

## **Assessing Climate Change Impacts on National Security in Pakistan**

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### **Abstract**

Climate Change compromises economic stability, social solidarity and environmental sustainability. It is a significant threat to Pakistan's national security. This research will assess direct and indirect impacts of climate change on Pakistan's national security. It focuses on climate linked natural disasters, economic disruptions and government responses to it. Climate change related events such as extreme weather conditions in winter and summer, their impact on displacement, disruptions in agriculture that have direct bearing on food security. It also leads to water shortages and social unrest. This research finds that these climatic induced losses compromise economic stability, aggravate poverty, social and economic inequality and societal unrest. It is further argued that government response in policy making can critically help in mitigating impacts of climate change on national security. There is a need for effective policies. As it promotes resilience to climate change, promotes sustainable development and ensures economic development. This research recommends development of climate resilient infrastructure as it provides adaptability extreme weather conditions. This would reduce vulnerability to climatic changes. Sustainable agricultural practices such as crop rotation and organic farming are another solution.

**Keywords:** Climate Change, National Security, Economic Stability, Government Policies, Pakistan

### **Introduction**

Climate change has surfaced as a formidable threat to global peace and security. It exacerbates existing vulnerabilities and creates new challenges for global community. Pakistan is situated in the strategically sensitive region of South Asia. It is particularly exposed to the adverse outcomes of climate change. The country's geographic location increases its vulnerability to climate risks. Biodiversity in Pakistan is also at risk. Economic conditions make it more susceptible. These factors have serious implications for national security.

Pakistan's exposure to climate change is highlighted by its ranking as the eighth most affected country globally in terms of climate risk (Global Climate Risk Index, 2020). The economy of Pakistan is climate sensitive. Pakistan relies heavily on natural resources and agricultural production. But extreme conditions of weather such as frequent floods, heatwaves, and drought have consequential impacts on Pakistan economy (IPCC, 2014). These climatic stressors have not only threatened Pakistan's economic stability but also compromised its national security.

Climate change has severe impacts on national security in Pakistan. This manifests through various channels. The rise in temperatures, change in patterns of precipitation have consequences for

agricultural productivity. This in turn leads to food insecurity and social unrest (Abid et al., 2016). Climate change effects on relations with neighbouring countries of Pakistan. As water stressed Pakistan vies for more water. It strains relations with India who shares water with Pakistan (Wirsing & Jaspardo, 2013). It is Further argued that displacement caused by climate change creates social unrest. This change forces migration. This unplanned migration becomes a strain on local resources. It can be a breeding ground for extremist groups and organizations. They can fish in troubled waters (Ali et al., 2018).

The existing security challenges become more complicated when they intersect with climate change. This further aggravates national security in Pakistan and gives new dimensions to security. The issues such as terrorism, extremism, ethnic and sectarian violence lead further towards regional instability. So, climate change plays a role of “threat multiplier”. It is creating more fronts for fighting (CNA Corporation, 2014). In this environment banned organizations to recruit new militants. This fuels social unrest. This becomes possible due to food and water shortages due to climate change. Terrorist organizations exploit these situations. This further leads to diversion of resources to fight new fronts. But in spite of these changes, climate change is relatively unaddressed issue in Pakistan keeping in view security challenges. This study aims to address this knowledge gap by assessing the impacts of climate change on national security in Pakistan.

### **Literature Review**

Wirsing and Jaspardo's (2013) article, "Water, Climate Change, and Security in South Asia," critically examines regional dynamics of nexus between climate change and national security in Pakistan. It provides insight how water scarcity due to climate change effects national security. This nexus makes South Asian region vulnerable to water related conflicts between riparian states. Pakistan, being the lower riparian becomes more vulnerable due to historical disputes in Indus River System. This water conflict may have domino effect in other areas such as agriculture which is backbone of the economy. It leads to possibility of internal and external conflict. In other words, water scarcity has multidimensional security risks for Pakistan. They emphasize the need for comprehensive policy responses. They focus on regional cooperation. They discussed implications for the region. These impacts intersect with economic, political, and military dimensions of national security. But it could become useful if a more in-depth analysis is done with special focus on Pakistan. A direct case study on water security in Pakistan could be beneficial. There is a need for further exploration on the intersection of climate change and non-traditional security threats. A closer look at Pakistan's domestic security strategy could provide additional answers. There is also some room on the effectiveness of water governance in Pakistan and its role in mitigating security risks.

