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Climate Change and National Security Challenges to Pakistan: An Analysis

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Abstract: Climate change is increasingly recognized as a major national security concern in Pakistan. The country faces many climate-related challenges, including rising temperatures, changing precipitation patterns, extreme weather events, and melting glaciers. These climate changes have a significant impact on various sectors such as agriculture, water resources, healthcare, and infrastructure. This article examines the impact of climate change on Pakistan's national security, the threats and risks associated with environmental degradation, Pakistan's current policy framework on climate change, and how Pakistan should address the climate crisis. Addressing these challenges requires urgent and concerted efforts to integrate climate change adaptation and mitigation strategies into national security policies to protect the well-being and stability of our people.

Keywords: Climate Change, National Security Challenges, Pakistan, Glaciers, Extreme Weather

Introduction

Today, the world is in turmoil due to multiple crises, the most severe of which is climate change. It has crossed international boundaries, causing destruction and drought in Somalia, leading to the starvation of children or the recent hurricane Nicole that affected US states like Florida, the floods in Nigeria, heat waves in the USA, forest fires in Europe, etc. Climate change acts as a disruption multiplier in a disrupted world that has recently faced a severe pandemic known as COVID-19. The last decade, i.e., 2011-2020, was considered the warmest decade, but today, the Arctic Ocean has become warmer (IASbaba, 2022).

Climate change issues like floods, drought, famine, surging sea levels, etc., are haunting the growth of developing countries such as small island states and the Horn of Africa, where there is a huge gap between needs and resources (Hasan, 2023). Over the last century, the global temperature has increased by 0.6 degrees and is predicted to surge by 1.5 degrees by the end of the current century (IPCC Sixth Assessment Report, 2021). According to the US Secretary of Defense Austin (2021), "No nation can find lasting security without addressing the climate crisis". It is an existential threat.

Climate Change: an Existential Threat for Pakistan

In the case of Pakistan today, climate change is one of the most alarming threats to the citizens' constitutional rights. Articles 9 and 14 of the Constitution of the Islamic Republic of Pakistan provide them with their basic right to life and dignity (The Constitution of Pakistan, 1973). Pakistan is a frontline state that faces severe consequences of climate change. During the last couple of decades, Pakistan has been one of the worst victims of droughts, cyclones, and floods that have taken the lives of many people, displaced thousands, damaged infrastructure, and destroyed livelihoods. Pakistan has witnessed 152 extreme weather events from 1999 to 2018. According to German Watch (2021), Pakistan has been declared among the top ten countries that were most affected by climate change in the last 20 years because of its geography. (Global Climate Risk Index, 2020).

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Climate change increases the possibility of natural hazards. Not only will frequency increase, but also the severity in upcoming years. It is a completely clear indication that Pakistan is one of the most vulnerable countries to the effects of climate change. Today, climate changes have extensive adverse impacts on Pakistan. These range from an increase in water shortage and coastal erosion to a decrease in agricultural productivity and a similar escalation in the frequency of extreme climatic events. It is pertinent to address these risks as early as possible. It is the need of the hour to mainstream climate change into national policy and strategy (Asian Development Bank, 2017).

The annual mean temperature arose by roughly 0.5°C in the last 50 years in Pakistan. In the last 30 years, the number of heat wave days per year has increased nearly fivefold. Similarly in the last century, there has been approximately 10 centimeters rise in sea level along the Karachi coast. In the same way, variability is seen in precipitation (Asian Development Bank, 2017).

According to a report by World Risk Index Data (2022), 193 countries are vulnerable due to the high risk of experiencing natural disasters and extreme events like drought, earthquakes, floods, and tsunamis. Climate change lies in the domain of non-traditional security threats for Pakistan. Today, climate change, national security, and economic security are inextricably linked in Pakistan. Vast geopolitical impacts of climate change are being faced today. (Environment and Energy Study Institute, 2017).

