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**RESEARCH PAPER**

## Climate Change Impacts on Migration, Poverty, and Health Issues in Pakistan: A Comprehensive Analysis

<sup>1</sup>Abdul Aziz, <sup>2</sup> Dr. Zoonia Naseeb\* and <sup>3</sup> Dr. Sawaira Rashid

1. BS (IR) International Relations, Department of Politics and International Relations, University of the Central Punjab, Lahore, Punjab, Pakistan
2. Visiting Lecturer, Department of Politics and International Relations, University of the Central Punjab, Lahore, Punjab, Pakistan
3. Assistant Professor, Department of Politics and International Relations, University of the Central Punjab, Lahore, Punjab, Pakistan

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**\*Corresponding Author**

Zoonia\_naseeb@yahoo.com

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**ABSTRACT**

In recent decades, the world has been facing climate change issues in terms of global warming, heat waves, droughts, and other factors as well. Over the period, climate gradually impacts the globe, particularly in South Asia, and Pakistan is one of those countries that are directly and indirectly affected by climate change, including health, agriculture, water resources, and migration impacts. Climate change has led to extensive challenges, including droughts, heat waves, and global warming, especially in South Asia. Climate change has both direct and indirect effects on Pakistan's health, the agricultural sector, water resources, and migratory patterns. This study aims to emphasize the effects of climate change on immigration, poverty, and health challenges within Pakistan, as well as how it causes property and livelihood losses and harms social well-being. Likewise, this study uses a qualitative method to investigate the socioeconomic elements and national security challenges associated with climate change in Pakistan. It examines the factors that contribute to these effects and investigates how climate hazards serve as catalysts for displacement. The study found that Pakistan's significant reliance on agriculture, along with disastrous floods, exacerbates food insecurity, property loss, poverty, and migration. For instants It also demonstrates that people encounter difficulties while attempting to alter their agricultural techniques. Comprehensive methods and government action are required to alleviate the negative effects of climate change in Pakistan, including food security, property protection, and socioeconomic stability

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**KEYWORDS**

Climate Change, Economic and Security, Health, Migration, Pakistan, Social Well-Being

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**Introduction**

In recent decades, Climate Change has become one of the most serious issues in the world, and it has significant implications for human life and the environment. Increased harshness and frequency of extreme weather created such as floods, heat waves, droughts, and temperature rise are the most visible impact of climate change. ( Rana & Khan, 2023) Additionally, scientific assessments claimed that on the global and regional levels both in the climate system have been undeniable since the pre-industrial period. In the view of the Inter-Government Panel on Climate Change Evolution, global temperature will rise from 1.4 to 5.8°C at the end of this century. This unprecedented change created multiple factors

such as the sea level, temperature rise, agriculture as well as the complete ecosystem of the earth. (Mustafa, n.d)

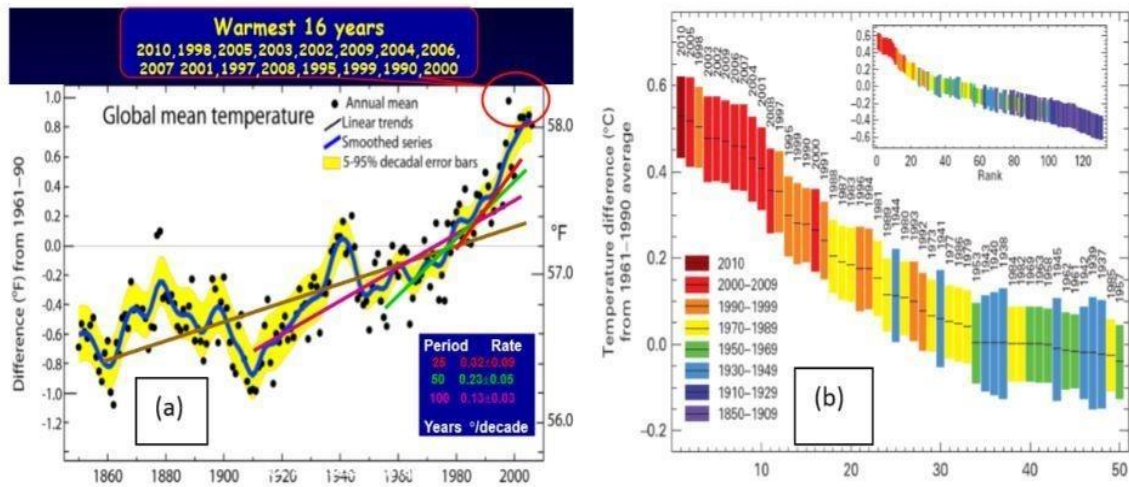


Figure1 Climate\_Change\_in\_Pakistan\_Impacts\_Strategies\_and\_the\_Way\_Forward  
[https://www.researchgate.net/publication/371857655\\_Climate\\_Change\\_in\\_Pakistan\\_Impacts\\_Strategies\\_and\\_the\\_Way\\_Forward](https://www.researchgate.net/publication/371857655_Climate_Change_in_Pakistan_Impacts_Strategies_and_the_Way_Forward)