Abid, M., Scheffran, J., & Schneider, U. A. (2016) assess the impacts of climate change on agriculture and food security in Pakistan. It explores perceptions of farmers about climate change in Pakistan. Survey and interview method has been used by authors to ascertain view point of farmers. It focuses on rural areas as they are more exposed to climate change. The authors find that climate change affects crop yields. In turn, it effects agricultural productivity and availability of food. They recommend changes in irrigation practices. Such as sowing of drought resistant crops. The perceptions ascertained by this study is helpful in providing insights and understanding of climate related challenges in Pakistan. This article provides local knowledge to enhance climate related capabilities. It also underscores importance of effective governmental response.

Nevertheless, this article focuses on agriculture sector only. It is representing only one dimension of security risks of climate change. There can be other areas of national security for exploration such as conflict over natural resources, internal displacement and water scarcity. It does not address the intersection of climate impacts. Its social and political impact and challenges of governance. It necessitates need for further research. It could expand scope to integrate all other factors, which would develop understanding of national security concerns of Pakistan related to climate change.

There is a need for examination of direct impacts of climate change on water resources of Pakistan. There is need for integration of social and political aspects climate induced conflicts. In order to mitigate concerns related to national security there is need for exploration of national policy on climate change.

Ali, S., Mustafa, D., & Khan, B. (2018) examine the relationship between climate change, migration, and conflict in Pakistan. The authors argue that climate change could trigger broader effects on the South Asian region. It could affect geo-political landscape as well. In their opinion climate change can multiply threats. It exacerbates socio-economic issues such as migration from rural to urban areas and beyond borders. These migrations in turn could instigate regional instability. It fuels tensions over land and water resources. This research is useful to the extent that it creates understanding how climate change threatens Pakistan's national security through migration. The authors highlight management of migration and adaptation for climate change. Failure to which could have adverse consequences for South Asia. Pakistan is more vulnerable due to its geographical location. They conclude that regional agreements could mitigate adverse consequences of migration and bring regional stability. But this article focuses more on South Asia. A detailed examination of Pakistan specific security risks is needed.

The present study will focus on impacts of climate change on Pakistan's national security. It would examine rising tensions due to migrant and host communities. It would further explore policy framework within Pakistan to manage migration and urbanization. It would investigate role of Pakistan in regional cooperation on addressing climate change.

Khan, B., & Ali, S. (2020) provide valuable in depth insight of the relationship of climate change and national security in Pakistan. They argue that climate change not only aggravates current challenges, it also creates new ones. A rise in temperature and changed patterns of precipitation increases possibility of natural disasters. It becomes a strain on national resources by forcing migration and developing food shortages. Which in turn fuels unrest in society. Social unrest could lead to sectarian violence and terrorism. These challenges worsen when intersect with bad governance, lack of infrastructure and institutional capacity. This article explores various climate related risks Pakistan is facing. These could destabilize national security of Pakistan through agriculture disruptions and water scarcity. They point to the growing threat of water shortages, particularly due to the depletion of the Indus River. It would increase frequency of floods and droughts. this article provides a robust analysis of the link between climate change and national security. But it primarily focuses on environmental factors. It has paid less attention given to the socio-political dimensions of security threats, such as governance challenges, social inequality, and ethnic tensions. The authors do not delve deeply into how these migrants may affect specific regions within Pakistan. There is a need for more detailed examination effects of climate change on social, political and economic aspects. There is also a need for detailed analysis of the interconnections between climate-induced migration and ethnic or sectarian tensions in areas like Balochistan or Khyber Pakhtunkhwa.

### **Climate Change Impacts in Pakistan**

Climate change has exerted tremendous pressure on environment, economy and human well-being in Pakistan. The rise in temperature is of great significance. Pakistan is facing an increase of 0.6°C in average temperature over the past century (Pakistan Meteorological Department, 2020). This trend has been predicted to continue and by 2050 it would rise by 1.8-3.8°C (IPCC, 2014). Floods, heatwaves, droughts and other extreme weather conditions are frequent in Pakistan. They are causing catastrophic impacts on agriculture, infrastructure and human livings (Abid et al., 2016). For instance, the 2010 floods affected over 20 million people, causing \$10 billion in damages (World Bank, 2010). The 2022 floods have also wreaked havoc as it affected millions in Pakistan. These floods were caused by monsoon rains. It caused widespread damage to infrastructure and agriculture and standing crops. It caused destruction to livestock and triggered food insecurity. More than 1700 people lost

their lives in Pakistan. These floods are a wake-up call for urgent action to improve resilience and disaster preparedness (Khan, 2022).

