 billion (PNDA, 2022). Broadly speaking, Pakistan is

experiencing swift climate change, which is causing adverse effects at a significant pace (shahid & Adnan, 2021). Pakistan, a region prone to natural disasters and climate-related challenges, such as floods, droughts and other climate calamities faces a unique set of vulnerabilities (Malik et al., 2012 & Banoori, 2012). A country grapples with frequent floods, droughts, and erratic monsoons, exacerbating issues related to water and food security (Brien & Barnett, 2013). Pakistan is confronted with many challenges, encompassing energy deficits, internal security issues, food scarcity, and financial crises, all of which directly impact the general populace (Ali et al., 2023). Global warming increases the melting speed of Himalayan glaciers, known as a vital source of fresh water for Pakistan. This in turn intensifies the need for water availability in the future (Hasnain, 1999).

Based on the Hurwitz's (1973) approach to political stability, there are multiple facets involves to assess stability. These facets are listed as follows: the absence of violence, sustained governmental tenure, the presence of a legitimate constitutional regime, the absence of significant structural changes, and a multifaceted societal attribute. In essence, political stability, according to Hurwitz, is achieved when a nation experiences a harmonious blend of these factors, ensuring a peaceful and enduring political environment. Political stability can be disturbed by various factors and may lead to instability on certain occasions. These factors include political assassinations, coups and revolutions (Barro,1991). Unrest in society, shifts in policymakers, confusion in how decisions are made, and uncertain elections (Carmignani, 2003). Protests against government policies; and rebellion involving physical force (Banks,2005). There is also limited literature on the idea that climate change could indeed disrupt political stability. Barret (2013) observed indicators that could hinder political stability, such as demonstrations, riots, environmental conflicts, and migration, may emerge as a result of issues occurring in sectors like agriculture, forestry, and fisheries. As evident, natural events resulting from climate change may not directly induce indicators like conflict, terrorism, and violence. However, these occurrences significantly contribute to initiating the process leading to political instability (Sofuoğlu & Ay, 2020).

Despite substantial literature documenting Pakistan's vulnerability to climate change. There is a substantial gap in research that investigates the political implications of these environmental issues. Against this backdrop, the study aims to achieve the following objectives:

1. To understand non-traditional security challenges to Pakistan posed by climatic change.
2. To explore the climate change impact on Pakistan's political stability.

Conventionally, Pakistan has been a host to political and security issues since its inception, whether in the form of martial laws, border clashes with neighbors, or terrorism. The 21st century has brought forth a new breed of challenges that could surpass conventional tussles. With the increased use of greenhouse gas emissions, global warming has adverse effects on the living standards of Pakistan. Therefore, the importance of this research lies in its exploration of new factors that could hinder social harmony.

Since its inception, Pakistan has had an agrarian economy. However, the drop in water and food due to environmental changes has emerged as a key concern for Pakistan's stability. Taking environmental issues into account, Pakistan enacted its first National Climate Change Policy (NCCP) in 2012. Pakistan's Ministry of Environment launched the strategy in February 2013 with the aid of the United Nations Development Programme (UNDP). The policy included substantial recommendations for three major sectors: energy, agriculture, and transportation. Its goal was to protect and maintain the environment while also improving the quality of life for residents. The National Climate Change Policy sought to strengthen the country's resilience to climate change by aligning with the global community in the transition to a low-carbon society (Akhtar & Jan, 2023).

2. Literature Review

A literature review involves choosing relevant documents, both published and unpublished, that provide information, ideas, data, and evidence from a specific perspective to achieve particular objectives or convey specific viewpoints about the topic. It also entails critically evaluating these documents in the context of the proposed research (Hart, 1998, p. 13). The literature review of this study is divided into three sections: water security, Food security and Human displacement.

