



UNVEILING CLIMATE CHANGE: EXPLORING NON-TRADITIONAL SECURITY THREATS IN GILGIT-BALTISTAN

Safdar Hussain,

M.Phil

Graduate School of Public Policy

Nazarbayev University

Astana - Kazakhstan

safdar.hussain@nu.edu.kz

Wasif Mehdi

M.Phil

Faculty of Economics and Business

Universities Islam International

Indonesia (UIII).

wasif.mehdi@uiii.ac.id

Mohammad Samar

Department of Economics

Jamia Millia Islamia University

New Delhi - India

samar01q@gmail.com

Abstract:

Gilgit-Baltistan (G-B), a region nestled in the northern part of Pakistan, faces an escalating threat from climate change, posing unprecedented challenges to its security landscape. This research explores the multifaceted dimensions of climate change as a non-traditional security threat in Gilgit-Baltistan, emphasizing its impact on environmental, social, and economic aspects. Rising temperatures, changing precipitation patterns, and the melting of glaciers are leading to adverse consequences such as glacial lake outburst floods, altered ecosystems, and disruptions in water availability. The study highlights the need for an integrated and adaptive approach to address these challenges, emphasizing the importance of local knowledge, community resilience, and sustainable development practices. Furthermore, it underscores the necessity for regional cooperation and international collaboration to effectively mitigate and adapt to the impacts of climate change in Gilgit-Baltistan, recognizing the Trans boundary nature of environmental challenges, the complex interplay between climate change and non-traditional security threats in Gilgit-Baltistan, offering insights into the urgency of adopting comprehensive strategies to safeguard the region's environmental integrity, socio-economic stability, and overall security.



Keywords: Gilgit-Baltistan, Security, Climate, environmental, Threats, strategies

Introduction

In the Gilgit-Baltistan region, where glaciers meander through valleys and towering peaks pierce the sky, a subtle yet formidable foe is at work: climate change. Situated in the northern region of Pakistan, Gilgit-Baltistan is widely recognized for its remarkable vistas, abundant cultural legacy, and tactical geopolitical importance. Beneath its placid exterior, though, is an increasingly dangerous force endangering not just the environment but also the socioeconomic stability and security of the area in the region. Once thought to be exclusively an environmental issue, climate change is now recognized as a complex issue having ramifications for human security nationwide. While geopolitical conflicts and territorial disputes are generally the main topics of conversation when it comes to security risks, it is important to recognize how climate change is affecting vulnerable areas like Gilgit-Baltistan. By highlighting its unconventional but significant ramifications, this introduction seeks to clarify the complex relationship between security and climate change in Gilgit-Baltistan. Because of its distinct topography, Gilgit-Baltistan is more vulnerable to the negative consequences of climate change. Located at the meeting point of three formidable mountain ranges, the Hindu Kush, the Himalayas, and the Karakoram, this area is extremely vulnerable to changes in the surrounding environment. An increase in temperature has caused glaciers to melt more quickly, creating serious problems like water shortages, glacial lake outburst floods (GLOFs), and changed precipitation patterns. The livelihoods of millions of people who depend on glacier melt water for domestic consumption, agriculture, and hydropower generation are also at risk due to these changes, which also upset the delicate ecological balance (Ali, 2011).

The Gilgit-Baltistan's socioeconomic structure is so closely linked to its natural resources; disturbances brought on by climate change could particularly harm it. Due to erratic weather patterns, degraded soil, and limited water supplies, agriculture—the foundation of the region's economy—faces increasing risks. In addition to financial losses, the consequences include increased social unrest, food insecurity, and poverty. Security issues are exacerbated when economic prospects decline and underprivileged people are more vulnerable to radicalization. In Gilgit-Baltistan, the threat of climate-related migration looms large, heightening worries about personal safety and widening socioeconomic divides. Natural disasters and environmental deterioration have driven many people to evacuate their homes, placing further strain on already precarious infrastructure and resources and escalating social discontent and instability. Without sufficient adaptation measures and sustainable development plans, the area runs the risk of turning into a hub for transnational security threats and intraregional disputes (Khan, 2021).

