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Implications of Climate Change for Global Security and Order: A Case Study of South Asia

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ABSTRACT

The issue of climate change has assumed formidable dimensions over the years and is posing a serious threat to human civilization, thereby endangering global security and order. The South Asian region is more exposed to the climate related challenges as it is home to almost 22 percent of the world's population. Despite the need to initiate joint efforts to mitigate the effects of climate change, the instant issue has been marred by international and regional political wrangling. Consequently, the global and regional security is prone to disruption and instability. There is a need to address the crisis on emergent basis for identifying some common grounds whereby trajectories of concerned political actors can be converged towards the conundrum of climate change. In this way, the international and regional stability can be insulated from potential conflicts.

Introduction

The environmental problems have become significant feature of international politics as they transcend national boundaries (Vogler, 2017). The issue of climate change is one of the most pressing non-traditional security threat, having potential to affect the humanity as a whole. Until recently, no one believed that climate had changed and that human activities were responsible for increasing annual global temperatures since Industrial times. Although there are still dissenting voices being raised by climate sceptics who, simply do not believe in the proposition of climate change. But scientific evidence collected over the years has established the veracity of climate change and allied global warming owing to increased global atmospheric concentrations of carbon dioxide, methane and nitrous oxide (Jat et al, 2016).

There is growing realization at global level that the menace of climate change, if remain unaddressed, would have implications for international peace and security (Khalid & Ahmad, 2021). According to a report published by the Pentagon in 2003, the security implications of climate change might range from rioting to nuclear war. However, certain parts of the globe, specially the region of South Asia, is more vulnerable to the hazards of climate change due to its distinct geographical features, natural resource degradation, high rates of poverty, food insecurity and dense population. Tense political relations and long standing regional disputes have further exacerbated the situation (Klare, 2019). It is therefore incumbent upon all stakeholders, particularly the developed countries representing Global North, to devise such mitigating strategies as can minimize the impact of changing climate without prejudice to the interest of the developing world such as South Asian region.

Literature Review

Barnett (2003) described climate change as security dilemma for certain states and regions as it has the potential to disturb ecosystems and their inhabitants, thereby affecting development and political stability as well. Over the years, the notion of environmental security has become more pressing among global security analysts and the same has replaced the threat of global nuclear war. The menace of climate change has financial implications too and in some cases they have justified rendering climate change as security problem. Above all, climate change is detrimental to human welfare as people living on atolls, coastal areas, drought-prone places and arctic regions are more susceptible to the impacts of changing climate. Unpredictable climate and extremely severe weather incidents have raised the possibility of violent conflicts, which will further undermine human security and livelihoods.

Lal. R et al (2010) explained that the region of South Asia comprises of huge landmass of 642 hectares having diverse climates and geographical features. The population of approximately 1.62 billion spreading in eight countries is at the mercy of changing climate. The fall of Indus valley civilization is also attributed to the menace of climate change. Between 1000 to 1700 AD, recurrent droughts drastically reduced the population of the region. The current population is playing a crucial role towards impacting the global and regional climatic patterns through burning of fossil fuels and biomass, altering land use and deforestation. So climate change adaptation is the need of the hour by using natural resources prudently and building social resilience.

Douglas (2009) stated that the conundrum of climate change has generated food security problems, particularly during floods, in South Asia and most vulnerable segments in this regard include poor, women and children. Food production is being affected on a larger scale due to climate change as rapid melting of glaciers has increased flooding events over the years. Adaptation practices must incorporate food security strategy at all stages by involving relevant

tiers of society. Although individual efforts are essential to address the issue in hand, yet a combination of various factors might hinder the desired progress. New techniques meant for food production, its subsequent distribution and safe storage will have to be developed so as to contain the dilemma of food shortages in the wake of changing climate.

