

Climate Change and Its Impact on Pakistan; Analysis Concerning National Security

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Abstract:

Climate change is a global issue impacting the lives of millions of people forcing them to migrate to other areas indicating that the phenomenon is real and is bound to affect the rest of those unaffected by it today. Climate change has become a major challenge throughout the world and Pakistan, being a significant developing country has also become a victim to this menace. Seventy per cent of nations in the world today, including Pakistan, state that climate change is now a national security issue. Therefore, the aim of this paper is to access the security threats to Pakistan due to climate change and propose measures to overcome these challenges.

Keywords: Climate change, Pakistan, national security, threats, global issue.

Introduction:

The issue of environmental protection is critical and was first recognized as a problem of pertinent importance when the first World Climate Conference was held in 1979. More recently, it has been regarded as an issue of grave concern and became the subject of the recent 21st Conference of the Parties to the United Nations Framework Convention on Climate Change from November 30 to December 11, 2015.

These days climate change is a global issue impacting the lives of millions of people forcing them to migrate to other areas indicating that the phenomenon is real and is bound to affect the rest of those unaffected by it today. Climate change has become a major challenge throughout the world and Pakistan, being a significant developing country has also become a victim to this menace (Rahman, et al., 2018). It is one of the most complex and intricate challenges which is being faced by businesses and governments. In this connection, it is not out of context to say that the rapid pace with which this monster is spewing its venom has rightfully put the world on alarm and the matter goes from bad to worse when it threatens the national security of the states. Pakistan has also come under the list of vulnerable countries (Corwin, 2021) and has been placed on The Extreme Climate Risk on the Climate Change Vulnerability Index (Pörtner et al., 2022). Climate change in Pakistan has increased the average annual temperature by 0.12⁰C and the annual rise in sea level by 1.1 mm causing more rainfalls, sea intrusion, impacting agricultural output, and extreme flooding (Chandio et al., 2020).

Before we dig out the impact of climate change on the national security of Pakistan in the light of the Government of Pakistan Climate Change Policy and subsequently suggest an action

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strategy to enable Pakistan to minimize the impending dangers of climate change, there is a need to first understand what does climate change mean and why it is very important to fight tooth and nail against this menace (Rahman, et al., 2018). Climate change is a normal part of the Earth's natural variability, which is related to interactions among the atmosphere, ocean, and land, as well as changes in the amount of solar radiation reaching the Earth (Corwin, 2021).

The United Nations Framework Convention on Climate Change (UNFCCC) explains the process of climate change as rising fossil (United Nations Frame Work Convention, 1992) fuel burning and land use changes have emitted, and are continuing to emit, increasing quantities of greenhouse gases into the Earth's atmosphere (Solaun & Cerdá, 2019). These greenhouse gases include carbon dioxide (CO^2), methane (CH^4), and nitrogen dioxide (N^2O), and a rise in these gases has caused a rise in the amount of heat from the sun withheld in the Earth's atmosphere, heat that would normally be radiated back into space. This increase in heat has led to the greenhouse effect, resulting in climate change.

The main characteristics of climate change (Santos et al., 2020) are increases in average global temperature i.e. global warming; changes in cloud cover and precipitation particularly over land; melting of ice caps and glaciers and reduced snow cover; and increases in ocean temperatures and ocean acidity – due to seawater absorbing heat and carbon dioxide from the atmosphere. It can be encapsulated as the changes in the climate which occur due to natural gases like carbon dioxide and water vapour that are instrumental in absorbing heat in the atmosphere which results in the greenhouse effect. Resultantly, intensity in weather events is observed and we experience erratic monsoon rains (Hamududu & Killingtveit, 2012).

It has now emerged that the warming of the climate system is currently erratic and this situation has emerged due to man-made emissions of greenhouse gases (mostly CO^2). It has also been observed that throughout almost the past 100 years, there has been a steep and fast increase in the atmospheric concentrations of carbon dioxide, a cardinal factor in present global warming being experienced by every Tom, Dick, and Harry. The scientists are of the view that they have, for the first time in the history of Earth, come across such a fast warming trend (Solaun & Cerdá, 2019). There is no denying the fact that human beings have always been adjusting themselves in consonance with the volatile climate surrounding them; however, global changes affecting the local climate (Ellwanger et al., 2020) have also cast their sinister influence on people's decisions thereby impacting their social, economic, political and personal conditions.