In light of this, tackling the interwoven problems of climate change and security in Gilgit-Baltistan necessitates a comprehensive strategy that incorporates techniques for preventing conflict, socioeconomic development, and environmental sustainability. Although there is no denying the



negative effects of climate change, communities that are already at risk can become more resilient by taking proactive steps to reduce hazards. The of Boosting renewable energy sources, making investments in climate-resilient infrastructure, and improving. Climate change threatens Gilgit-Baltistan's ecological integrity, socioeconomic stability, and human security in an unconventional but potent way. Through an understanding of the complex relationship between security dynamics and climate change, policymakers can steer towards initiatives that promote resilience-building and sustainable development. Although there are enormous obstacles to overcome, Gilgit-Baltistan can successfully sail the choppy waters of climate change and come out stronger and more resilient than ever before with coordinated action and international cooperation (Munir, 2021).

Non-traditional Security

The term "non-traditional security" describes a wide range of security issues that go beyond the conventional military threats that are often covered by state defense policy. Multinational organized crime, pandemics, environmental degradation, food and water insecurity, cyber threats, and terrorism are just a few of the many problems that fall under the category of non-traditional security concerns. Non-traditional security threats offer serious obstacles to the stability, growth, and well-being of an area that is recognized for its critical geopolitical significance and fragile ecological balance, its extensive effects on water security, natural disasters, and socioeconomic vulnerabilities, climate change—which was previously discussed—stands out as one of the most urgent non-traditional security challenges. The issues faced by the region are exacerbated by non-traditional security concerns in addition to climate change. The area's ecological resilience is weakened and its susceptibility to natural disasters is increased due to environmental deterioration brought on by pollution, deforestation, and unsustainable land use practices. The destruction of ecosystems jeopardizes food security, increases poverty, and fuels social unrest in an area where livelihoods are mostly dependent on agriculture and natural resources. Furthermore, cross-border security concerns are brought about by transnational organized crime, which includes illicit wildlife trafficking, drug smuggling, and people trafficking. Gilgit-Baltistan's porous borders and isolated, inhospitable landscape leave it vulnerable to criminal networks' manipulation, further weakening societal stability, rule of law, and governance. With increased reliance on information and communication technologies (ICTs) and expansion of digital connection, cyber-attacks also become an increasing issue. Attacks on vital infrastructure, financial systems, and governmental organizations can cause major disruptions to vital services, erode public confidence in institutions, and present serious security and governance issues (Azam, 2023).

The susceptibility of the area to pandemics, as the current COVID-19 outbreak, emphasizes the connection between socioeconomic stability and health security. Pandemics worsen socioeconomic inequality and put further strain on already vulnerable populations when they are caused by weak health systems, poor access to healthcare, and inadequate infrastructure. A comprehensive and multifaceted strategy that incorporates social resilience, environmental sustainability, and efficient governance is needed to address these non-traditional security



concerns. Essential elements of such an approach include investing in sustainable development, building community resilience, bolstering institutions, and fostering cooperation among regions. Gilgit-Baltistan can create a more safe, resilient, and prosperous future for its people and support regional peace and cooperation by identifying and mitigating the wide range of non-traditional security risks (Alam, A., & Iqbal, Q. 2022).