Sarkar (2011) narrated that global climate change could surely be rendered as an adverse consequence of global warming, which in turn, is caused by accumulation of greenhouse gases (GHGs) into the earth's atmosphere. The potential source of greenhouse gases is the extensive burning of fossil fuels and biomass, particularly, in the wake of industrialization and globalization to stimulate economic growth, both in the developed and developing economies. The instant phenomena have raised the levels of hazardous gases enormously, not only affecting environmental quality but also generating global and regional security concerns. The South Asian Region should adopt a balanced approach by traversing the path of sustainable development, which will ensure economic prosperity without compromising environment.

Sivakumar & Stefanski (2011) stated that the region of South Asia accounts for one-fifth of the world's population and at the same time it is one of the most vulnerable regions exposed to the hazards of climate change. Rising air temperatures and occurrence of extreme weather events have been observed in South Asia during the last century, while similar projections are in place for the 21st century. Consequently, crop yields in tropical parts of South Asia will suffer, which will affect small farmers who possess low financial and technical capacity to cope with the imminent implications. Sustainable development and adaptation practices in accordance with the effects of climate change could help sort out the problem in the long run.

Macdonald (2013) described that a majority of political actors and analysts have started portraying global climate change as security concern. The link between climate change and security has been conceptualized in a variety of ways. Some consider climate change as a threat to long term human security, while others highlight the threat to nation-state in terms of traditional discourses of sovereignty and territorial integrity. Furthermore, some conceptualizations linking climate change and security advocate mitigation to reduce the severity of threat while others advance the idea of adaptive practices to protect the state and its key interests from the hazards of climate change.

Vogler (2017) pointed out that environmental issues have now assumed prominent place at the international stage and equal in magnitude to any other issue concerning the future of mankind. Natural resources such as fresh water, a clean atmosphere and a stable climate, are under serious threat, thereby making the survival of human beings difficult in the long run. Global problems can be addressed through a global mechanism like global environmental governance for rectifying environmental concerns. Yet local or regional response to such issues will be more beneficial as chief feature of climate politics is to visualize globally and deliver locally.

Ahmed, Appadurai & Neelormi (2019) stated that climate change would have severe implications for the South Asian Region owing to its peculiar landscape and diverse terrain. Over the years, the severity of climate-related incidents such as floods, cyclones and droughts has increased, making the lives and habitats of the most weaker segments of the region unbearable. Although the respective governments are striving to respond to the threats of climate change, but such efforts are insufficient to meet the challenge as they are incoherent and fragmented. Almost all the countries of South Asia lack technology, requisite finances and institutional capacities to necessary to adapt to changing dynamics of the climate. There is a need for regional vision coupled with democratic decision making and institutional capacity building in collaboration with international partners and agencies.

Klare (2020) highlighted the impact of climate change on international security and attributed water scarcity as a critical factor. Many countries of the developing world are already water stressed and further dwindling of water reservoirs in the wake of climate change would surely generate potential conflicts within and between states. The threat is particularly relevant to the region of South Asia as some densely populated countries rely upon Himalayan Glaciers for substantial flow of water into their major rivers, while the said glaciers are melting fast owing to the menace of climate change. The onus is upon these countries to address the issue in a collaborative and equitable manner as looming water shortages could unleash armed conflicts including the possibility of use of nuclear weapons.

Alvi & Khayyam (2020) explained the difficulties for mankind to predict future landscape with regard to cumulative losses looming large owing to hazards of climate change. Climate change is quite complex a phenomenon having global and regional implications. Changing weather patterns are expected to further deepen already prevalent socio-economic imbalances across the globe. The developing countries are more vulnerable to the threats emanating from climate change despite the fact that they have limited role in vitiating the atmosphere. The region of South Asia needs proactive approach based on community participation to build a resilient system which could sufficiently respond to the effects of climate change.

