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Climate Change as a Non-Kinetic Security Threat: A Global Analysis

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Abstract

Climate change has created one of the most dangerous forms of non-kinetic security of the 21st century. Climate change has the potential to affect every aspect of global security and stability beyond state and conventional military concerns. Climate change doesn't operate like most other security concerns. Climate change acting as a threat multiplier has the potential to aggravate existing security concerns and create new security problems. Climate change does all of this through indirect and far-reaching effects. These changes affect political stability, economic growth, and sustainable development while decreasing the well-being of individuals. Climate change creates a wide range of security issues, all of which can be intensified or extended by climate change. Climate change has the potential to alter the global security landscape beyond state and conventional military concerns. The results show that climate change acts as a single independent cause of insecurity quite rarely. It tends to connect with several pre-existing structural shortcomings, weak governance, social and economic inequalities, political turmoil, and the fragility of both governance and institutional systems in a potential cumulative way to increase the degree of risk of prospective conflict, humanitarian crises, and disruption of economics. The article suggests that climate security be framed within the context of the multidimensional and multisectoral policy challenges of a comprehensive nature, which require integrated responses at varying levels of governance (national, regional, and global). The article concludes that confrontation with climate change necessitates the integration of an environmental sustainability lens within the framework of conflict resolution.

Keywords: Climate Change, Non-Kinetic Security Threat, Threat Multiplier, Resource Scarcity

Introduction

Security, as understood in the context of state-centric and military understandings, comprises the protection of the sovereignty, territorial integrity, and citizens of the nation from external threats (mostly military threats and strategic deterrence) (Buzan, 2007). As time has gone by, the understanding of security has been more inclusive and has incorporated more non-military dimensions such as economics, the environment, societal issues and human security (Programme, 1994). Non-traditional security challenges of present day highlight the importance of the existing security challenges such as poverty, health crises, cyber-attacks and environmental degradation (Barnett & Adger, 2007). Climate Change has also become one of the most pressing non-kinetic security challenges that is capable of exacerbating existing vulnerabilities. (Nick & (Londres),

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2008). Non-military security threats of the twenty-first century have also been posed by threats such as terrorism. Traditionally, military threats have been characterized by the use of military force. Unlike traditional military threats, non-military security threats do not use military force but instead involve systemic disruptions that weaken societal resilience and political stability (Trombetta, 2008). Climate Change has become one of the most pressing non-kinetic security challenges. The challenges of climate change have intensified in recent years, and the resulting environmental hazards have only begun to impact security.The world is experiencing unprecedented climatic disruptions and the impacts of these disruptions are becoming increasingly apparent in terms of security. In 2023 and 2024, global temperatures reached an all-time high, heatwaves occurred as well as flooding and extreme wildfires on many continents and droughts in many areas (Zhang et al., 2024),(Cheng et al., 2025). These events have shown the shift in climate change from being an environmental issue to a strategic issue which impacts directly on national security, economic stability, public health and international peace (Брітченко, 2025). Recognizing that climate change can impact critical infrastructure and exacerbate humanitarian crises, affect food and water security, and lead to heightened risks of conflict in regions at risk, governments, military institutions and international organizations are increasingly taking climate change seriously as a factor in national security planning. As such, climate change has emerged as one of the biggest non-kinetic security threats of the 21st century that necessitates a "climate security" approach, involving the linkage of environmental governance and national and international security agendas.For example, in sub-Saharan Africa, prolonged droughts have contributed to competition over water resources and exacerbated tensions among local groups (Salehyan, 2008). Similarly, rising sea levels threaten low-lying island nations like the Maldives, leading to forced migration and displacement (Gemenne, 2010). The geopolitical implications of climate change are now evident. The loss of Arctic ice is both an observation of climate change and an economic driver for further exploitation and new shipping routes. This is intensifying competition for resources among major powers (Lasserre & Alexeeva, 2015). The migration triggered by the changing climate presents even greater threats to the security of a nation. Resource shortages and environmental displacement place additional stress on already vulnerable nations, resulting in social instability and potentially even political instability. (Reuveny, 2007). The impacts from climate change do not occur or are not evenly felt throughout the world. Disproportionately, poorer areas of the world with weaker governance are more disproportionately negatively impacted from the effects of climate change. Fragile states most vulnerable of all. Environmental stress is often amplified by the intersection of political instability, economic fragility and social inequality. For instance, researchers have connected prolonged droughts in Syria to agricultural losses and rural-to-urban migration. There are competing theories about the relationship between these pressures and the start of the civil war (Kelley et al., 2015), (Selby et al., 2017). In short, not adequately addressing climate change will lead to civil conflicts throughout the world. The outcomes of the conflicts will occur even though there is currently little to no strategic thinking from the military as a result of climate change. The challenge from climate change is most severe on fragile states of the world. Environmental stress is intersecting with political instability, economic fragility and social inequality most of all on these fragile states of Policymakers must recognize the interdependence of environmental and security challenges and implement multisectoral strategies to build global resilience against the security implications of a changing climate. This paper aims to critically examine the multifaceted nature of climate change as a non-kinetic security threat. It explores its impacts on resource scarcity, migration patterns, geopoliti-