Theoretically Framework

Copenhagen School of Security Theory

Barry Buzan, an international relations scholar, is credited with establishing the Copenhagen School of Security Studies, an academic movement, with his 1983 book *People, States, and Fear: The National Security Problem in International Relations*. Departing from conventional security studies, the Copenhagen School emphasizes the non-military dimensions of security in detail. Jaap de Wilde, Buzan, and Ole Waever are among the school's affiliated theorists). The institute got its name since many of its members were employed by the Copenhagen Peace Research Institute. Students studying security studies are taught a critical approach by the esteemed Copenhagen School of Security Studies. This relates to international relations (IR), a subject of study that became well-known after the Cold War ended due to the post-pastoralism movement. In international relations, the issue of national security emerged as the pillar of the academic philosophy of the school. Two eminent scholars have ties to the school. The Copenhagen School of International Studies employs constructivist ontology. a tendency to view international threats or worries about national security as socially manufactured issues. Professor Bill McSweeney, a peace studies expert from the University of Dublin and one of the movement's main opponents, coined the term "Copenhagen School" in the beginning. The process by which common domestic political issues are brought to the national political arena and exert influence over governments (i.e., when something becomes an issue of national security) is known as securitization, and it is a fundamental element of the Copenhagen School.

Climate Change

Climate change pertains to notable and extended variations in temperature, precipitation, wind patterns, and further facets of Earth's climate. The main cause of these changes is thought to be human activity, specifically the atmospheric production of greenhouse gases including carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O). The environment, economics, society, and security of Gilgit-Baltistan are all significantly impacted by climate change, which presents a complex and existential threat to the region. Gilgit-Baltistan, which is located in a delicate mountainous area, is especially susceptible to the negative consequences of climate change because of its reliance on glacial melt water, sensitivity to natural disasters, and low capacity for adaptation (Hassan, T. U.2024).

Key points and impacts of climate change include:



- **Rising temperatures:** Global average temperatures have been increasing, leading to heat waves, melting ice caps and glaciers, and rising sea levels.
- **Extreme weather events:** Climate change is associated with more frequent and intense weather events such as hurricanes, droughts, floods, and wildfires.
- **Changes in precipitation patterns:** Some regions may experience increased rainfall, while others may face more prolonged droughts, leading to shifts in ecosystems and water availability.
- **Ocean acidification:** The absorption of excess CO₂ by the oceans leads to acidification, which harms marine life, particularly organisms with calcium carbonate shells like corals and shellfish.
- **Loss of biodiversity:** Climate change threatens numerous species with habitat loss, changes in migration patterns, and increased extinction risk.
- **Impacts on agriculture:** Changes in temperature and precipitation patterns affect crop yields, livestock health, and food security, leading to potential disruptions in global food systems.
- **Health impacts:** Climate change exacerbates health risks through heat-related illnesses, the spread of vector-borne diseases, and air pollution (Kreutzmann, 2013).

The 21st century the Global collaboration and action are needed to combat climate change in order to cut greenhouse gas emissions, switch to renewable energy sources, increase resistance to its effects, and promote sustainable practices in a variety of industries and sectors, including transportation, energy, agriculture, and industry.

Threats for Gilgit-Baltistan

Gilgit-Baltistan faces a range of threats that impact its environment, society, economy, and security. These threats stem from various factors, including geopolitical tensions, environmental degradation, socio-economic disparities, and governance challenges. Here are some of the key threats facing Gilgit-Baltistan.

- **Scarcity of Water with Glacial Retreat:**

The region's rivers, lakes, and aquifers depend heavily on the world's largest glaciers outside of the Polar Regions, which are found in Gilgit-Baltistan. But these glaciers are receding at a startling rate due to climate change, which means that there will be less water available during the dry season. This puts livelihoods at risk and exacerbates problems with water scarcity. It also presents serious challenges for agriculture, hydropower production, and the supply of potable water.

- **Increased Frequency and Intensity of Extreme Weather Events:**

In Gilgit-Baltistan, climate change is causing weather patterns to change, which is increasing the frequency and intensity of extreme weather events such as floods, avalanches, landslides, and droughts. These incidents cause death and property damage in addition to upsetting vital services, livelihoods, and infrastructure, which increases vulnerabilities and threatens socioeconomic stability.