Khalid & Ahmad (2021) described climate change as an emergent challenge for international security as it has the potential to jeopardize collective security of all states. The South Asian region, which has approximately one fourth of the total global population, is the most vulnerable as far as implications of climate change for water and food security are concerned. Prevalent water disputes and food shortages in the region have further complicated the situation and warrant integrated responses for effective utilization of available resources. But the governments in South Asia are dealing the issue in hand in isolation and the said approach is quite ineffective to deal with the problem. Hence regional cooperation is need of the hour to respond to the threats posed by the climate change.

Objectives

The objectives of this study are to explore the implications of climate change on global security and order with special reference to South Asia. It will evaluate the potential causes of climate change and suggest remedies to counter the allied hazards through various viable strategies. In this way, the said study will offer an insight not only for the students and researchers of environment but also guides the policy makers to frame such legislation as prove effective to deal with the menace of climate change.

Research Questions

1. Why the menace of climate change has implications for global and regional security?
2. How the region of South Asia can respond to the threats emanating out of climate change through adaptation and mitigation strategies?

Research Design and Methodology

Research designs are the plans and the procedures for research that span the decisions from broad assumptions to detailed methods of data collection and analysis. According to John Creswell, research design has three main components namely philosophical assumptions, strategies of inquiry and specific research methods. The instant study has been conducted to evaluate the implications of climate change for global security, particularly its impact upon the region of South Asia.

Qualitative research design has been adopted to commission this study. Post- positivist paradigm

has been invoked to analyze multiple perspectives in connection with the impact of changing climate as majority of scientific community believe in the veracity of climate change, while few climate sceptics bedevil the very idea of climate change. Data has been collected through secondary sources such as scholarly articles, books, conference papers, defense publications and recent UN Climate Conferences. For data analysis and interpretation, thematic and narrative strategies have been employed to highlight the implications of climate change for global and regional security. Apart from that, the instant research also serves as a case study of South Asia with regard to changing weather patterns and their subsequent effects.

Theoretical lens which has guided this study is Environmental Justice Framework and Ecological Modernization Theory. The Environmental Justice Framework emphasizes the disproportionate impact of climate change on marginalized communities especially low-income populations. It examines issues of fairness, equity and the social implications of climate change and argues for policies that ensure meaningful involvement in environmental decision making. The Ecological Modernization perspective focuses on the idea that economic growth and environmental sustainability can go hand in hand. From this lens, technological innovation and market-based solutions like green technology are seen as essential for addressing climate change.

Climate Change on the International agenda: A brief History

Prior to globalization, there were basically two issues involving the subject of environment: conservation of natural resources and the hazards of pollution. Importantly, atmospheric commons transcend the boundaries of nation states and any policy meant for mitigation or conservation will have to take more than one state on board. Economic recovery in the wake of second world war brought new evidences of pollution, prompting some international agreements with regard to discharges from oil tankers but environment, as a whole, was still not an issue for global politics. (Vogler, 2017). But in 1968, the United Nations General Assembly agreed to convene an international gathering, which came to be known as the 1972 UN Conference on Human Environment (UNCHE). In the aftermath of the conference, the United Nations Environment Programme (UNEP) was created and several governments round the globe established environment departments (Joos, 2023).

The most significant problem affecting world at large in connection with environment subsequently comes out to be climate change and global warming. Due to severity and threats involved, the conundrum of climate change started entering the arena of global politics pushing stakeholders to do something meaningful (Sarkar, 2011). Foremost issue of concern was to converge on some workable mechanism. For the said purpose, the Intergovernmental Panel on Climate Change (IPCC) was formulated in 1988 under the aegis of the United Nations for gathering scientific evidence on climate change. The IPCC attributed changing climatic patterns to human activities, which paved the way for adoption of the United Nations Framework Convention on Climate Change (UNFCCC) in 1992. Since then, the issue of climate change is regularly featuring on the international political discourses as future of humanity and coming generations is at stake (Scheffran, 2014).