2.1. Water security

Pakistan is facing an imminent water scarcity threat. Initially predicted by 2035 but potentially occurring as early as 2020 due to climate change, poor water management, and insufficient reservoirs (Ali et al., 2023). Despite possessing the world's largest glaciers, Pakistan is dealing with severe water scarcity and is ranked among the 36 most water-stressed nations (IMF., 2015). Moreover, per capita water availability dropped from 5260 m³ in 1951 to around 1000 m³ in 2016 (Ahmed et al., 2020). This is mainly the impact of climate change on water in Pakistan, which has been examined categorically through high temperatures, salt-water intrusion, glacier lake outburst floods, and changes in rainfall patterns. (Kinza & Ambreen., 2019).

2.2. Human displacement

The study by Asif (2020) estimates that by mid-century, the impact of climate change is poised to displace an estimated 150 to 300 million individuals. In 2016 alone, climate change uprooted 24 million people. Moreover, Pakistan experienced an estimated 680,000 climate migrants in 2020, a number that could potentially surge to 2 million by the year 2050 (Express Tribune 2022). In Pakistan three distinct migration patterns are prevalent. First, there's the widespread seasonal or circular migration, where families engaged in activities like livestock business or farm labor move continuously between villages or cities. Droughts not only amplify their migration but also diminish their livelihood resources. The second group comprises migration returnees, primarily male migrants who, have lost jobs due to droughts in urban areas. Lastly, there's a group aspiring to migrate to urban hubs like Karachi, driven by kinship-based business networks and financial resources. Drought conditions initiated by climate change (extreme weather conditions) diminish their local livelihood options, increasing the allure of migration. The study highlights environmental challenges, diverse migration responses, and the pursuit of improved livelihoods in the face of adversity (Salik et al., 2020). Moreover, Ahmad and Afzal (2020) explored the effects of non-traditional security threats on human displacement and food security. The study draws on empirical data collected from 398 households in erosion-prone riverbank areas, supplemented by group discussions with community leaders. Results of the study reveal that 60% of households experienced displacement due to riverbank erosion, with 38% being displaced more than three times.

2.3. Food Security

A report by World Bank Group (2021) stated that Pakistan faces significant challenges in its agricultural sector due to climate change. Including temperature increases and changes in water availability, pose a substantial risk, and lead to potential yield losses of 8%-10%. On the other hand, ALJAZEERA (2022) pointed out that Severe flooding has impacted 81 districts in Pakistan, submerging 78,000 sq km of farmland larger than the entire Czech Republic. Over 80% of crops nationwide are damaged. Furthermore, Rabi and Kharif are two main categories of crops in Pakistan, with Rabi crops planted in autumn and harvested in spring, featuring wheat as a major crop. Kharif crops are sown in summer, including sugarcane, cotton, rice, and maize. Wheat and rice, essential staples, have specific sowing and harvesting time frames with temperature-sensitive

growth stages. Climate change-induced temperature increases pose a threat to crop yields, with potential reductions of 8% in the maturity period and 6% in yield. Minimum temperature rises could lead to a 7.5% decrease in wheat productivity and around 10% reduction in rice productivity (Shahzad and Amjad., 2022). Moreover, the study of Ali et al. (2017) observed that the winter sowing and summer harvesting periods are crucial, with low temperatures favoring growth. However, challenges like prolonged winter and irregular rainfall led to a 1.9% decrease in wheat production from 2013–2014 to 2014–2015.

2.4. Theoretical framework

The theoretical framework that was presented by Norman Myers in “Ultimate Security: The Environmental Basis of Political Stability” could be applied to this research work. Norman Myers after the end of the Cold War presented a new approach to national security that included the concept of a secure habitat. Environmental problems ranging from the damage of arable land and decline in freshwater has already ensued in civil disobedience, insurgencies, and military face in Africa and the Middle East. Norman Myers believed that these developments seem to play an increasing role in conflicts around the world. Therefore, he argues that security is no longer about fighting hard powers, but it has a close link to water and arable land. Norman Myer suggests that by protecting the global environment and promoting sustainable development we can successfully ensure a secure economic and political foundation.