Climate change is labeled as a "threat multiplier,". It exacerbates the already existing stressors. These include social tensions, poverty, political instability, and environmental degradation (Goodman & Baudu, 2023). The complete loss and degradation of land because of erosion, drought, and rise in sea level results in the loss of people's livelihood, agriculture, housing and displacement of people (Environment and Energy Study Institute, 2017)

Vulnerability to extreme events must be considered as a warning to prepare for future events. Due to extreme climate change events, the spread of diseases is increasing. Mass migration by vulnerable sections of the population is also on the rise. This situation places a burden on defense and civilian institutions in Pakistan. Among the top ten countries most affected by climate change from 1999 to 2018, Pakistan occupies the fifth position. (Global Climax Index, 2020).

It is an alarming fact that Pakistan's policy discourse action plan lacks the important aspect, i.e., the security implications of climate change. Though this issue is being considered in general terms, at present, no proper policy document or any action plan is set up to deal with climate change in terms of a security threat. Conversely, in developed countries, research institutes, NGOs, and think tanks have been involved in researching the security implications of climate change for a long period (Ramay, 2023). Glaciers are melting at an increased rate, which results in a rise in temperature. Particularly, the northeastern part of Pakistan has the most glaciers, which are melting at a very high rate (Pakistan Economic Survey, 2019-20).

The backbone of the Pakistani economy, agriculture, is also severely affected by climate change. It has disrupted food availability and affected the overall quality of food. People are unable to access food. This is the result of extreme weather events combined with less water availability. Another troubling factor is that the agriculture department is the largest contributor to greenhouse gas emissions in Pakistan.

National Security Emergency- Definition And Meaning

A national security emergency essentially refers to a state of emergency in a country that is created by any international or national threat to the security of the country. It is fundamentally a state of affairs where there is the threat of national danger and in such circumstances, the state government possesses certain powers under which it can take decisions that are otherwise not allowed in normal circumstances. A national security emergency can take place for several reasons, including external aggression, natural disasters, the threat of war, civil disobedience, external offense, etc.

In Pakistan, when the Federal Government considers it imperative, they may declare a state of emergency. In this scenario, the government of Pakistan has the power to suspend regular constitutional workings so that control over the situation can be achieved. Articles 232, 233, 234, 235, 236, and 237 of the Constitution of Pakistan precisely explain the process of declaration of national emergency. These articles are the legal outcomes of national emergencies (Asif, 2022). Article 232 of the constitution states that if the President of Pakistan is convinced that a threatening emergency exists in which the security of the state, or any part is

jeopardized by external hostility, internal disturbance, or war that is beyond the capacity of a provincial government to control, he can issue a proclamation of emergency.

Climate Change and National Security Emergency for Pakistan

The quote of famous Swedish environmental activist Greta Thunberg fits the current situation in Pakistan, "Our house is on fire" (Thunberg, 2020). Today, the national security of Pakistan is threatened by climate change. It is a growing threat. Climate change is paying the way for issues like the influx of refugees, conflict over water and food, and the rise in natural disasters. The national resources of Pakistan that are necessary to respond to these growing threats are limited, which is a challenge again (Aslam, 2024). The only province in Pakistan that has faced all types of major floods, i.e., coastal and urban, flash, and river floods in the last 25 years, is Sindh.

Over time, the frequency of floods has increased tremendously. As a result, Sindh has suffered huge losses in terms of life and economics. In 2020, Karachi faced the worst urban flooding of the century. The main cause of floods was recorded monsoon rains, which were not properly drained by the drainage systems of the city (Siyal, 2023). In recent years, there has been a surge in heavy rains. There were torrential rains that continued for many days in Karachi last year. It resulted in the deaths of many people. There were many incidents of electrocution due to heavy rainfall. The majority of Karachi was submerged in water. The important highways got flooded. This paralyzed routine life resulted in serious difficulties faced by the citizens.

People who lived near rural areas like the Malir River had to relocate when several feet of water flooded the streets. The situation worsened due to the bad drainage system. As a result, civil administration, along with the help of the army-initiated rescue and rehabilitation activities, imposed an emergency in Karachi. Relief camps were set up in the city to deal with the emergencies caused by heavy rainfall. Special Pakistan Army Emergency Response teams were formed, whose duty was to provide medical care and food necessities to affected people (News Desk, 2022). Thatta in Sindh is an area that has been deeply affected by recent floods. Recent floods have forced complete communities living in the coastal areas to displace themselves. Fishermen were left with no choice but to move for livelihood.