- **Impact on Agriculture and Food Security:**

The climate changes Impact on Agriculture and Food Security, Weather-related variations in Gilgit-Baltistan have an impact on crop yields and agricultural productivity, endangering livelihoods and food security. An increase in dependency on foreign food aid and a decrease in agricultural productivity result from variable weather patterns that disturb crop cycles and conventional farming methods, such as unseasonal frost, droughts, and unpredictable rainfall (Hussain, A., & Ali, S. 2016).

Natural Resource Degradation and Biodiversity Loss

The Biodiversity Loss and Natural Resource Degradation Underlying fragile ecosystems and rare species of Gilgit-Baltistan, climate warming promotes environmental deterioration and biodiversity loss. There are cascade impacts on ecosystem services like pollination, soil fertility, and carbon sequestration when temperature and precipitation regime changes cause habitats to change, ecosystems to be disrupted, and species to migrate and become extinct.

Glacial Lake Outburst Floods (GLOFs)

The GLOFs, or glacial lake outburst floods, Glacial Lake Outburst Floods (GLOFs), in which the abrupt release of water from glacial lakes can cause catastrophic floods downstream, are becoming more likely as a result of Gilgit-Baltistan's retreating glaciers. Particularly in vulnerable communities situated in the floodplains of glacial lakes, these occurrences represent a serious threat to life, property, and means of subsistence.

Health Risks and Disease Outbreaks: In Gilgit-Baltistan, climate change intensifies health risks and disease outbreaks, impacting vulnerable communities with restricted access to sanitary facilities and medical care. The spread of aquatic illnesses like cholera and typhoid fever, as well as vector-borne illnesses like malaria and dengue fever, is facilitated by shifting patterns of precipitation and temperature.

Displacement and Migration: Communities may be forced to migrate in pursuit of alternate livelihoods and resources as a result of climate-induced environmental changes, such as water scarcity, crop failures, and natural catastrophes. Urban centers and host communities are further burdened by this internal movement and displacement, which can spark conflict and social tensions as well as competition for limited resources (Iqbal, Q. 2022).

Threats from climate change necessitate quick and coordinated response on a local, national, and worldwide scale. In order to reduce vulnerabilities and build climate resilience, Gilgit-Baltistan needs to implement adaptation measures like bettering water management practices, strengthening early warning systems, boosting agricultural resilience, and supporting ecosystem-based approaches to disaster risk reduction. Furthermore, in order to stop the effects of climate change in the region from getting worse, mitigation measures to cut greenhouse gas emissions and stop global warming are essential.



Suggestions

A thorough and diversified strategy that incorporates adaptation, mitigation, and sustainable development techniques is needed to address the challenges that climate change poses in Gilgit-Baltistan. To lessen the effects of climate change and increase the region's resilience, consider the following ideas:

- **Promote Sustainable Water Management:**

Encourage sustainable water management by putting into practice water-saving techniques like drip irrigation, rainwater collection, and economical water usage to lessen the effects of water shortages and provide fair access to water resources. Storage.

Strengthen Agricultural Resilience: Provide farmers with climate-smart agricultural methods to help them adapt to changing weather patterns and increase productivity, such as crop diversification, agroforestry, and soil conservation measures. In order to strengthen farmers' ability to adapt, make climate-resilient crop varieties, weather data, and agricultural extension services accessible.

- **Boost Emergency Preparedness Initiatives:** To lessen the effects of severe weather conditions and natural catastrophes, develop and put into practice comprehensive disaster risk reduction plans that include early warning systems, evacuation schedules, and resilient infrastructure. To determine high-risk regions and allocate resources for disaster preparedness and response, conduct risk assessments and vulnerability maps. In order to improve biodiversity, control water flow, and lessen the effects of climate change, it is important to conserve and restore important ecosystems like wetlands, watersheds, and forests. Employing natural approaches to mitigate erosion, increase ecosystem resilience, and sequester carbon includes afforestation, reforestation, and habitat restoration initiatives.