Myers took two types of case studies to demonstrate his theory of environmental security. One type focuses on seven sub-continental regions such as the Middle East and sub-Saharan Africa. For instance, he discusses how soil erosion in Ethiopia’s highlands during the 1960s was caused by deforestation that eventually led to declining farmland fertility and agricultural output. This resulted in food shortages, soaring prices, and riots in Ethiopian cities, ultimately leading to the overthrow of Emperor Haile Selassie in 1974 – marking the first instance of a government being toppled primarily due to environmental factors (Myers,1993).

3. Methodology

3.1. Research Design

The study used a qualitative research approach to explore how climate change influences political stability. Qualitative analysis involves gathering individual’s experiences, perceptions, and behaviors to get insights into real world challenges (Tenny et al., 2017).

3.2. Sampling strategy

In this section of the analysis, a convenience sampling (CS) estimation technique was used. The data is collected from faculty members particularly those specializing in political science and international relations. Furthermore, the data has also been gathered from environmental experts, specifically those who belong to a notable think tank in Islamabad. Indeed, CS is a non-probability sampling method where a researcher chooses individuals or items from the population based on their ease of access, rather than a random selection.

3.3. Data collection

To explore the impact of climate change on political stability the empirical analysis used the Semi-structured interviews method. This method is generally known as a midpoint between structured and unstructured interviews (Ken-Giami et al., 2022). The choice of semi-structured interview technique suits this qualitative analysis which allows researchers to investigate its capacity to gather in-depth information and evidence associated with the objective of this study. Additionally, it provides researchers greater flexibility and compliance as compared to unstructured interview

procedures, which lack an entirely considered in-direction method (Ruslin et al., 2022). Hence the use of semi-structured interviews aligns with the objective of the study, as it facilitates an inclusive assessment of non-traditional security challenges posed by climatic changes and their influence on the political stability of Pakistan.

3.4. Interviewing process

In the beginning, an open-ended questionnaire was prepared with some questions taken from climate-related papers, while the major portion of the questionnaire was crafted by the researcher to address research questions from various viewpoints. The questions, before interviewing, have been validated by professors with a strong grasp and numerous research works. Prior consent was obtained from each respondent via email. Respondents were given the flexibility to choose the interview format at their convenience, either in person or through a preferred online platform. Most respondents opted for WhatsApp, with only one interview conducted face-to-face, lasting 21:15 minutes. The interviews were conducted in both English and Urdu, accommodating the flexibility of the respondents.

4. Challenges to Political Stability on Grounds of Climatic Crisis

4.1. Change Ignored Politically

Pakistan's political authorities have mostly ignored climate change, despite its growing significance as a national security threat. Political ignorance and lack of prioritisation are common themes in discussions about climate change in Pakistan. In this regard Manzoor Khan Afridi contained that, *“Political leaders in our country do not give priority to climate change as much. Neither they consider it a factor that can hinder political stability. It is rarely their electoral agenda or party manifestos.”* In support of this observation Munir Ahmed states that *“majority of politicians in Pakistan lack knowledge about climate change. Only few might have knowledge, while the majority are unaware of the gravity of Climatic crisis. As a result, agendas and strategies to combat climate change have not been implemented as successfully as they should be.”* Such negligence by nation-states has been a part of numerous assessments conducted by various global bodies. Since 2000, as global warming has consistently increased, Germanwatch's Global Climate Risk Index has routinely ranked Pakistan among the top ten countries most affected by catastrophic weather occurrences (Eckstein et al., 2018).