In Pakistan, every year there are heavy rains in different nooks and corners of the country but at the same time there are certain regions that keep on waiting for the monsoon rains but the prayers are seldom answered like in the case of Sind and especially Karachi (Rahman, et al., 2018). It is also very important to keep in mind that due to this erratic pattern, there are floods experienced each year and the unpredictability leads to the destruction of houses and villages besides losses of precious human lives. The enhanced concentration of carbon dioxide in the atmosphere (Solaun & Cerdá, 2019) is causing global warming which has created the most difficult and dangerous environmental problem humans have ever created. He thinks that increased temperature is resulting in a reduction in agricultural productivity (Santos et al., 2020).

Threats Posed by Climate Change:

According to The United Nations Framework Convention on Climate Change (UNFCCC), it has been forecasted that in the coming years, (Solaun & Cerdá, 2019) the impact of climatic change will be drastic and will affect the lives of billions of people who will face

critical issues which will include scarcity of potable water, dearth of agricultural produce which will ultimately create drought and famine, in turn, giving birth to many and varied health issues. Moreover, it has also been foreseen that climate changes will severally hit coastal belts (Ranasinghe, 2016) thereby raising the sea levels and resulting in inundation of the populations on the sea- belt and there will also be seen intensity in the tropical cyclones. The frequency of such lethal events will pose a greater risk to human life as well as livelihood. Therefore, it can be encapsulated that the threats of global warming, triggered by climate change, have resulted in the steep rise in ocean temperatures thereby giving rise to the thermal expansion of the oceans and in combination with melt-water from land-based ice, it has given birth to rise in sea-levels.

The United Nations Framework Convention on Climate Change (UNFCCC) also envisages that underdeveloped or developing countries are more exposed and thus are more at risk to the dangers of climatic changes as they possess fewer rather negligible resources to adapt: socially, technologically and financially (Hamududu & Killingtveit, 2012). Since these countries are already plagued with problems of a very serious nature which comprise unemployment, litigation, lack of educational facilities rather than available educational infrastructure is poor and the credibility of most of the teachers in villages remains questionable, family feuds, adherence to centuries-old traditions, and most importantly inefficient political fabric thus all taking attention away from the most glaring and impending issue of global climatic changes.

It is due to global warming that the types of tropical cyclones, hurricanes, and typhoons have not only varied but also their frequency and intensity have also multiplied manifold. The Earth and its inhabitants will and are now experiencing increased drought, floods, and torrential rains, than ever before, even with a smaller temperature increase.

The world is observing several erratic changes in the pattern of rainfall and resultantly the world is witnessing a severe shortage of water to the extent that it is now being said that (Santos et al., 2020) the future world war will be fought not to gain control over oil assets but rather on gaining of water control. Connected to rainfall is another very important danger of global warming which hovers around the melting of glaciers causing huge floods and a heavy number of precious mortal souls. Heavy rains and floods will destroy food products especially wheat and other crops which will lead to a shortage of food as well as the increasing number of diseases like malaria and dengue fever. Temperature increases are sure to trigger the extinction rate of many natural habitats and species.

Marine life including coral reefs will also be and is being hit by climate changes thereby causing a greater risk of storm surge, inundation, and wave damage to coastlines.

Threats of Climate Change to Pakistan:

According to the Global Climate Risk Index 2014, (Solaun & Cerdá, 2019) climate change's most apparent impacts can be seen in developing or least-developed countries. Pakistan, which enjoys four seasons and mild temperatures is blessed with 1,000 km of coastline providing livelihood opportunities to millions of people adjoining these areas (Rahman, et al., 2018) but climate change has threatened their lives due to frequent and intensive monsoons and lack of coastal resilience to cyclones (Chandio et al., 2020; Ranasinghe, 2016).