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cal rivalry, and socio-economic stability while emphasizing the urgent need for international collaboration and sustainable governance strategies to address these emerging challenges.

While climate change has been studied concerning its effects on the environment, development, and humanitarian issues, few attempts have been made to examine climate change as a non-kinetic security threat. This includes a study on its impact on national security, human security, geopolitical rivalry, economic resilience, and global governance. Most studies look at climate change effects narrowly in the spectrum of migration, resource depletion, and violence. This study takes a different approach and looks at climate change through a non-kinetic security lens and examines how climate change poses a threat by being a 'force multiplier', amplifying existing political, economic, environmental, and social fragility. This study adopts a multidisciplinary methodology and focuses on the issue of climate change. This study brings attention to the need to create both national and international integrative responses to the issue.

This research uses qualitative methods and takes a critical view of the literature. Information has been acquired from peer-reviewed journal articles, books, policy documents, and reports issued by international organizations, such as the Intergovernmental Panel on Climate Change (IPCC), the United Nations Environment Programme (UNEP), the United Nations Development Programme (UNDP), and the World Bank.Analyzing how some of these themes, including resource scarcity,, climate change and migration, geopolitical rivalry, non-kinetic security, and economic and human insecurity interrelate to interpret the nexus of climate change and non-kinetic security is the aim of this research. Climate change as a threat multiplier is the focus of this research in different geopolitical contexts, using the case studies of Pakistan's 2022 floods, the Syrian drought, and the Arctic. The aim of this research is to present a climate change challenge to national, regional, and global security within the framework of its multidimensional non-kinetic security challenges.

The Human Security framework and the Copenhagen School's Securitization Theory primarily direct this study. The Human Security approach expands the threats that security can include by protecting people from increases in environmental damage, food insecurity, and health crises, and from forced migration (Programme, 1994). Securitization Theory, likewise, explains how climate change is among the range of subjects that are increasingly regarded as security issues, and that consequently require exceptional solutions (Buzan, Wæver, & de Wilde, 1998). These theories enable a better understanding of the multidimensional nature of climate change as a non-kinetic security issue impacting state security and human security.

Understanding Security and Non-Kinetic Security

Security

The term *security* has traditionally been associated with the protection of a state's sovereignty, territorial integrity, and citizens from external military threats (Buzan, 2007). A classical realist view on the military aspect of national security includes military power, alliances, and strategic deterrence (1924-2013, 1979). However, the end of the Cold War transformed the meaning of the concept of security, to an economics perspective that includes pandemics, problems of the environment, and economic instability (Programme, 1994). Now, security has an expanded view and includes all elements of the society such as economic stability, and environmental protection (Brauch, 2008).

Online ISSN: 3006-8886
Print ISSN: 3006-8878

Non-Kinetic Security

Non-kinetic security refers to security threats that do not involve the use of force or the application of military methods, but are the result of a system's weaknesses in the environment, the economy, the technology, and the public health (Ayuk et al., 2026; Smith et al., 2022), etc. These threats have the potential to destabilize societies and weaken state systems, and can worsen social and political tensions that are already present. For example, attacks within the cyber theatre can lead to critical systems and infrastructure becoming immobilized (Shawe & McAndrew, 2023), outbreak pandemics can easily overpower and overstretch the healthcare system (Ravi et al., 2019), and unchecked environmental changes can lead to resource shortages and forced migrations (Webersik, 2010). Climate change is an enormous non-kinetic security challenge in the contemporary world. Compared to other security threats, climate change functions as a "threat multiplier" in a negative sense, and exacerbates existing pressures and problems (Nick & (Londres), 2008). For example, severe and persistent droughts in agriculture dependent countries can contribute to an increase in food insecurity and migration, and can increase the probability of the onset of political instability in the context of unfavorable social and political conditions (Froese & Schilling, 2019). Similar situations apply to the threats posed by the rise and it's impact on marine systems (Gemenne, 2010).