4.2. Climate Change Causing Social Unrest

The brunt of Climatic catastrophies extend beyond environmental harm. The Current literature held that climate change is a substantial dangers for civil disobedience and economic instability. The consequences of Climatic catastrophies and destructions had the potential of leading to reducing important resources. This may include water, arable land and staple foods that sustained life. In this regard, Mian Ahmed Naeem Salik stated that *“Hence climate change is a major factor reducing essential resources. Therefore scarcity of resources can play a role in agitating people against the stakeholders”*. The Intergovernmental Panel on Climate Change (IPCC) has frequently cautioned that climate change will worsen existing vulnerabilities, particularly in developing nations such as Pakistan. It depicts how reduce agricultural production, rising drought, and hunger may provoke discontent, particularly if governments fail to properly mitigate these effects (IPCC, 2022). Another respondent, Talha Tufail Bhatti, said that *“in the years to come, research indicates that if things continued as expected, there could be a decline of sixteen percent in the agricultural sector, that has an immediate connection to our GDP. Farming contributes a lot to economic growth. Individuals can speak out against against the authorities when conditions worsened and shortage escalates. I'm worried this might occur in a few seasons.”* Bhatti's exploration lines up

to the World Bank's data, that reveal that warming temperatures would have significant consequences on Pakistan's crop production. If sources of income are tested this might end up in monetary turbulence and turmoil in society (World Bank, 2021).

4.3. Water Stress Disturbing Social Harmony

Water scarcity poses a serious threat to social harmony in Pakistan, as water is critical not only for survival but also for maintaining economic and social stability. The World Economic Forum has warned that water crises represent one of the most pressing global risks, particularly in regions like South Asia, where water is integral to both economic stability and social harmony (WEF, 2021). Munir Ahmed observed that *“water is a basic need for every human; its scarcity poses a significant challenge for entire nations, leading to widespread famine and drought. Moreover, water shortage can result in various deficiencies in national health. It is worth noting that food production is closely linked to water availability, lack of water stop flourishing of agriculture”*. In this lineup, Talha Tufail Bhatti emphasises the financial repercussions of drought, notably in Pakistan's crop production, saying that *“Pakistan possesses around five revenue-generating crops, all of which are hydro-intensive. Sugarcane, rice, and cotton are all examples of hydro-intensive crops. To effectively oversee an aquatic crisis, five to seven aspects must be considered at the same time. As a result, these difficulties could lead to disruption in society. Especially if people do not have enough resources, fluctuation and public unrest are more likely.”* The aforementioned findings are aligned with investigations such as those conducted by (UNESCO, 2020) who found that regions facing drought are especially susceptible to political and social turmoil due to resource constraint.

4.4. Food Scarcity: Triggering Law and Order Situations

Food scarcity has become a major concern in Pakistan, causing societal tensions and potentially disrupting law and order. Pakistan, a largely agricultural country, imports key staples like wheat and sugar, highlighting the crisis's severity. The ongoing scarcity has a negative impact on the country's economy and may cause widespread unrest. According to Moonis Ahmar, *“despite being an agricultural country, Pakistan imports wheat, sugar, vegetables, fruits, and other commodities. Food scarcity exists in Pakistan, as seen by daily price increases. This condition causes law-and-order issues.”*

This observation aligns with historical precedents, where food scarcity has often been a precursor to political instability. For instance, Barrett (2013) in his work on food security points out that food price volatility and scarcity often precede protests and unrest in developing countries. In Pakistan, the current food inflation and shortages could easily become a flashpoint for civil disobedience, much like past events of social unrest triggered by price hikes. The social implications of widespread hunger are further elaborated by Bhatti, who vividly describes the breakdown of societal norms under conditions of extreme food scarcity: *“When these 50 or 60 people will not eat, but 30 people will eat, then the state of Nafsa-Nafsi (self-interest) will be spread... But there is no culture in the hungry stomach. In the hungry stomach, we will show our primitive behavior”*. His prediction aligns with research in the field of sociology, where scholars like Gurr (1970) in his theory of relative deprivation argue that social unrest is often fueled when people perceive a growing gap between their needs and the resources available to meet them. In countries like Pakistan, where economic inequalities and resource scarcity are pronounced, this perception of deprivation can easily spiral into law-and-order situations, as those left behind become increasingly disillusioned. Global studies, such as the Global Food Security Index by The Economist Intelligence Unit, underscore how countries with food insecurity face increased risks of civil unrest (EIU, 2022). The situation is exacerbated by climate change, which has already