There is no proper mechanism for the monitoring of flood relief distribution. It is disappointing that Pakistan did not learn a lesson from the 2010 floods. The enormity of the destruction caused by the recent floods has made it crystal clear. It is very unfortunate that whatever financial support, Pakistan is receiving in the name of damage fund is not being utilized for the respective purpose.

The Ministry of Planning has developed the 'Pakistan Floods 2022 Post-Disaster Needs Assessment' report with the help of the World Bank. According to the report, the complete damage to the national economy from the floods is US$14.9 billion (Malik, 2023). During 2022, there was incessant rain in the province of Sindh. The incessant rain resulted in devastating floods. The National Disaster Management Authority (NDMA) remained unsuccessful in coping with the situation. As a result, the government declared a national emergency in Sindh. Three-fourths of the country, which included many districts of Sindh, faced destruction. Furthermore, the lack of resources deteriorated the situation. It was a large-scale disaster, and the state did not have enough money to deal with it. According to government estimates, around 20 million people have lost their homes. It was a disaster that had reached epic proportions. Ultimately, the administration had arranged tent cities for the affected people.

The Pakistan-Afghan border crossing in Chaman was severely damaged. Due to heavy rainfall, pedestrian movement was disrupted. Due to floods, the gas supply in Baluchistan was suspended. The Sui Southern Gas Company pipeline in Bolan suspended the provision of gas supply to different areas like Mastung, Kalat, Pishin, and Quetta. Other than gas, power shortages were also faced in different areas. The power supply from the 220 KV transmission line from Sibi to Quetta also broke down. The historic 140-year-old railway bridge in Bolan got damaged. According to the Provincial Disaster Management Authority (PDMA), many casualties have occurred in KPK. The main reason was due to collapse of roofs due to floods. Similarly, many people also died due to the sweeping of vehicles (Correspondent, 2022).

Coastal areas and infrastructure in Pakistan are threatened by flooding, soaring sea levels, erosion, and storms. The most affected areas of Baluchistan include Mastung, Quetta, Lasbela, Killa Abdullah, and Pishin. It lacks proper liquid and solid waste management practices. This practice is creating more issues for local coastal communities who depend on fishing for livelihood. There is a surge in plastic pollution and it is expected to surge at a very high rate by 2050.

The coastal districts between Gwadar and Lasbela are experiencing high levels of pollution. There is a rapid change in the sea surface temperature. Hence, increased pollution and sea surface temperature have affected the livelihood of poor fishermen. Coastal areas of Makran in Baluchistan are severely under threat today. A high percentage of people who live in the coastal regions of Baluchistan depend on 780 kilometers of the coastline along Pakistan's deep sea international economic boundary for their livelihood. Thus, climate change is a matter of life and death for the people of Baluchistan (Baloch, 2022).

According to the latest research maximum of five days of rainfall over Baluchistan and Sindh have become 75% more intense because of the warming of climate by 1.2ºC. Hence, global warming is one of the major reasons for the recent floods of 2022 (Climate Adaptation Platform, 2022). Consequently, the national economy of Pakistan suffers, which exacerbates the increasing costs of developing and renewing the infrastructure. Repeated and severe heat waves result in burdening the power systems of the country.

This climate change has extensive implications for Pakistan's national security interests. The economy of Pakistan is dependent on trade and raw materials like gas and oil. Similarly, the security of Pakistan's borders is very important. The supply chains of Pakistan are impacted, and critical equipment is unable to work under more extreme weather conditions. Unfortunately, the current climate change in Pakistan affects all of these areas (Samo, 2020). A rise in sea level can have damaging effects on infrastructure and transportation shortly. There is the possibility of flooding of ports, roads, bridges, and rail lines. Whenever there is a natural disaster, a response is needed from all sectors of Pakistan. There is a need for food and medical care. Mostly after there is a power outage in the area for days and even weeks. There is a dire need for a strategic response immediately after any natural disaster event (Hashmi, 2022).