Consequently, Pakistan is one of the most vulnerable countries to the threat of climate change those different diverse geographical locations and dynamics of climate features. Being a developing country. Pakistan's economy is already crippling and faces many issues at this moment. Further, the catastrophic impact of the climatic crisis adds fuel to the fire. Additionally, in the contemporary era, climate change is directly interlinked with human security, majorly Pakistan adversely affects human security because of climate change. Broadly speaking, climate change in Pakistan is rapidly increasing over time a prime example is floods, heat, droughts, and environmental threats highly affecting the country not only economically but also humanly. Regarding climate change Pakistan has lost a huge economy due to floods including in 2010, 2012, and 2022 devastated flood too. (Shahid & Adnan, 2021) However, Pakistan is heavily relying on agriculture which means that its main growth comes from the agriculture sector. In addition to this, heavy rainfall damages the sector of production due to climate change. (Tariq, Tabasam, & Bakhsh, 2023) It is acknowledged that Pakistan is explicitly susceptible to the effects of climate change. Over the period, Pakistan suffered from floods which not only hindered the country's economic growth but also impacted the migration, poverty, and health issues in Pakistan. (Hussain & Anwar, Climate Change in Pakistan: Impacts, Strategies, and the Way Forward, 2023) Moreover, dynamics in climate change resentfully affect the groundwater, malnutrition, agriculture soil as well as several health issues in Pakistan. (Fahad & Wang, 2020)

## Literature Review

Consequently, numerous studies have shown that climate change is a serious threat to Pakistan, such as (Ajani & Geest, Climate change in rural Pakistan: evidence and experiences from a people-centered perspective, 2021) they highlight that climate change has a significant impact on the agriculture sectors due to continuously rising temperatures and habitual droughts creating food crop yields. Another study inspects that due to climate change poverty and food security are both closely interlinked with agriculture sectors. Small farmers depend on agriculture for their low production; however, the climate seriously impacts the small farmer's activity. (Gul & Jan, 2019) Further, these climatic acute not only hazard the food crisis but also record obliterate on livelihood. However, Pakistan

is also facing global warming under the shadow of climate change because of a major shift in temperature in different regions of Pakistan. These dynamics develop from changing rainfall patterns. (Ghaffar & Javid, 2011) Most existing articles highlight the socio-economic aspects such as agriculture, water, temperature, poverty, and health issues in Pakistan. My research fills and addresses a gap in the literature that has not been previously identified has why Pakistan policy has failed in implementation. More importantly, the consumption of greenhouse gases in Pakistan is around 1.15 percent in this scenario Pakistan contributes only 1.1% carbon emissions in the world but on the other hand, Pakistan in the South Asian region faces more climatic disasters than other countries due to harmful emissions. Additionally, Pakistan faced a devastating flood in 2010 its impact was so huge country lost economically 9.6 billion dollars not only the dollar even many lives were displaced. In this regard first time Pakistan adopted the policy of 'The National Climate Change Policy' in 2012 considering the 2010 flood this policy aimed to focus on the goals and actions adaptation related to climate change. Further, the government launched the policy of 'Framework for Implementation of Climate Change Policy' in the following of NCCP shaping the various sectors of vulnerabilities as a result of climate change and providing mitigation action as well as identifying complete adaptation. ( Gopal & Wang, 2023) Nonetheless, in 2014 Pakistan launched the grand development framework which is 'One Nation One Vision' a bigger project that transforms the country toward a developed nation specifically, this plan is based on numerous pillared growth strategies. Additionally, it challenged the food insecurity, water shortage, and other related health issues that happened through climate change. Moreover, there are fourteen laws spread across Pakistan in many sectors that directly or indirectly deal with climate change issues. Including in 2011 Pakistan Energy Efficiency and Conservation Act, the Pakistan Council of Renewable Energy Technologies Act in 2010, and the National Disaster Management Act. Among South Asian countries Pakistan is the first state go through enact a recognized 2017 Pakistan Climate Change Act. (Afzal & Akhtar, 2023) In 2020 the process of decentralization took place the devolution of power in the amendment of the 1973 constitution of Pakistan communally as 18<sup>th</sup> amendment. This process ultimately disconnects the interlink of two major tiers of governance after this decentralization climate change became the subject of the federal from the provincial government. Moreover, the province bodies claimed that they don't have the capacity and resources to tackle the climatic threat. Additionally, on the sub-national level, there is no climate change council to link with the federal council regarding coordination. (Masud & Khan, 2024)

## **Material and Methods**

The study adopts a quantitative and qualitative approach depending on the secondary data sources to inspect the impact of climate change on migration, poverty, and health issues in Pakistan. For research data has been compiled and depict the existing literature along with national and international organizations. For comprehensive research data will be analyzed through articles, books, websites, government reports, and other statistical data.