- **Build Climate-Resilient Infrastructure:** To lessen vulnerability to extreme weather events and natural disasters, integrate climate resilience concerns into infrastructure planning, design, and construction. To improve the region's ability to adapt and lower infrastructure losses, invest in climate-proof infrastructure, such as resilient transportation networks, flood barriers, and landslide mitigation strategies.

Encourage Community Empowerment and Participation: Include marginalized groups, indigenous peoples, and local communities in the planning, execution, and decision-making processes of climate adaptation and resilience-building projects. Encourage indigenous customs, traditional knowledge, and community-based strategies to strengthen the adaptability and resilience of the area.



- **Encourage the Green Economy and Renewable Energy:** In order to lower greenhouse gas emissions and improve energy security, communities should be encouraged to switch to renewable energy sources including solar, wind, and hydropower. To stimulate economic growth, provide employment, and lessen carbon footprint, invest in green technologies, energy-efficient projects, and sustainable development initiatives.

Enhance Governance and Institutional Capability: Boost the ability of local government agencies, civil society groups, and government institutions to efficiently organize, carry out, and oversee climate change adaptation and resilience programs. To integrate climate resilience into policies, programs, and projects, strengthen stakeholder coordination, collaboration, and knowledge sharing.

The implementing these recommendations in a coordinated and comprehensive way, Gilgit-Baltistan may grow more resilient to climate change, lessen its vulnerabilities, and create a sustainable future for its people. Addressing the complex difficulties posed by climate change in the region requires long-term planning, innovation, and collaboration among stakeholders.

Conclusion

A complex interaction of natural, social, and political elements contributes to the vulnerability of Gilgit-Baltistan, as the region's non-traditional security challenges are explored. The area's livelihoods, food security, and water supplies are all impacted by climate change, making it an important challenge. The increasing frequency of natural disasters, unpredictable weather patterns, and melting glaciers highlight the pressing need for adaptation and mitigation measures. The relationship between food insecurity, population displacement, and resource rivalry and the effects of climate change on security is one of the study's main conclusions. If these overlapping concerns are not adequately addressed, they may worsen pre-existing vulnerabilities and even spark conflicts. To improve the region's potential for adaptation, a comprehensive strategy that unifies climate resilience with more general development objectives is necessary. When it comes to tackling climate-related issues, the importance of local communities and indigenous knowledge systems cannot be emphasized. Insights and solutions for strengthening resilience against environmental hazards can be gained from their traditional practices and sustainable resource management strategies. In any plan for adapting to climate change in Gilgit-Baltistan, empowering local stakeholders and supporting community-based initiatives should be given top priority.

The transboundary problems with water management, energy security, and environmental preservation, regional collaboration and diplomatic initiatives are also essential. Every stakeholder in the region may become more resilient through collaborative frameworks that facilitate technology transfer, information sharing, and coordinated adaptation measures. A multifaceted strategy that takes into account political, social, economic and environmental aspects is needed to



address non-traditional security risks in Gilgit-Baltistan. It is possible to lessen the negative effects of climate change and create a more secure and prosperous future for the people of Gilgit-Baltistan and the larger Himalayan area by making investments in sustainable development, enhancing community resilience, and promoting regional collaboration.

Findings of Study:

The study emphasizes how vital it is to comprehend how climate change poses a non-traditional security danger to Gilgit-Baltistan. The results underscore the pressing requirement for concerted efforts at the municipal, national, and regional levels to effectively tackle the diverse issues brought about by climate change.

- Firstly, the research emphasizes the vulnerability of Gilgit-Baltistan to climate change impacts, particularly in terms of water scarcity, agricultural disruptions, and increased risk of natural disasters. These challenges not only threaten the livelihoods of local communities but also contribute to broader socio-economic instability in the region.
- Secondly, the interconnected nature of climate change with other security concerns, such as food insecurity, migration pressures, and resource competition, underscores the complexity of the issue. Addressing climate-related risks requires holistic strategies that consider these interlink ages and prioritize resilience-building measures.
- Thirdly, the research highlights the role of governance structures, policy frameworks, and institutional capacities in shaping adaptive responses to climate change. Effective governance mechanisms that promote inclusive decision-making, resource allocation, and risk management are essential for enhancing the region's resilience.