Climate change has critical consequences for agriculture. As rise in temperature and change in precipitation patterns disrupt crop yields, its production and quality. It leads to food insecurity in Pakistan (Ahmed et al., 2013). Climatic changes make Pakistan economy vulnerable as it affects staple crops like wheat, rice and cotton (Hussain et al., 2016). Pakistan annually lost \$1.2 billion in agriculture sector due to climate change (Government of Pakistan, 2018). Food insecurity has acute health implications for women, children and elderly. Livelihood of millions of farmers depend on water. Water scarcity exacerbates food insecurity (Wirsing & Jasparro, 2013).

Climate change also poses significant health risks in Pakistan. Malaria, dengue fever, and are illness water borne diseases caused by extreme heat. These diseases are rising due to climate change effects (Khan et al., 2018). Over 1 million people were affected due to water borne diseases after 2010 floods in Pakistan (WHO, 2010). Climate change exacerbates existing health challenges by putting strain on healthcare system through displacement and migrations (Ali et al., 2018). Anxiety and depression mental health impacts are also vital concerns (Ahmed et al., 2019). Addressing climate change impacts on health requires strengthened healthcare system. Also need improved disease surveillance, and climate-resilient infrastructure (UNDP, 2020).

### **Security Dimensions**

#### **Economic Security: Impact on GDP, inflation and trade**

Economic security dimensions of climate change impacts on national security in Pakistan:

Climate change is a significant threat to Pakistan's economic security. It threatens GDP, inflation and trade. Pakistan's reliance on agriculture makes it more vulnerable to climatic stresses such as floods, droughts and heatwaves (Ahmed et al., 2013). These stresses could lead to food shortages, volatility in prices and ultimately to economic instability (Abid et al., 2016). Pakistan's economic losses in world bank report are \$ 1.2 billion annually (World Bank, 2018). Climate change is said to be contributing in GDP growth reduction. It is estimated that it reduced GDP growth 1.5% to 2.5% (Government of Pakistan, 2018).

Climate change reduces purchasing power of a large portion of population. It is another dimension of climate change that it makes prices volatile especially food and energy markets. It leads to inflationary pressure (Khan et al., 2018). Floods in 2010 increased 25% food prices in Pakistan. This trend continues till today increasing economic hardships (State Bank of Pakistan, 2011). Due to disturbance in supply chain leads to trade losses in economic growth and competitiveness (Hussain et al., 2016). Pakistan's trade relations are severely affected by climate change. Pakistan's trade relationships are also vulnerable to climate-related impacts. Climate-related disturbances in global supply chains affect Pakistan's imports and exports. It compromises its trade balance (Ali et al., 2018). Furthermore, climate change affects Pakistan's trade competitiveness. It affects particularly in the agricultural sector (Wirsing & Jasparro, 2013).

Devastating floods, heatwaves and other extreme weather events in 2022 also have severe impact on Pakistan's economy. It disrupted agriculture productivity and industrial output. It has been estimated that floods in 2022 caused 2% reduction in GDP for that year (World Bank, 2023). Like previous years it also caused inflationary pressure by leading to food and energy shortages. It resulted in surging inflation rate to 27.6% in 2023, the highest in over a decade. There was significant increase in food prices in that period (State Bank of Pakistan, 2023). These inflationary pressures intersected with weak agricultural output. In return increased poverty level by putting strain on household incomes.

Effects of climate change heavily impacted trade in Pakistan. Agriculture sector contributes in exports of different crops like wheat, rice cotton. Floods in 2022 contributed in trade deficit. They destroyed standing crops. Pakistani exports suffered supply chain as floods reduced yields. Decline in export of crops reached at alarming levels. Trade imbalance was further worsened because of higher costs of

imported fuel and food items internationally. This global disruption was due to climate change impacts. Due to these disruptions Pakistan's external sector is struggling to recover. the depreciation of the Pakistani Rupee further worsened the trade situation (IMF, 2023). Climate change effects textile sector and exacerbates trade disruptions. So, affects Pakistan's economic security. Pakistan need climate-informed policies in order to diversify exports, promote climate resilient industries, and enhance trade competitiveness. It would account for climate related risks and opportunities. This would in turn ensure economic stability. As climate change poses significant risks in economic sphere. It compromises GDP, inflation, and trade. Effective policies can mitigate these risks. The priority must be given to climate resistant infrastructure, disaster management to ensure economic security.

### **Human security: Migration, displacement and conflict**

Climate change has exacerbated human security concerns in Pakistan. It has triggered human migration and displacement at large scale. Being one of the most vulnerable to climate change Pakistan experienced extreme events such as devastating floods. These deluges displaced millions of people. Intense monsoon rains caused heavy floods in large areas of Sindh and Balochistan. Countless people were forced to migrate in safe areas (UNHCR, 2022).