## **Theoretical Framework**

In recent decades the security of climate change emerged after the Cold War, agenda of security rapidly changed. However, Barry Buzan's book 'Security: A New Framework for Analysis as a Copenhagen School laid the groundwork for the Securitization theory. Eventually, climate change was considered at that time in low politics major use of force such as the military was contemplated as a high politics. ( Warner & Boas, 2019) Moreover, climate change become a serious threat to Pakistan's security with the emergence of climate challenges including rising temperatures, extreme weather

events, food insecurity, and acute water shortage. Pakistan has witnessed of devastating flood that not only damaged the poor infrastructure but also displaced millions of people further increasing the economic and security crisis within the state. (Akhtar, 2023) Categorically, in the past 2010 floods devastated the Pakistani economy and became the cause of death of many people including 20 million people displaced and \$10 billion worth of economic losses by Pakistan. Additionally, many people have migrated from one place to another places in search of shelter, food, and clean water, the main problem here it created a burden on those areas where people have already lived there. Eventually, it would create national security issues for Pakistan. (Bhatti, 2019) Moreover, 60% to 70% population of Pakistan is directly or indirectly interlinked with the agriculture sector however, rampant insufficiency of water access is the major cause of food insecurity. (Chauhdry & Javed, 2019) Damaging the sector of agriculture due to climate change ultimately people will face poverty under this circumstance government needs to tackle the climate threats because climate change is a serious issue for national security. Pakistan can investments in infrastructure also improve the disaster reaction and enhance further social safety nets to secure vulnerable populations.

### Changes in Weather Pattern

Climate change has a direct influence through changing weather patterns under the strong precipitation then the process of water evaporation occurs on the surface route to a high concentration of water vapor which results in heavier rainfall its further origin the devastated floods. In Pakistan the rain has not come on time from the past years not only rain even the wind has become more expeditious.

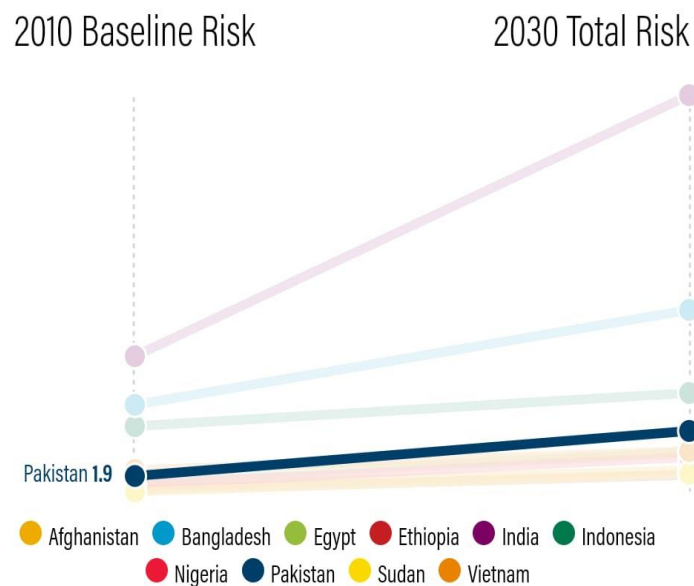


Figure 2 Source: WRI's Aqueduct Floods • 23.02.01

However, the air temperature of the surface is most notably considered the sign of climate change where warm and hot temperatures hit the evaporation rate. Subsequent increments in surface temperature lead to the development of an extreme hydrological cycle that ultimately intensifies the unusually heavy precipitation events. Categorically temperature and precipitation events have been recorded worldwide including Pakistan. (Javed & Chauhdry, 2019) In this region, Pakistan is one of the most affected countries because of the climate crisis. Moreover, a Climate change group of scientists from an

international have found that climate change hiked due to heavy rainfall because of precipitation.

### **Causes of Climate Change**

The average temperature of the earth has shifted from the pre-industrial period to now, and it gradually changes because of the cause and effect of greenhouse gases. These gases play a major role in climate change and human and natural activities play their part. Additionally, Pakistan's susceptibility to climate change is quite excessive in temperature in this region rather than the global average temperature. (Hanif & Syed, 2010) Elimination of trees is the process of deforestation in this region through human and natural factors. In contrast, trees are crucial for the environment because trees absorb carbon dioxide and release oxygen. In Pakistan, trees are cutting for lodging, farming, and urban infrastructure. Moreover, other factors have also played a role including methane, melting glaciers, manufacturing goods generating powers, and also vehicles.

### **Impact on Migration**

The UN report figures out that 740 million people internally migrate throughout the world. From the previous decade South, Asian regions were highly affected by climate change according to the report of 'Costs of Climate Inaction: Displacement and Distress Migration' in December 2020 more than 18 million people migrated due to climate change. However, if global warming continues in the same way without adaptation, then the temperature further rises by nearly 3.2 degrees Celsius under this factor around 63 million will be displaced in India, Pakistan, Nepal, and Sri Lanka. (Hayat, 2021) Throughout the period Pakistan has been seriously affected by climate change frequently heat, drought, floods, and temperature rise compel people to migrate to another place. Study shows that three types of migration 'Permanent migration, Temporary migration, and Seasonal migration. However, in the event of permanent migration families migrate permanently toward their destination in such conditions people left their homes, lands, and small businesses due to the devastated flood and were left with no choice but to migrate. However, in recent years the pattern of monsoon and precipitation has completely shifted as a result the temperature ultimately rises forcing the community to be displaced permanently or temporarily toward a safe place. In addition, the Pakistan Council of Research in Water Resources reported that by 2025 Pakistan will become total water scarce however, this water shortage already impacting the agricultural production in the country for instance: Pakistan was hit by a flood in 2010 according to a report two million have been displaced and some people move to the urban area from rural areas likewise more than 60% people of Pakistan involved in the agriculture. (Khan O. F., 2021) In the 2010 devastating flood 2000 people lost their lives along with damage to infrastructure, towns, cities, and corps as well. (Tower & Plano, 2022) In Sindh (THATTA) citizen Ameer Ali nearly traveled 70km from his native home located in the district of Sujawal when a devastating flood crumbled his home and the crops of field also where he worked agriculture in the crops so thousands of people like Ali were forced to be displaced as a result of heavy rainfall and changes in weather pattern. (KUNBHAR, 2022)