Last year, Pakistan faced the worst floods in northern areas of the century due to the climate change phenomenon that destroyed a population equal to three European countries. As a result of the rise in summer temperatures, there is an increase in electricity use, which results in higher summer peak loads. There is continuous load-shedding for many hours, which adds to people's suffering. A decrease in the quantity of water leads to less electricity production (News Desk, 2022). Glaciers are melting at an increased rate, which results in a rise in temperature. The northeastern part has most glaciers, which are melting at a very high rate (Pakistan Economic Survey, 2019-20).

One challenging impact of extreme climate events is displacement. It triggers climate-induced migrations, which in turn results in conflicts over basic resources like water and food. Mostly poor people live in areas where there is no climate-resilient infrastructure. Tensions are exacerbating in Pakistan due to food shortages, water scarcity, over-population and under-development. There is an increase in food costs. Poor cultivators and daily waged laborers lose their precious crops and other assets. They lose their basic sources of livelihood, and with no option left, they move to cities that are already facing different issues. There are rehabilitation and relief issues. It acts like an accelerant of instability. The already fragile economy of Pakistan is further stressed (Ali, 2022). Climate change in Pakistan is causing much more destruction than the world's greatest wars have done. Nearly 3.5 million acres of land in the coastal regions of Sindh, particularly the Badin and Thatta districts, have disappeared as a result of sea erosion. This is a huge loss of livelihood and land.

Today, Thatta has become a desert city as a result of climate change. Its demography, ecology, and territory are under serious threat today (Khawaja, 2020). The agricultural system of Pakistan is deeply affected by climate change. Last year, due to severe temperature changes, the wheat crop was severely affected. More than 60% of Pakistan's agriculture is dependent on rain. Normally, it takes around 10-12 days for wheat grains to mature, but abrupt temperature changes have decreased the period to four days. As a result, there is a decrease in the weight and size of the grain, which ultimately leads to a reduction in the production of the staple crop. Pakistan is already trying to meet the basic domestic demand for wheat. In such a scenario, this loss will exacerbate the situation. There are chronic water shortages in different parts of Pakistan. One of the most affected areas is Cholistan. It is facing severe water shortages. People have lost their basic source of livelihood, i.e., livestock.

According to estimates, around an 8-10% reduction will be until 2040, and one of the major losers will be wheat. In the coming years, Basmati rice crops will also feel the impact of climate change. Rice is an important crop in Pakistan. Similarly, According to The Global Change Impact Study Centre, crop seasons are shifting and shrinking due to climate change. Productive land in Pakistan is becoming useless due to sea intrusion. Due to sea intrusion, hundreds of acres of productive land have been lost in Badin. This issue also opens the door for new diseases. Again, this will impact the agriculture sector.

In Pakistan, agriculture plays a multifarious role in the country's economy. Firstly, millions of people depend on the agriculture sector for their living. Secondly, it provides the state with very cheap raw materials to run different industries like leather, textile, etc. Most importantly, it provides food security in a state like Pakistan. It is an irreplaceable and most important asset. Today, almost 58% of the population is food insecure. Continuous increases in the population and decreases in food production depict the severity of the situation. (Ramay, 2022). In recent times, there has been migration that was planned and voluntary, and displacement that was unplanned and involuntary has increased in Pakistan. Pakistan is vulnerable due to its diverse terrain, urbanization, industrialization, and surge in the use of natural resources. The worsening air quality leads to more air pollution. Pakistan ranks third out of 131 countries that face the most air pollution globally. Big cities in Pakistan are responsible for creating huge amounts of haze, smoke, and smog that infiltrates the air, resulting in a myriad of issues for its citizens. Lahore has now officially become the city with the worst air quality in the world (AQI, 2023).

In Lahore, smog has become a 'fifth season'. According to the statistics recorded by air quality monitors, hazardous levels of air pollution are depicted in all cities of Pakistan. Today, Lahore has exceeded the safety limit by nine times. The major factors that contribute to air pollution are crop burning, coal combustion, and industrial and diesel emissions. Harmful particles get trapped within the inversion layer of temperature, which is nearer to the ground. This growth of pollutants has become a health concern in all seasons, particularly during winter.