The Intersection of Security and Climate Change

The impact of climate change on security concerns shifts the focus from traditional security concerns based primarily on military issues to broader security concerns that include environmental sustainability and governance (Barnett & Adger, 2007). Climate change disregards international borders, and the effects of climate change occur with varying degrees of unevenness and disproportionality with a negative bias of greater impact on vulnerable areas with fewer resources available to them for adapting to these climate changes (Mach et al., 2019). The security implications of climate change involve the interlinking of economic inequity, political instability, social injustice, and climate change, and require complex, integrated solutions that require international cooperation (Ullah & Rana, 2024),(Mach et al., 2019). This section creates a base upon which the many ways in which climate change is a non-kinetic security concern will be evaluated. The subsequent sections will analyze the impacts of climate change in the areas of economic disruption, migration, geopolitical shifts, and prying open the boundaries of socio-economic impact.

Climate Change as a Threat Multiplier

The term "threat multiplier" expresses a key feature of projecting potentially devastating security consequences of climate change. It demonstrates how changing environmental conditions caused by climate change combine with different socioeconomic, political, and environmental stresses to intensify the risk of conflict, instability, and insecurity (Froese & Schilling, 2019). In comparison to typical security threats; climate change will not act in an isolated fashion, instead it will act in an integrated fashion with other challenges such as poverty, political instability, poor governance. It will make the challenges even more difficult to resolve (Brown et al., 2007).

Resource Scarcity and Competition

Climatic change impacts all natural resources, especially water, land, and fisheries. All of these are essential resources for life and for the economy of the global community. Droughts, desertifi-

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cation, and extreme weather events negatively impact agriculture and result in excessive water consumption an increased competition over already scarce resources (Brown et al., 2007). For example, the extended drought in the Sahel region of Africa has been discussed and analyzed regarding the potential for resource-based conflicts in the farming and pastoral communities (Benjaminsen et al., 2012). In a similar way, the scarcity of water in the Nile River Basin has increased the competition amongst Egypt, Sudan, and Ethiopia in relation to the construction of the Grand Ethiopian Renaissance Dam (Whittington et al., 2014).

Climate-Induced Migration and Displacement

The impact of climate change that will occur in the future will be forced migration due to movements in sea levels and a result of extreme weather events and desertification. Climate change will create forcible movement of the climate-change affected populace to regions which have a potential to accommodate the displaced climate-change affected populace (Balsari et al., 2020). For example, a country like Bangladesh is threatened by changing sea levels, which could displace over millions of people and consequently bring about regional migration crises of South Asia (Gemenne, 2010). Displacement of such a scale can contribute to social and political instability and unrest in such affected areas and regions (IPCC, 2023).

Fragile States and Political Instability

Climate change tends to affect the most vulnerable countries the most. In vulnerable countries, climate stress can worsen vulnerability and conditions in vulnerable countries can become even more conducive to civil conflict (Zhou et al. 2018). It is known that the Syrian civil war is the result of long term drought that began in 2006 and ended in 2010 that caused agricultural production to fail, rural populations to be forcibly displaced, and to worsen the economic hardship in country, which increased the risk of widespread social disruption and civil war. (Kelley et al., 2015; Lambert et al., 2021).

Geopolitical Tensions in the Arctic

The impact of climate change on geopolitics is pronounced, especially on the Arctic. As the polar ice caps continue to melt, more sea channels open up, and previously inaccessible natural resources become accessible (Parkash, 2025). Increased competition among major powers for domination in this region, including the United States, Russia, and China, illustrates the strategic importance of this region (Ashraf, 2024). Environmental changes seeking to fill gaps in geopolitics can broaden the scope of geopolitical rivalries, especially as the competition for resources becomes more pronounced (Blunden, 2009).