- Natural disasters outrush the people to migrate
- Limited food production growth due to droughts
- People trying to access to clean water
- Damage to houses

### **Impact on Society**

Climate change has several assumptions on the environmental as well as involve social economic factors besides its implication the society in numerous ways and further

people of society pay the price of effects. Majorly Pakistan is the Southern part that is most impacted and considered the warmest area of the region because of the hot temperature affected by global warming. In this scenario as a result of floods consequently caused by climate change women and children migrate to other places in search of food, water, and shelter. ( Hussain, Butt, & Uzma, A comprehensive review of climate change impacts, adaptation, and mitigation on environmental and natural calamities in Pakistan, 2020)

### **Impact on Children**

Women and children both are highly vulnerable and affected by climate change in Pakistan, mainly due to insecure living and low capital. Moreover, in the flood crisis mostly women and children suffer from a shortage of food, and a lack of access to clean water, and in this case pregnant women face a high level of food insecurity as a result malnourishment is projected due to climate change. however, research shows that more than 3.5 million children in the context of education are affected by climate change further, an Amnesty International report on excessive heat and health in Pakistan that extreme heat increases the cost of education for children due to rises of temperatures in college and school need to pay more bills by using more electricity over cool down the classroom for children. (Dias, 2023)

### **Impact on Women**

Women fed their toddlers with floodwater mix along with sugar deficiency of milk and cereals at relief camps when the flood damaged their houses. They were making to filter polluted water by using their dupattas. As a result, waterborne diseases consequently were common such as fever, diarrhea, and skin-rich itching. However, women and children abducted from flood camps in search of food were not only abducted they rape and torture as well.

### **Impact on poverty**

The poverty trap is a turning situation that doesn't allow people to run away from poverty. However, Poor people cannot save enough budget to overcome poverty with the passage of time situation is getting worse for the poor to handle the capital for the family. Now, climate change is directly interlinked with poverty in developing and under-developing countries. Uncertain and unpredictable heavy rain and floods destroy the crops of farmers which ultimately pushes the people into poor circles. (Huma, 2019) For international exports, Pakistan heavily depends on the agriculture sector in the sight of the water crisis and flushed system for agriculture production Pakistan has several challenges due to the scarcity of water. In addition, in the year 2022, Pakistan has met with a devastating flood where this country lost 30 billion rupees and also the infrastructure. Respectively according to the Global Food and security index Pakistan ranked 83 out of 113 states in 2021. Moreover, in the gross domestic product, nearly 21% of agriculture contributes and 70% of export income with 45% of the labor force employed in these climatic circumstances 33% of irregularity in the yields of rice, and 30% of the variability in the wheat fertility as a result of climate change further 30% decline in yield crops by 2080. So, the farmer cannot earn enough money to fertile the land for the upcoming season even not fulfill his needs they live under a poverty ratio