Implications of Climate Change for Global Security

The formal concept of security had undergone transition in the wake of Cold War as non-traditional security threats such as environment, food, water, terrorism etc started reverberating within the broader security discourses (Akram & Hamid, 2014). Climate change has significant implications for global security and order as scientific evidence has now established that climate is warming having consequences for all living organisms and their ecosystems. If changing climatic patterns keep evolving unabated, there will be consequences for national security of states coupled with international political stability. Unlike most threats that are singular in their

timing and nature, climate change is poised to affect over a long period of time and is global in scope. The very nature of climate change has the inherent ability to generate new kinds of security issues while making the existing ones formidable, particularly in regions with history of conflicts and polarization. Climate change is also described as threat multiplier as it enhances the severity of challenges posed by other socio-economic phenomena such as industrialization and urbanization (Khalid & Ahmad, 2021)

The effects of climate change are becoming clearer and clearer with each and every passing day. Rising annual global surface temperatures, rapid melting of glaciers and ice-bergs leading to increase in sea-levels and depletion of ozone layer pose severe repercussions for human populations (Sarkar, 2011). Apart from that, recurrence of natural disasters such as floods, typhoons, landslides, hurricanes etc. is on the rise affecting all living organisms. Melting of glaciers and icecaps on larger scale will not only enhance surface temperatures on land but also render certain regions of the world water stress. Climate change is negatively affecting crop yields owing to rising CO2 levels, which in turn, has the potential to exacerbate the issue of food security for densely populated regions of the world (Chandio et al, 2022).

Climate Change and South Asia

The region of South Asia is one of the most populous regions of the world having diverse cultures and geographical features. This part of the globe is characterized by unabated population growth, depleting natural resources, alarming poverty levels and allied human suffering. These challenges coupled with environmental susceptibilities and geo-political dynamics make this region intricate and conflict-prone. The United Nations Environment Program has declared South Asia to be highly susceptible to climate related hazards owing to ever increasing frequency of extreme weather events like droughts, famine, floods, heat-waves and abnormal rainfall. Such occurrence of natural disasters is projected to gain momentum in future causing further destabilization of already impoverished states (Sivakumar & Stefanski, 2011).

The population of South Asia is growing at alarming pace rendering food requirements such as grain, dairy and meat difficult to meet for millions of people. Climate change has severely affected production of crops in that region, resulting into food insecurity for already struggling communities. The issue of food security in South Asia becomes more challenging since 30% of the world's population facing food insecurity resides in that part of the globe. According to a report published by the World Bank in 2018, about 702 million people in the region are living beneath the poverty line and equal number of people are malnourished. Water shortages, irregular monsoon and ever increasing intensity of extreme weather conditions at the hands of changing climate are negatively affecting the quantity and quality of available food (Bandara & Cai, 2014).

Climatic conditions play a crucial role towards agricultural yield. As per report issued by the IPCC in 2014, output of cash crops is more likely to be affected by unusual alterations in weather conditions, which is presently the case with South Asian region. In fact, rising temperatures, varying rainfall patterns and accumulation of excess Carbon Dioxide in the upper atmosphere is affecting food security in South Asia (Behera, Haldar & Sethi, 2024). On one hand, rise in food demand is being witnessed in the face of increasing population while on the other, the supply of food is continuously decreasing owing to reduction in crop yields at the hands of climate change. The result is disruption of demand / supply balance and a decreased access to food, leading to rising food prices. Thus the people of South Asia, already weak financially, would have to spend more resources on procuring basic food items for routine consumption (Yan & Alvi, 2022).

Apart from food security, the issue of water security has assumed formidable dimensions too in the conflict-prone region of South Asia. In addition to the challenges posed by the climate

change, growing population, urbanization, industrialization, poor maintenance of water infrastructure, over-exploitation of groundwater and underground pollution are affecting the quality and availability of water in South Asia. Under the circumstances, the threats emanating from climate change will further aggravate and intensify the situation as water scarcity is set to affect agriculture dependence of the region. The World Bank has declared megacities including Karachi, Dhaka, Mumbai, Chennai and Kolkata as hotspots where availability of fresh water is severely affected in the wake of changing weather patterns (Khalid & Ahmad, 2021).