Emerging Aspects of Climate Security

Climate security includes far more than degraded environments and diminished resources (Arnall, 2023). Security in the context of climate change can include the interplay of technological, cyber, and informational security challenges. Climate change is already having multiple effects on critical infrastructures. The energy, water, transport, and communication systems are all becoming vulnerable to climate-related extreme events in the form of floods, heat waves, and storms.In addition to these effects, the digital interconnection of these systems is leading to increased climate-related cyber security challenges (Cassotta & Pettersson, 2019),(Adekamnbi,

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2022). In even the best-coordinated systems, the interconnections of climate and cyber security create challenges that are beyond the capability to manage.The digital proliferation of climate-related misinformation and disinformation is becoming a serious security challenge (Lewandowsky, 2020),(Aamir et al., 2025). Misinformation and the distortion of truth undermine the public's confidence in the science, create confusion and even help the public to oppose the science and the normal policies (Lewandowsky, 2020). Even worse, digital misinformation can impede the effectiveness of government actions and policies (Voci & Karmasin, 2023),(Aamir et al., 2025). These challenges create more complex and interrelated climate security issues that extend beyond environmental security. To create resilient societies, it is necessary to fuse effective climate policy with cyber security efforts, technological solutions, and resilient systems to confront both environmental and informational security issues.

Environmental Modification and Climate Security

Future applications of environmental modification show the technique possesses potential as a non-kinetic security tool. An example of this is Operation Popeye (1967-1972) where the U.S. Military classified a program during the Vietnam War to implement cloud seeding to extend the monsoon season over regional portions of the Ho Chi Minh Trail to increase the road's impassability and disrupt the transit of enemy personnel and supplies. (Mackay, 2023) Unlike other military strategies, the U.S. Military envisioned a way to use natural weather patterns to their advantage. The uncovering of Operation Popeye prompted the international community's concerns regarding the military applications of environmental modification techniques. (Mackay, 2023) As a result, the 1977 Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques (ENMOD) was enacted. By placing international law and the prohibition of hostile environmental modification techniques that can produce widespread, long-lasting, or severe effects, it created a legal basis to steer efforts away from environmental modification for military purposes. (N., 2018) The use of environmental modification has shown that the ecosystem can be a decisive element in a conflict. As technology progresses and the climate change emergency worsens, the use of environmental modification technologies becomes more likely. (Vöneky, 2022) Combatting the hostile use of environmental modification technologies and mitigating the spread of misinformation surrounding them will require more stringent international laws, greater emphasis on scientific transparency, and improved international cooperation.

Health and Human Security Risks

Changes in the climate act as a threat multiplier for human security by increasing health risks. New threats to health from changing climates include the proliferation of transmitted diseases such as malaria and dengue.Changes to the climate also change the predictability of local weather. This results in disruptions to the infrastructure of the healthcare system. The disruptions result from changes to the local climate. Wet and warm conditions allow what are otherwise anaesthetic puddles, to come alive with an array of dangerous biting insects. The insects include different species of mosquitoes.Rising temperatures break the seal to pools. The pools are filled with what is normally anesthetic pool water, together with mosquitoes. Instead of being anesthetic, the pool water, together with the mosquitoes, are now active, and a major public health threat.Because of the changing climate, new health threats from the dissemination of vector borne illnesses occur. Healthcare services are disrupted by severe adverse weather events. These disruptions occur be-

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cause of changes in the local climate. Many of the adverse health outcomes from the changing climate are of greater concern

Economic Instability

Risks from climate change will adversely affect economies around the world, especially agricultural, aquatic and coastal ecosystems, and tourism, which are highly dependent on and affected by climate and weather phenomena ((IPCC), 2023). Extreme climate events (hurricanes and floods) would damage infractructure, disrupt the supply chain and cause significant economic losses. The World Bank estimates that, due to the lack of rapid and effective development that is both inclusive and climate change adapted, by 2030 the effects of climate change could result in more than 100 million additional people being pushed into extreme poverty (Hallegatte et al., 2016).

Geopolitical Rivalry and the Shift in Energy Systems

The transition to a low-carbon energy system is reshaping international relations and security challenges as competition grows related to climate change. (AMATO, 2025) The pursuit of energy and climate goals is now interlinked with strategic competition over critical minerals. With the move away from fossil fuel reliance, there is a growing demand for electric vehicles, rechargeable batteries, wind turbines, and other tools and components of renewables, which makes lithium, cobalt, nickel, copper, and rare earth elements strategically significant. (Zen & 10, 2025) Consequently, there is intense competition for the minerals, the supply chains, and the manufacturing capacities. (Zen & 10, 2025) The countries that have the critical minerals now have added strategic weight, and China, the U.S., the European Union, among others, have begun deep investments to ensure they secure a supply. (Kalantzakos, 2020) Geopolitical competition is also directed at the newest and most promising of energy technologies with an emphasis on green hydrogen and the manufacturing of batteries and other components of the renewable energy systems. (Scharnigg & Haarstad, 2025),(AMATO, 2025) The energy transition will result in competition and a reshaping of international relations as security and economic systems are integrated with technology and energy resources. (AMATO, 2025)