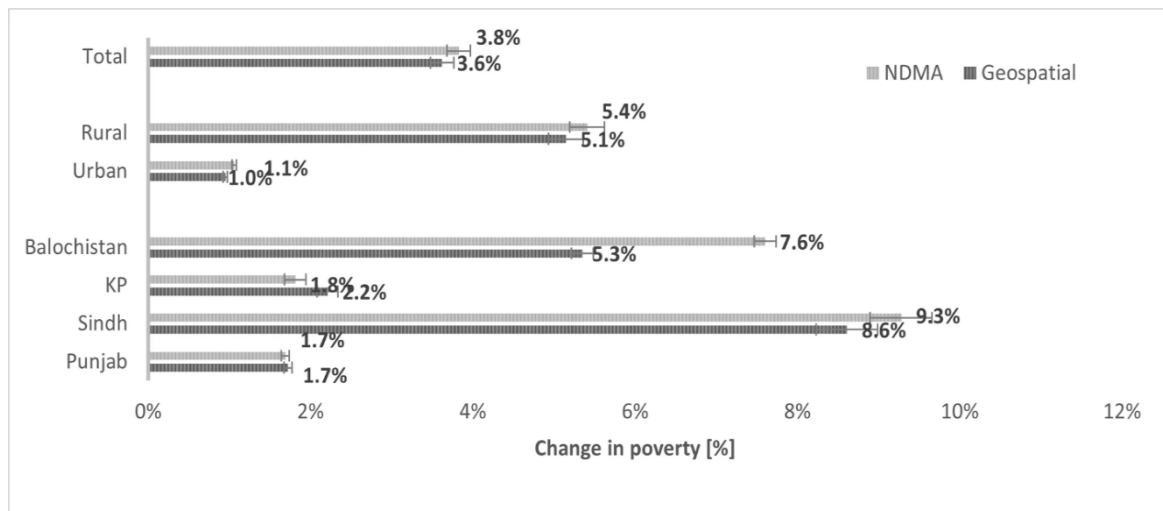


Figure 3 National Disaster Management Authority

The data collected by the National Disaster Management Authority show that climate change has affected the province's vulnerable households making their life more difficult however impact on poverty lies between 3.7 to 4 percent in other words 9 million even in poverty line additional 7 million people added in a list a short term estimated by NDMA recovery will rely on the government quality of relief and effort of infrastructure. Respectively the World Bank reported that the poverty rate will rise from 2.4 to 4 % after the 2022 devastating flood according to the Asian Development Bank there are 220 million people of which 20% live already under the poverty line. Because the total area of cropland of around 78000 km sq. was flooded by the 2022 flood along with 81 districts additionally, estimated that 80% of crops were damaged. Food crops for farmers like onions, rice, tomatoes, and other vegetables grow on thousands of acres of land. According to the World Bank 2021 country profile in crops and essential food, yield decreased on a large scale more importantly, climate change had a serious impact on inflation in Pakistan in July 14% to 25% inflation increase means, that 9 million people are going to be in poverty. (Malik, 2023)

### Economic crisis

Global Climate Risk Index predicts that Pakistan will be the fifth most climate-affected state in the world throughout the years from 1999 to 2018 suffering economic losses worth around \$3.8 billion along with ten thousand people losing their life. (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.

### Agriculture

Pakistan country is heavily dependent upon on the agriculture sector disturbance in this sector leads to the people of Pakistan being in more disaster situations. Climate change has been reducing the crop productivity and will impact on food security. Respectively the length of wheat will more subjugate by 2050 and 2080.

### Over Population

According to a report by 2050, the population of Earth will be 9.8 billion. However, a large part of the population nearly 70% live in metropolitan regions mostly the

majority of people live in China and India. Another report given by the UN claimed Pakistan's population by 2050 will be 360 million and India become the very first country in the world which surpass China. Growth of population ultimately uses more land more water and more food under this need resources frequently decrease eventually a gap will develop between the growth of resources and the growth of the population. (Adnan & Xiao, 2024)

### Impact on Health Issues

Climate change has a significant effect on human health directly and indirectly speedily under the direct including illness, mental disorders, trauma, and other diseases due to droughts, floods, rain storms, and natural fires as well moving toward indirect effects where the conditions of the environment and ecological are changed however, the quality of yield of crops gradually decrease and the quantity of drinking clean water also less these factors spread water-borne, vector-borne, and illness diseases. (Iqbal, 2020) More importantly, the existence of so much standing water during the flood of 2022 created mosquitoes expanding the chance of malaria, cholera, dengue, and fungal skin infection moreover the doctor working in Sindh Hyderabad quoted that most patients have suffered from malaria with skin rashes by using polluted water supplies according to the reported of WHO 10% of Pakistani's people healthcare facilities had been destroyed or damaged due to the flooding in 2022 already country facing with lack access of primary healthcare utility then the loss of more than two thousands further raised the alarm situation for Pakistan.

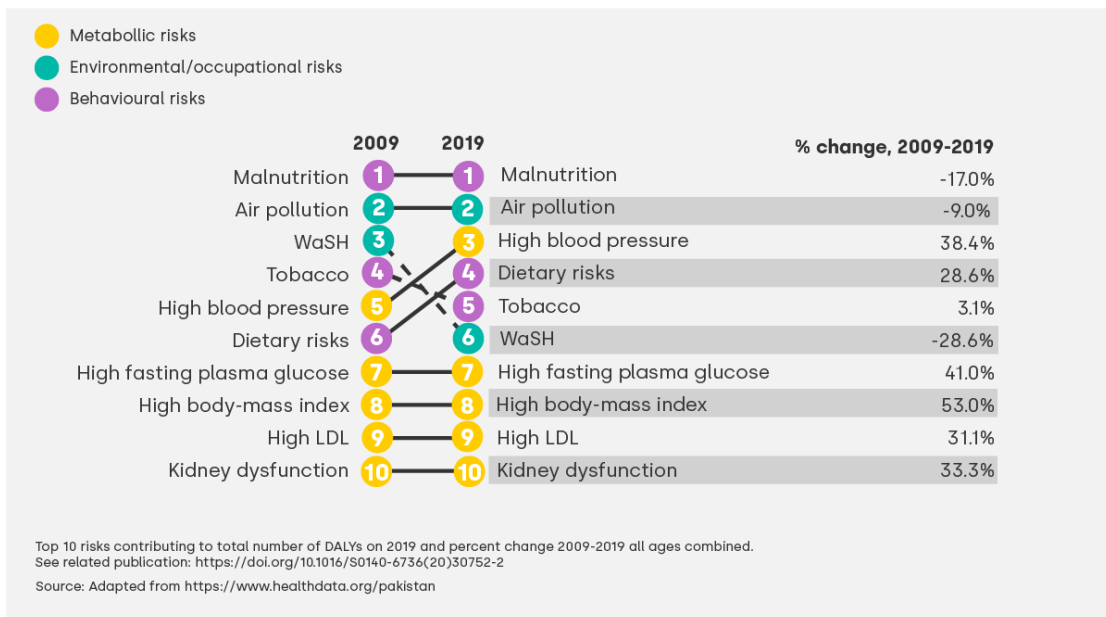


Figure 4 Population, 1990–2100. Forecast data based on Global Burden of Disease 2017 results. Source: <https://www.healthdata.org/pakistan>