The study emphasizes how crucial it is to use traditional methods, indigenous knowledge systems, and community-based strategies in attempts to adapt to climate change. Local communities have important knowledge and coping mechanisms that can guide the direction of sustainable development and increase resistance to environmental stressors. The study highlights the necessity of increased regional cooperation, communication, and teamwork to handle transboundary issues pertaining to energy security, water resources, and environmental preservation. Gilgit-Baltistan may greatly benefit from regional initiatives that support communication of information, cooperative planning, and shared accountability in constructing a more secure and sustainable future. A comprehensive and integrated strategy combining scientific knowledge, local expertise, policy innovation, and regional cooperation is needed to confront climate change as a non-traditional security challenge in Gilgit-Baltistan. It is feasible to lessen the negative effects of climate change and advance regional peace, stability, and prosperity by giving adaptation, resilience-building and sustainable development top priority.



References:

- Ali, T. (2011). Understanding the evolving roles of improvement-oriented high school teachers in Gilgit-Baltistan. *The Qualitative Report*, 16(6), 1616.
- Khan, K. J. (2021). Non-Traditional Security Challenges to Pakistan. *Pakistan Army Green Book*, 138.
- Munir, R., Bano, T., Adil, I. H., & Khayyam, U. (2021). Perceptions of Glacier Grafting: An Indigenous Technique of Water Conservation for Food Security in Gilgit-Baltistan, Pakistan. *Sustainability*, 13(9), 5208.
- Azam, S. (2023). Climate Change: A Non-traditional Threat to Human Security. *Journal of Global Peace and Security Studies (JGPSS)*, 4(2).
- Alam, A., & Iqbal, Q. (2022). An Analysis Of Microbial Diseases: A Non-Traditional Security Threat To Pakistan. *Journal of Positive School Psychology* <http://journalppw.com>, 6(9), 5364-5378.
- Hassan, T. U., Ali, E., Hussain, H., Haq, A. U., Ali, E., & Ismail, M. (2024). Climate change: non-traditional security threats for Pakistan. *International Journal of Learner Diversity and Identities*, Volume 31, Issue 1, 2024, <http://ijldi-cgrn.com/>
- Kreutzmann, H. (2013). Preservation of built environment and its impact on community development in Gilgit-Baltistan.
- Alam, A., & Iqbal, Q. (2022). An Analysis Of Microbial Diseases: A Non-Traditional Security Threat To Pakistan. *Journal of Positive School Psychology* <http://journalppw.com>, 6(9), 5364-5378.
- Shahid, M., Rahman, K. U., Haider, S., Gabriel, H. F., Khan, A. J., Pham, Q. B., & Anh, D. T. (2021). Quantitative assessment of regional land use and climate change impact on runoff across Gilgit watershed. *Environmental Earth Sciences*, 80, 1-18.
- Ishaq, S., Khan, M. Z., Begum, F., Hussain, K., Amir, R., Hussain, A., & Ali, S. (2016). Climate change impact on mountain biodiversity: a special reference to Gilgit-Baltistan of Pakistan. *Journal of Mountain Area Research*, 1, 53-63.
- Ishaq, S., Khan, M. Z., Begum, F., Hussain, K., Amir, R., Hussain, A., & Ali, S. (2016). Climate change impact on mountain biodiversity: a special reference to Gilgit-Baltistan of Pakistan. *Journal of Mountain Area Research*, 1, 53-63.
- Rashid, M. U., Ahmed, W., Islam, I., Petrounias, P., Giannakopoulou, P. P., & Koukouzas, N. (2023). Impact of Climate change on the stability of the Miacher Slope, Upper Hunza, Gilgit Baltistan, Pakistan. *Climate*, 11(5), 102.