Due to air pollution, there is a rapid increase in admission rates in hospitals. Doctors advise children to remain indoors and not go out to play. One major dilemma is that there is no awareness talk. As a result of air pollution, most percentage of people wear anti-pollution masks all the time. skip school due to bad air quality. Not only health but also air pollution has a detrimental effect on Pakistan's economy. The economic burden of catering air pollution in Pakistan is around six percent of its Gross Domestic Product (GDP). Smog is not an environmental issue but a crisis in Pakistan. Today, the air quality has surpassed the safe limits in Pakistan. The situation in Lahore is 9 times worse than national regulations (PAQI, 2017). Due to air pollution, there are around 135,000 deaths per year. It is the major factor behind death and sickness in Pakistan. It also contributes to a decrease in life expectancy in Pakistan by 60 months. Today, smog is not just an air pollution issue. It is indeed a public health emergency.

The need of the hour is not only practical policy recommendations by relevant stakeholders but also practical implementation for this public health emergency. Better decision-making is only possible through capacity building. It is the right of the citizens to demand clean air. Serious health problems like lung and heart diseases and respiratory failures are caused by air pollution. (Omer, 2018). Similarly, there is an increase in food costs. Climate change is putting pressure on the governance institutions in Pakistan. Today, the government in Pakistan is struggling to meet even the basic needs of their people. Social tensions are on the rise in Pakistan (Malik, 2023).

Current Climate-Change Policy Framework of Pakistan

Though some efforts have been made by governments in Pakistan to deal with climate change, they are not enough to deal with the current magnitude of climate change. The present climate change framework of Pakistan includes a national climate change policy, which was updated in 2021. This policy has designed policy measures for climate change mitigation and adaptation. Similarly, the Pakistan Climate Change Authority and Pakistan Climate Change Council were formed under the Climate Change Act of 2017. Then there is the National Disaster Management Act of 2010, which has remained unsuccessful in catering to climate change. National Disaster Management Plan, 2012 disappoints in designing any worthwhile directions that advocate procedures to handle and give protection against the changing climate. National Disaster Risk Reduction Policy, 2013 promotes development planning, which is a good step. The actual issue is that Pakistan lacks the adaptation measures necessary for the government to take.

Today the measures taken by the government of Pakistan are not sufficient to deal with climate change and its threatening effects. Secondly, these measures lack implementation (Malik,2023). Pakistan should strive to manage climate change by aligning it with sustainable development goals. In this way, it can achieve economic growth as well as tackle climate crises.

Analysis

Pakistan is blessed to have distinctive coastal ecosystems. The two most important coastal states in Pakistan are Baluchistan and Sindh. Sindh ranks seventh among the largest arid mangrove ecosystems in the world. Pakistan

needs to protect its coastal ecosystems. The ecosystems of Sindh and Baluchistan have a huge capacity to catch and reserve enormous amounts of carbon dioxide. In this way, these areas can contribute cost-effective 'blue carbon' solutions to Pakistan. Today, blue carbon is considered a significant factor in the transition to a blue economy. Blue carbon can help Pakistan achieve inclusive, green, and resilient development. So, the coastal ecosystems of Pakistan should be utilized effectively (Christophe et al., 2022).

Pakistan should try to adopt a practical way to decompose to net zero by setting short-term targets instead of long-term targets. Today, Pakistan should give utmost importance to climate crises in national security planning. There should be communication at all levels. Any statistics, tools, and information concerning climate change risks must be communicated at the local, district, provincial, and state levels. The government should try to achieve preparedness and resilience by joining hands with the private sector. There should be the establishment of more risk management cells across the country. The new developing infrastructure, roads, buildings, etc., should be constructed in such a manner that can better withstand the impacts of natural disasters. As a state, Pakistan must work on improving its ability to respond to disasters. The consumption of all natural resources should be done efficiently.

Conclusion

Today, climate change crises are a reality, and Pakistan is particularly exposed to them. It is a fundamental problem impacting the nation's security, well-being, and economic stability, in addition to being an environmental one. In order to save the Pakistani people and their future from this escalating threat, swift and comprehensive action is required. Pakistan's sole options are to use its natural resources carefully, give priority to protecting its coastal ecosystems, take a realistic strategy to reach net-zero emissions with attainable short-term goals and incorporate climate change concerns into plans for national security and collaboration with international partners in green investment. Enhancing communication, risk management, and disaster response capabilities are necessary, and resource efficiency should be prioritized.

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