In recent periods Pakistan has suffering from serious non-communicable diseases including stroke and ischemic heart disease these environmental impact diseases cannot be cured, they must be prevented and managed throughout life. Regarding stunting Pakistan's demographic and health survey found that under the age of 5 nearly 57% of children physically are stunted moreover, air pollution further causes disease and death such as lower respiratory infections, diabetics, lung cancer, and blindness.



## **Malaria**

According to the World Health Organization number of malaria cases increased in Pakistan after the 2022 flood only 400000 cases were recorded in 2021 because of the flood malaria cases jumped to 1.4 million. Specifically, the districts of Sindh and Baluchistan have been partially affected because in rural areas water stayed there for a long time and there was no way to out. (Kawoosa, 2022)

## **Waterborne diseases**

Climate change is causing floods and d The inspection of Pakistan National Conservation Strategy reports that 40% represent all of the diseases related to water-borne. Arises 400 different organisms that cause water-borne diseases commonly in Pakistan are diarrhea, typhoid, cryptosporidium infection, and other diseases further reports claimed that 80 % of diseases are created in Pakistan through waterborne

## **Public health crisis**

Access to clean water is a major national security issue for Pakistan. However, scarcity of water causes enormous health issues in Pakistan where the system already struggling with diseases especially in developed countries these issues are non-existent. Additionally, due to water 50 % of diseases spread directly through contaminated water and provides a gap to transfer and spread bacteria and infection from human to human and animal to human. (Tanvir & Mukhtar, 2022)

## **Conclusion**

To sum up the whole study due to climate change not only the world even Pakistan is suffering greatly from the effects of climate change, which are influencing migratory patterns, raising poverty rates, migration issues, and making health problems worse. Extreme weather, a shortage of water, and the ensuing socioeconomic strains present serious issues for the nation. To tackle these obstacles, a diverse strategy must be implemented, involving strong legislative measures, community involvement, infrastructure and healthcare investments, as well as international cooperation. Pakistan can safeguard vulnerable communities, maintain sustainable development for future generations, and increase resilience against climate change by executing these ideas into practice. It is possible to help mitigate the negative effects of climate change and build a more resilient and prosperous society, even though the path ahead is difficult and requires strategic planning and coordinated efforts. Pakistan needs to put a variety of measures into practice to safeguard vulnerable populations and increase resilience against climate change. Infrastructure will be able to survive extreme weather events if building rules are enforced and climate resilience measures are strengthened. Programs for community-based adaptation are essential for enabling nearby communities to successfully adjust to climate change. These initiatives ought to concentrate on providing information and tools for water conservation, disaster preparedness, and sustainable agriculture methods. Moreover, the government needs to work on the policy of climate change coordinating with local bodies to provide them with infrastructure and finance to better cope with climatic hurdles.

## **Recommendations**

- Create job opportunities in more resilient industries and assist small and medium-sized businesses (SMEs).

- Create long-term plans to help immigrants settle into their new communities without using up all of the available resources.
- Provide emergency shelter, safe water access, and basic medical treatment as support systems for climate migrants.
- Start public awareness efforts to inform people about the effects of climate change and the value of implementing sustainable behaviors. This may contribute to the development of a resilient and proactive adaptation culture.
- To address the effects of climate change, strengthen international collaboration and look for assistance from international organizations. This covers measures for capacity-building, technological transfer, and financial assistance.
- To better control the effects of climate change on health, invest more in the infrastructure of healthcare.
- To reduce damage and expedite recovery, create thorough plans for disaster risk reduction.
- Update irrigation systems, encourage water-saving practices, and make sure water resources are distributed properly.