The Need for a Multilateral Response

Climate change is manifesting itself globally and is unconfined to the boundaries of nations. It requires international cooperation and joint action by nations. (IPCC, 2022). The effects of climate change, many of which are still to be felt, include rising sea levels and extreme and erratic weather patterns. Resource scarcity will affect all regions, including those that have hitherto made minimal contributions to greenhouse gas emissions. The challenges posed require a multilateral approach and a positive spirit of international cooperation (Roberts & Weikmans, 2017).Key informative international organizations, such as the Intergovernmental Panel on Climate Change (IPCC) and the United Nations Environment Programme (UNEP), have a crucial role to play in advancing knowledge and advocacy. Without effective enforcement of compliance mechanisms and greater enforcement of compliance mechanisms, there will be a lack of transparency in the flows of climate finance and a lack of sufficient participation by both state and non-state eclectic mixture of actors (Bulkeley et al., 2014). Only inclusive and equitable partnership by the countries affected can help address climate change as a pressing security challenge.

Online ISSN: 3006-8886
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Policy Recommendations

Considering climate change a non-kinetic security challenge requires engagement at the local, national, regional, and international levels. Climate change and security should be incorporated into national policies by improving preparedness for climate-related disasters and securing and investing in climate-resilient infrastructural development. Increased investment in renewable energies, sustainable management of water, and climate-smart agriculture can diminish the scarcity of resources and increase resilience ((IPCC), 2023),((IPCC), 2023). Internationally, states should encourage collaboration by improving existing climate-related treaties, enhancing the climate finance for at-risk nations, and facilitating the transfer of green and smart technologies to support adaptation and mitigation. Improving scientific research collaboration, early warning systems, and data sharing will improve responses to climate-related disasters (Akpuokwe et al., 2024),(Handmer et al., 2012). International legal order compliance will reduce the competition-related tensions concerning environmental modification and resource technologies. These policies can improve resilience and may support international peace and security (Mach et al., 2019).

Conclusion

As one of the most concerning non-kinetic threats of the 21st century, climate change also possesses the characteristics of a threat multiplier. In this regard, climate change combines several challenges and impacts and makes existing vulnerabilities and fragilities even worse. Among others, these vulnerabilities and fragilities include among others: political and social fragilities and vulnerabilities; economic fragilities and vulnerabilities; environmental fragilities and vulnerabilities; and, public health fragilities and vulnerabilities. These fragilities and vulnerabilities further worsen climate-related impacts and vulnerabilities, exacerbate resource shortages, create migration flows induced by climate change, and cause economic and geopolitical disruptions. New security dimensions of climate change, such as critical infrastructure and environmental protection, as well as the integration of technological advancements, such as Artificial Intelligence (AI), cybersecurity, and competition over strategic minerals, further demonstrate that the climate-security nexus is a complex challenge.It can no longer be argued that the effects of climate change are isolated or independent of the many cross-cutting effects and challenges that climate change poses. Climate change has a cumulative multiplier effect on the multiple challenges and impacts of climate change. Among numerous others, these impacts include social, economic, political, and environmental fragilities and vulnerabilities; public health fragilities and vulnerabilities; and, economic fragilities and vulnerabilities. Climate change amplifies the impacts and challenges of climate change. Climate change also worsens the resource shortages, induced migration, and climate change-induced public health crises, economic disruptions, and geopolitical conflicts. Among others, the dimensions of climate change security, such as critical infrastructure and environmental sustainability as well as the integration of technology, such as Artificial Intelligence (AI), cybersecurity, and the competition over strategic minerals, further demonstrate that the climate-security nexus is a complex challenge.As previously mentioned, workable solutions to the multi-faceted challenges of climate and security, in most places, are still lacking. Among other challenges, these challenges include social, economic, political, and environmentalUltimately, climate change has to be understood as a problem of the security and stability of nations, and of regions and the world as a whole. An active, positive, and science based cooperation of all countries is needed to control and limit the effects of climate change. It

is imperative for international cooperation to achieve a more secure, stable, and sustainable future.

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