Rising temperatures have accelerated the melting of glaciers in the Himalaya-Hindu Kush region. The phenomenon is not only generating floods but also incrementally raising sea-levels in coastal areas, thereby threatening lives and infrastructure. The rapid melting of glaciers is brimming glacial lakes beyond their capacities in countries like Pakistan, Nepal and Bhutan, raising the prospects for Glacial Lake Outburst Floods. Low-lying countries such as Maldives and other coastal regions are facing threats of inundation and shortages of fresh water owing to climate related hazards. As far as Pakistan is concerned, it is among top ten countries which are most exposed to the harmful impact of climate change. Extreme climatic events including floods, droughts and heatwaves are affecting the economy and population of Pakistan over the years (Rasul & Ahmad, 2012).

Furthermore, climate change is now being held responsible for altering the hydrology of the Indus River Basin which could further complicate the security nexus between India and Pakistan (Klare, 2020). A number of studies have established that water reservoirs in South Asia are depleting fast as a result of changing dynamics of climate over the years. It is high time for governments of the region to adopt joint mechanism to fight the menace of climate change in the interest of the region and beyond (Lal et al, 2010). Certain adaptation strategies, for instance, planting improved and weather resilient varieties of crops can sort out impact of climate change to some extent. However, a more comprehensive mitigation and adaptation mechanism for South Asia, covering various dimensions of climate change, will prove beneficial in the long run (Agarwal & Sivakumar, 2011).

Findings

- Climate change is proving to be one of the significant security challenges being faced by the world in 21st century. Abnormal increase in global temperatures, natural disasters and extreme weather events have become order of the day, thereby threatening the very survival of mankind.
- Climate change has generated new challenges for global security, particularly in regions like South Asia where changing weather patterns and unpredictable climatic conditions are poised to generate potential conflicts over natural resources, water and land.
- Climate change is no longer a myth, rather scientific studies have established veracity of the same. The impoverished and densely populated region of South Asia is more vulnerable to the threats emanating from changing weather conditions despite the fact that this region's contribution towards global emissions is not that significant.
- In the context of South Asia and the world at large, the water and food security issues in connection with changing climate have assumed formidable dimensions putting the lives and future of millions at stake. Continued negligence on the part of stakeholders and policy-makers has further aggravated the situation.
- The region of South Asia is already volatile due to ensuing rivalries between India and Pakistan coupled with prolonged instability in Afghanistan and Sri Lanka. Climate change has the potential to exacerbate existing hostilities and add new dimensions to the same.

Conclusion and Recommendations

Climate change is the most significant security challenge of the 21st century having potential to induce armed conflicts, economic and political instabilities, migration, food and water security and plethora of other problems. Environmental concerns like changing climate are regularly featuring on the global political agenda, prompting international cooperation in the mitigation and adaptation strategies to minimize the impact of changing climatic conditions. Various parts of the globe differ in their exposure towards hazards of changing climate. The region of South Asia is far more vulnerable to environmental susceptibilities in the face of huge population, extreme poverty, dwindling agriculture yields, depleting natural resources, long-standing disputes and general ignorance towards severity of the conundrum. A joint mechanism based on regional cooperation and sustainable development can enable the countries of South Asia to devise a prosperous future in response to the effects of climate change. It is high time for governments of South Asia to join hands and devise some viable mechanism to fight emergent threats of climate change as they transcend the boundaries of nation-states, putting the future of current and coming generations at stake. Climate experts have suggested adaptation and mitigation as viable strategy and response but developing countries of the South Asia lack resources, coherent policies and institutional capacity for the same. In the face of magnanimity of the challenge, it is imperative for the research institutions, NGOs, think tanks, private business communities and civil society to collaborate with respective governments to find ways and means to tackle the implications of climate change at local, regional and global level.

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