## References

- Abbasi, M. S., & Naeem, K. (2021). Climate Induced Migration Among Women. *SDPI*.
- Ahmed, K., & Nabi, I. (2022). How environmental risk factors affect health and poverty in Pakistan. *IGC*.
- Ajani, A., & Geest, K. v. (2021). Climate change in rural Pakistan: evidence and experiences from a people-centered perspective. *SpringerLink*.
- Ajani, A., & Geest, K. v. (2021). Climate change in rural Pakistan: evidence and experiences from a people-centered perspective. *Sustainability Science*, 16, 10. Retrieved from <https://link.springer.com/article/10.1007/s11625-021-01036-4>
- Akram, N., & Hamid, A. (2015). Climate change: A threat to the economic growth of Pakistan. *Progress in Development Studies*.
- Burke, S., & Saccoccia, L. (2023). How Floods in Pakistan Threaten Global Security. *World Resources Institute*.
- Chauhdry, K. T., & Javed, U. (2019). CLIMATE CHANGE AND WATER SECURITY: FOCUS ON PAKISTAN. *ISSRA*, XI(II). R
- Farah, N., & Siddiqui, S. (2023). CLIMATE-INDUCED MIGRATION AND ASSOCIATED RISKS IN PAKISTAN: A SYSTEMATIC REVIEW. *Russian Law Journal*, 08.
- Gopal, M., & Wang, B. (2023, 12). ASPI Climate Action Brief: Pakistan. Retrieved from <https://asiasociety.org/policy-institute/aspi-climate-action-brief-pakistan>
- Hanif, U., & Syed, S. H. (2010, December ). Economic Impact of Climate Change on the Agricultural Sector of Punjab. *Pakistan Institute of Development Economics*, 49(04). Retrieved from <https://www.jstor.org/stable/41428690>
- Hussain, M., & Butt, A. R. (2019). A comprehensive review of climate change impacts, adaptation, and mitigation on environmental and natural calamities in Pakistan. *Springer Nature*.
- Hussain, M., Butt, A. R., & Uzma, F. (2020, December). A comprehensive review of climate change impacts, adaptation, and mitigation on environmental and natural calamities in Pakistan. *Environmental Monitoring and Assessment*, 192.
- Rana, I. A., & Khan, M. M. (2023, June ). Multidimensional poverty vis-à-vis climate change vulnerability: Empirical evidence from flood-prone rural communities of Charsadda and Nowshera districts in Pakistan. *World Development Sustainability*, 02. Retrieved from <https://www.sciencedirect.com/science/article/pii/S2772655X2300023X>
- Riaz, M., & Faisal, N. (2019). Climate, population, and vulnerability in Pakistan: Exploring. *Popcouncil*.
- Salik, K. M., & Abbasi, M. S. (2020). CLIMATE-INDUCED DISPLACEMENT AND MIGRATION IN PAKISTAN. *SDPI*.
- Shahid, F., & Adnan, D. M. (2021, June). Climate Change: Impacts on Pakistan and Proposed Solutions. *PSSR*, 05. Retrieved from

<https://pssr.org.pk/issues/v5/2/climate-change-impacts-on-pakistan-and-proposed-solutions.pdf>

- Tariq, A., Tabasam, N., & Bakhsh, K. (2023, December ). Food security in the context of climate change in Pakistan. *RJSSER*, 03. Retrieved from <https://ojs.rjsser.org.pk/index.php/rjsser/article/view/552>
- Tower , A., & Plano, R. (2022, September 08). *Pakistan Floods Highlight Funding Shortfall For Climate Adaptation, Loss & Damage*. Retrieved from Climate Refugees: <https://www.climate-refugees.org/spotlight/2022/9/8/pakistan-floods>
- Warner , J., & Boas, I. (2019). Securitization of climate : How invoking global dangers for instrumental ends can backfire. *Environment and Planning C: Politics and Space*, 37(08). Retrieved from <https://journals.sagepub.com/doi/full/10.1177/2399654419834018>
- Adnan, M., & Xiao, B. (2024, April). Addressing current climate issues in Pakistan: An opportunity for a sustainable future. *Environmental Challenges*, 15. Retrieved from <https://www.sciencedirect.com/science/article/pii/S2667010024000532>
- Afzal , S., & Akhtar, S. (2023, December). MAINSTREAMING CLIMATE CHANGE IN POLICY PROCESSES OF PAKISTAN. *ISSRA*, XIII. Retrieved from [https://www.researchgate.net/publication/364468406\\_MAINSTREAMING\\_CLIMATE\\_CHANGE\\_IN\\_POLICY\\_PROCESSES\\_OF\\_PAKISTAN#:~:text=It%20argues%20that%20the%20mainstreaming,resilience%20against%20growing%20climatic%20challenges.](https://www.researchgate.net/publication/364468406_MAINSTREAMING_CLIMATE_CHANGE_IN_POLICY_PROCESSES_OF_PAKISTAN#:~:text=It%20argues%20that%20the%20mainstreaming,resilience%20against%20growing%20climatic%20challenges.)
- Akhtar, N. (2023). Climate Change: Rising Security (Non-Traditional) Threat to Pakistan. *JDSS*, 04(03). Retrieved from <https://ojs.jdss.org.pk/journal/article/view/784#:~:text=Climate%20change%20has%20become%20an,a%20security%20threat%20to%20Pakistan.>
- Bhatti, M. A. (2019). Climate Change: A Problem for Pakistan's National Security. *Journal of Contemporary Studies*, XI. Retrieved from file:///C:/Users/nmsop/Downloads/3.-climate-change--military-security.pdf
- Climate change likely increased extreme monsoon rainfall, flooding highly vulnerable communities in Pakistan.* (2022, September). Retrieved from worldweatherattribution: <https://www.worldweatherattribution.org/climate-change-likely-increased-extreme-monsoon-rainfall-flooding-highly-vulnerable-communities-in-pakistan/>
- Dias, A. (2023, DEC). *Pakistan's children are feeling the human toll of climate change: stunted growth and school dropouts.* Retrieved from ABC NEWS: <https://www.abc.net.au/news/2023-12-12/pakistan-climate-change-disasters-child-malnutrition-education/103059696>
- Eastasiaforum. (2023). Pakistan's floods highlight the climate-health nexus. *Eastasiaforum*.
- Fahad, S., & Wang , J. (2020, December). Climate change, vulnerability, and its impacts in rural Pakistan: a review. *Environmental Science and Pollution Research*(27). Retrieved from <https://link.springer.com/article/10.1007/s11356-019-06878-1>
- Gadiwala, M. S., & Burk, F. (2013). Climate Change and Precipitation in Pakistan - A Meteorological Prospect. *Int. j. econ. environ. geol.*