According to German Watch Institute, Pakistan was not included in the Long-Term Climate Risk Index (1993-2012) which clearly shows that it was not a disaster-hit country but the Climate Risk Index (CRI) for 2012 ranked Pakistan at number 3 as the most affected country by climate change revealing that inappropriate decision making of the government, ineffective

planning and over-exploitation of natural resources causing billions of dollars in damage and driving the economically unstable country further into poverty (Hussain, 2020).

Scientists have commented that floods in Pakistan are the result of climate change (Rahman, et al., 2018) but if proper adaptation measures had been taken, their devastation could have been reduced greatly. It has been observed that Pakistan was never a disaster-prone country and received adequate rainfall and seasonal temperatures throughout the year, but as time passed the frequency of natural calamities increased, which highlights the fact that human activities have led the whole country to this point (Hussain, 2020).

There is no denying the fact that despite Pakistan has very little contribution to Greenhouse Gas (GHG) emissions (Rahman, et al., 2018), but still, it remains brutally impacted by the harmful effects of climate change by the following means:

- i. Glacier melts in the Himalayas result, each year, in flooding that affects water resources followed by decreased river flows over time as glaciers recede (Hussain, 2020).
- ii. Coastal areas nearby the Arabian Sea in the south of Pakistan are at greater risk due to increased flooding from the sea (Ahmed et al., 2020).
- iii. The length or duration of the seasons has changed. The duration of summer has exceeded winter. It has also been experienced that, on the whole, the temperature has also increased in both of the said seasons. In the same vein, the ratio of rainfall has also seen a decline (Ali & Erenstein, 2017).
- iv. The timing of the monsoon has also changed. It is being experienced for the last many years, the season of monsoon starts late and the rains fall heavier in KPK, Punjab, and Sind resulting in droughts and floods (Shabbir et al., 2020).
- v. Rab Nawaz, Director Sindh, WWF-Pakistan said, “We’re losing land due to climate change because of sea level rise. Damage by floods is the main problem creating an immense problem for nearby communities. The cost of flooding is USD 12 billion, equivalent to the cost of building the Bhasha Dam” (Chandio et al., 2020). An increase in temperature gradually affects the ecosystem; however, the problem is different in every area. In the northern areas, the problem is glacial lake outburst floods. In Sindh, due to climate change mangroves are disappearing, and even land is being lost, as millions of hectares of land is lost due to sea intrusion (Khan et al., 2021).

Climate Change and Threat to National Security:

Seventy per cent of nations in the world today, including Pakistan, state that climate change is now a national security issue. Pakistan’s government even came up with a comprehensive National Climate Change Policy (NCCP) that laid down all the benchmarks when it was launched in 2013 (Fahad & Wang, 2020). Considering the events taking place across the globe, it can be gauged that climate change can be a catalyst for national disintegration (Khan et al., 2021) as well as a grave threat to our national security. The question naturally arises: Could Pakistan become destabilized because of climate change? Could the continuous cycles of floods and droughts result in food scarcity, leading to riots and possibly a revolution – like the Arab Spring (Soffiantini, 2020) triggered by high food prices caused by drought? Certainly in Tunisia and Syria, the consequences of climate change were stressors that ignited a volatile mix of

underlying causes (Martínez-Moreno et al., 2022) that erupted into revolution and experts say there are lessons for Pakistan to learn.

Climate change is indeed a threat multiplier, exacerbating existing pressures as well as presenting new challenges to security in fragile societies. The Global Military Advisory Council on Climate Change (GMACC) dates back to the year 2009 when it came into existence as a worldwide arrangement of serving and retired military officers to highlight the potential security implications of a changing climate and to advocate action, including by the military, to minimize the risks. Today, we cannot discuss climate change without the military that remains always alert to cope with this. Climate change is a growing worldwide threat to general peace and security.

Pakistan suffered from the monstrous effects of the most horrible floods in the year 2010, and it attracted the attention of the Government to focus its efforts on climate change as well. It was later deciphered that these floods were caused due to freak monsoons in the North. The floods of 2010 cost (Khan, et al., 2021) the national economy a whopping \$9.7 billion in damage costs, and thousands of people became climate refugees. In the past 40 years, nine out of 10 of the top disasters have been climate-related (Shabbir et al., 2020).