severely impacted Pakistan's agricultural output, particularly after devastating floods and irregular monsoons. Studies indicate that food shortages caused by climate stressors have been key triggers of unrest globally, including in the Middle East during the Arab Spring (Johnstone & Mazo, 2011).

4.5. Climate-Induced Migration and Political Stability

Climate change has increasingly become a driver of migration and displacement in Pakistan, with significant implications for the country's political stability. In recent years, floods have caused large-scale displacement in Pakistan, highlighting the severity of climate-induced migration. Talha Tufail Bhatti reflects on the devastating 2022 flood, and stated that *"around 33 million people were displaced. Sindh is highly vulnerable, and Baluchistan is also very vulnerable to these migrations. So, imagine for a second that you're living in Baluchistan... you have to move from there"*. This large-scale displacement places tremendous pressure on the government to manage internal migration while addressing the needs of both the displaced populations and host communities.

According to the Internal Displacement Monitoring Centre, Pakistan has consistently ranked among the top countries with high displacement rates due to climate-related disasters, and these events are projected to increase in frequency and intensity (IDMC, 2023). The social and political repercuss of mass migration can be disastrous. Asim Sajjad makes the case that *"climate change is causing displacement and dispossession, noting that the 2022 floods alone displaced 30 million people, leading to unrest, especially if the needs of displaced individuals are not adequately addressed"*. As the number of displaced individuals increases, so does the possibility of disturbance, particularly in areas already prone to sociopolitical tensions. Bhatti emphasises the possibility for disturbance, stating that *"when people do not have a comfortable living situation in a certain area... they will protest. And when people protest, the state of Pakistan will react in a certain way. Unfortunately, we have a history of not responding politely"*.

In keeping with International Crisis Group research, in unstable nations such as Pakistan, the inability of the government to address the fundamental causes of displacement can lead to loops of oppression and obstruction, igniting further unrest. Sindh and Baluchistan, for instance, are very susceptible to severe precipitation occurrences and have already seen massive climate-related exodus. The aforementioned regions also have pre-existing political issues, rendering the scenario even more terrible. Cattaneo, C., and Bosetti, V. (2017) found that warming temperatures could fuel ethnic or regional conflicts, particularly when resources are scarce and government efforts are thought of as insufficient or biased.

5. Conclusion

Pakistan has a population of over 207 millions, experiencing the brunt of climate calamities. The catastrophic flooding of 2010 and 2022 are vivid examples of the country's vulnerability. Notwithstanding the magnitude of these challenges, responses from governments have been insufficient. As a result, instability in society is on the rise, particularly in regions at risk like Sindh and Baluchistan, where climate-induced migration and lack of resources are pushing communities to the edge. Neglect to tackle these unconventional security concerns is weakening administration and societal unity, exposing the need for a fundamental update of national security system.

Pakistan produces very little greenhouse gas emissions, but it is disproportionately affected by environmental degradation. Acknowledging this, the government established the Task Force on Climate Change (TFCC) and created the National Climate Change Policy (2012). Plus, the passage of the Climate Change Act of 2017 was a positive step towards establishing a legal framework for climate actions. However, the key obstacle remains to ensure the successful execution of these

regulations. These well-intentioned arrangements will fail to tackle the mounting climate crisis unless they are backed by strong enforcement and long-term political will. Advancing forward, Pakistan's government has to include climate resilience in its national security plan. If climate change is not handled, the country will remain socially and politically unstable. Aggressive and thorough changes are needed not merely to reduce these risks, but also to guarantee long-term stability.

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