- Ghaffar , A., & Javid, M. (2011). IMPACT OF GLOBAL WARMING ON MONSOON VARIABILITY IN PAKISTAN. *The Journal of Animal & Plant Sciences*, 21(01). Retrieved from <https://www.cabidigitallibrary.org/doi/pdf/10.5555/20113215080#:~:text=Muzaffarabad%3B%20In%20Pre%2DMonsoon%2C,in%20August%20has%20rapid%20decrease>.
- Gul, F., & Jan, D. (2019). Assessing the Impact of Climate Change Adaptation Strategies on Poverty Rates of Wheat Farmers in Khyber Pakhtunkhwa, Pakistan. *Sarhad Journal of Agriculture*, 35. doi:10.17582/journal.sja/2019/35.2.442.448
- Hashmi, P. D. (2023). Climate Change and Climate Induced Migration in Pakistan: A Threat to Human Security (The Study of RajanPur and Taunsa Sharif after Flood 2022). *Annals of Human and Social Sciences*.
- Hayat, S. (2021, August 13). *Comment: Pakistan's policymakers must address climate migration.* (Dialogue Earth ) Retrieved from <https://dialogue.earth/en/climate/comment-pakistans-policymakers-must-address-climate-migration/>
- Huma, Z. (2019, October ). *Climate change and risk of poverty.* Retrieved from Tribune: <https://tribune.com.pk/story/2090204/climate-change-risk-poverty>
- Hussain, Z., & Anwar, U. (2023, June). Climate Change in Pakistan: Impacts, Strategies, and the Way Forward. *PLHR*, 06. Retrieved from [https://www.researchgate.net/publication/371857655\\_Climate\\_Change\\_in\\_Pakistan\\_Impacts\\_Strategies\\_and\\_the\\_Way\\_Forward](https://www.researchgate.net/publication/371857655_Climate_Change_in_Pakistan_Impacts_Strategies_and_the_Way_Forward)
- Iqbal, M. P. (2020). Effect of Climate Change on Health in Pakistan. *Proceedings of the Pakistan Academy of Sciences: B. Life and Environmental Sciences*, 57(03). Retrieved from <https://www.paspk.org/wp-content/uploads/2021/02/LS-624.pdf>
- Ishaque, W., & Tanvir, R. (2022). Climate Change and Water Crises in Pakistan: Implications on Water Quality and Health Risks. *hindawi*.
- Javed, U., & Chauhdry, K. T. (2019, 12). CLIMATE CHANGE AND WATER SECURITY: FOCUS ON PAKISTAN. *ISSRA*. Retrieved from <https://issrapapers.ndu.edu.pk/site/article/view/22>
- Kawoosa, V. M. (2022, September). *Floods in Pakistan.* Retrieved from Reuters: <https://www.reuters.com/graphics/PAKISTAN-WEATHER/FLOODS/akpezbxgvr/>
- Khan, J. A. (n.d). CHANGING CLIMATIC PATTERNS AND THEIR IMPACTS WITH SPECIAL FOCUS ON PAKISTAN. *pecongress.pk*.
- Khan, O. F. (2021). How Climate Change in Pakistan Affects Migration. *paradigmshift*.
- KUNBHAR, Z. (2022, August 31). *Devastating rains fuel major climate migrant crisis in southern Pakistan.* Retrieved from Arabnews: <https://www.arabnews.com/node/2153571/pakistan>
- Malik, R. (2023, January 01). *Impact of Climate Change on Food Security in Pakistan.* Retrieved from Pakistan Today : <https://www.pakistanoday.com.pk/2023/01/01/impact-of-climate-change-on-food-security-in-pakistan/>

Masud, S., & Khan, A. (2024, March ). Policy implementation barriers in climate change adaptation: The case of Pakistan. *Environmental Policy and Governance*. Retrieved from <https://chatgpt.com/c/b7955690-b8f1-441b-8d65-8ef0b2c4a257>

Mustafa, Z. (n.d). CLIMATE CHANGE AND ITS IMPACT WITH. *pecongress*.

reliefweb. (2023). Climate Crisis in Pakistan: Voices from the Ground. *reliefweb*.

Securitization of climate: How invoking global dangers for instrumental ends can backfire. (n.d.).

Tanvir, R., & Mukhtar, M. (2022, November). Climate Change and Water Crises in Pakistan: Implications on Water Quality and Health Risks. *Journal of Environmental and Public Health*. <https://onlinelibrary.wiley.com/doi/10.1155/2022/5484561>