The national security of Pakistan is at greater risk than before due to the impacts of climate change. The damages it is causing to the national economy and the amount of focus as well as physical resources allocated by the Government and the Military, each year is another very significant factor that cannot be pushed under the rug. There are many areas in the north like Chitral which are the victim of glacial floods and landslides. Likewise, the agricultural belt in Punjab and Sindh is the victim of escalating temperature, erratic rainfall, and reduced agricultural produce whereas soil erosion and water scarcity are the common issues of interior Baluchistan.

There is no national adaptation plan in Pakistan. It needs a well-equipped federal office or an institutional mechanism to coordinate climate change efforts in three key sectors: disaster management, health, water, and power. Water has been identified as the most important sector in Pakistan. It is good that Pakistan's military is becoming aware of climate change threats; they are among the main stakeholders in the country when it comes to climate change challenges emerging concerning national security. There is no doubt that climate change will become a major security challenge in future (Khan et al., 2021).

Recommendations:

- i. Research be conducted at military premiere institutions like PNEC – NUST, PN War College, National Defense University, National Center for Maritime Policy Research (NCMPR) at Bahria University, etc. to explore fresher ways to counter this menace.
- ii. Seminars and workshops be arranged wherein experts from the region may come and share their research as well as expertise to formulate combined action programs against the threat of climate change.
- iii. Adaptation is a process through which societies make themselves better able to cope with an uncertain future. Adapting to climate change entails taking the right measures to reduce the negative effects of climate change or exploiting the positive ones by making the appropriate adjustments and changes. There are many options and opportunities to adapt. This range from technological options such as increased sea defences or flood-proof houses on stilts to behaviour change at the

individual level, such as reducing water use in times of drought and using insecticide-sprayed mosquito nets. Other strategies include early warning systems for extreme events, better water management, improved risk management, various insurance options and biodiversity conservation.

- iv. Mitigation means taking action to tackle the causes of climate change. In other words, it means taking measures to reduce the emission of Greenhouse Gases (GHGs) into the atmosphere and halting the global warming trend. At the centre of efforts to address climate change on the international stage is the United Nations Framework Convention on Climate Change (UNFCCC). The UNFCCC provides the basis for concerted international action to mitigate climate change and adapt to its impacts. Its provisions are far-sighted, innovative, and firmly embedded in the concept of sustainable development.
- v. Promoting solar power and improving energy efficiency can be a breakthrough in overcoming the energy crisis and will thus be a stumbling block in the way of a threat to national security. The concept of green building is adopted in this regard.
- vi. In consonance with the Khyber-Pakhtunkhwa government's Billion Tree Tsunami program, other provincial governments may be motivated to take concerted efforts in protecting and developing their forests.
- vii. Building water reservoirs, environment-friendly building designs, and expansion of the nuclear power sector.
- viii. The exploitation of Pakistan's renewable energy potential through the construction of 'run of the river' hydropower projects, and wind farms as well as creating a balanced energy mix through the utilization of solar, geothermal, and biofuel resources.
- ix. To materialize the Pak-China energy corridor option to mitigate the challenges Pakistan is currently facing in the event of energy shortage.
- x. Conserving energy to strike a balance between socio-economic growth, energy, and environmental issues.

Conclusion:

The phenomenon of climate change has affected the entire world and has severally affected the national security of the states. Pakistan is no exception. Although it has a meagre share in carbon dioxide emission, at the global level, it is a victim of the negative effects of climate change. The Government has dished out its policy on climate change but this is not the end of the story. All the institutions, from the military to industry and the social sector organizations are required to share this concern and make efforts to come on the same page as national security is what concerns everyone. The problem can be efficiently met by truly implementing the policy, by establishing think tanks to carry on research on changing climate, and to bring out ways and means how to curb this menace. In this context, the steps shared in the preceding paragraphs are just the points to ponder. Of course, professionals sitting together can bring out more realistic remedies.

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