These displacements put a strain on urban areas. It created hostile relations between displaced and host communities. These migrations also put immense pressure on limited resources of Pakistan's fragile system. Because it increased possibility of conflict on resources such as water and land (Khan, 2023).

Climate change triggers new patterns of conflicts in resource scarce areas of Pakistan. As flood affected families of rural areas move to urban centers due to deluge, drought or crop devastations. Urban centers are unplanned and messy. So this migration creates further problems related to housings, employment and basic facilities. This starts violent competition and conflict between local residents and migrants (Siddiqui, 2023). Climate-induced migration also exacerbates ethnic and sectarian tensions. The displaced communities often find themselves in unfamiliar territories where political or social divisions exist. The displacement creates complex security dilemma in Pakistan, amplifying both social and political unrest (Ahmed & Qureshi, 2023). Rising temperatures and increased frequency of extreme weather events are forcing people to migrate from rural to urban areas. Pakistan experienced over 2.5 million displacements due to natural disasters between 2008 and 2018. Climate change was major driver in these events (IDMC, 2020). The rising temperatures, natural disasters and scarcity of resources create psychological impacts on human beings. Research has indicated that climate change related events such as extreme weather conditions could lead to depression and anxiety. This in turn make families to take desperate decisions (Hayes & Poland, 2018). The displacement related to climate change force families to take desperate decisions such as marrying girls at an early age due to poverty. This increases chances of gender-based violence. Climate change make gender-based violence as a penetrating issue within the society. Families may be forced to marry girls in exchange for livestock. The floods of 2022 not only devastated infrastructure but also destroyed future of many girls because they were forced out of schools. The United Nations International Children's Emergency Fund reported that more than two million

children were unable to attend schools due to floods destroyed 27000 schools (Unicef, 2022). A study by the United Nations Development Programme (UNDP) found that climate-related conflict in Pakistan can lead to increased poverty, inequality, and social unrest (UNDP, 2020). Climate-related migration can lead to social tensions, conflict, and instability in urban areas, compromising human security (Ali et al., 2018).

Climate change poses significant human security risks to Pakistan. Security risks include particularly in terms of migration, displacement, and conflict. Effective climate policies can mitigate these impacts such as promotion of human security and stability. The government must prioritize climate-informed development planning, disaster risk management. The climate-resilient infrastructure development to ensure human security. Pakistan cannot afford relying only on snail's pace global efforts on climate change. It must act on its own at local level. Citizens need to share this responsibility with government.

## **Conclusion**

This research assessed impacts of climate change impacts on national security of Pakistan. It focused on economic, food, water, energy and human security. The findings suggest that climate change poses significant threats to national security in Pakistan. It compromises economic stability and human security. It compromises GDP, inflation and trade. Climate related disasters can lead to social unrest, conflict by compromising Pakistan's national security.

## **Recap of Findings**

1. Climate change affects economic security by compromising trade and GDP.
2. Agricultural disruptions due to climate change threaten food security as it leads to price volatility and social unrest.
3. Climate change impacts on the Indus River Basin and creates water scarcity, further straining relations with India.
4. Climate change threatens energy security as it fuels disruptions in hydropower generation.
5. Climate change disrupts social services by straining local resources. This triggers human security in Pakistan.

## **Recommendations for Policy Makers**

1. Pakistan's economic managers need to develop climate informed economic planning. It would mitigate climate related economic losses.
2. Disaster risk management and preparedness could reduce the impacts of climate related disasters.
3. By investing in climate resilient infrastructure, particularly in water and energy sector would ensure sustainable development.
4. Food security could be enhanced by adopting sustainable agriculture practices.
5. Develop and implement effective climate change adaptation and mitigation. It would help in reducing greenhouse gas emissions.
6. Enhanced Cooperation with neighboring countries can address climate related challenges.
7. General Public, policy makers need to be educated on building a climate resilient society.
8. Policy makers in Pakistan must focus on the reshaping of supply chains in a way that promotes sustainable practices.

## **Future Research Directions:**

1. Future researchers are directed to investigate the complex relationship between climate change and national security, emphasizing on the role of regional dynamics.

2. Assessment of effectiveness of policies and strategies related to climate resilience in Pakistan.
3. While focusing on social, economic and cultural dimensions examine the impacts of climate change on human migration and displacement in Pakistan.
4. Investigate the impacts of climate change on Pakistan's energy security with special reference to renewable energy.
5. Analyze the role of regional cooperation in addressing climate-related challenges in South Asia, particularly in the context of the Indus River Basin.

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