

Climate Change and Security : South Asia

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[Abstract : One of the biggest challenges to global peace and security in the twenty-first century is climate change. This research article seeks to appraise the security risks that climate change may pose to South Asia, more specifically Bangladesh, India and Pakistan. It looks at the climate change scenario of South Asian countries, particularly Bangladesh, India and Pakistan and analyses through the lenses of two theoretical frameworks: a) human security approach and b) conventional security approach. It claims that the effects of climate change increase the human insecurities of the people of South Asian countries as most of them are dependent on natural resources for their livelihoods. These human insecurities lead them to migrate, most often internally. But there is a possibility of cross-border migration to the neighbouring countries due to climate change, notwithstanding the fact that migration is already there for other reasons – for example, as economic migrants, as refugees and so on. This, in turn may increase border tension between and among the countries. This research also claims that climate change may compound the water sharing issues of transborder rivers of South Asia and may create potential traditional security problems.]

Key Words : Climate Change, traditional security, human security, transborder rivers, population displacement.

Introduction

South Asia is one of the world's most sensitive regions to the effects of global warming and climate change. Climate change related vulnerability of South Asia has long been known. Sea level rise, flooding pose challenges to Bangladesh, India, Pakistan, and Sri Lanka. Increasing temperatures, drought, and glacial melts threaten Afghanistan, Bhutan and Nepal. The world's lowest-lying state, Maldives, is also located in this region. In the near future this state can be submerged due to climate change (Kugelman, 2021). This research is a modest attempt to analyse climate change and security nexus from the experience of South Asian nations - one of the most climate vulnerable nations. In order to doing so, this study, set a research question: "How far and in what ways climate change pose security threats to South Asia?"

This study applies human security and as well as traditional concept of security approach in the context of the effects of climate change in South Asia. It argues that the climate change induces rising global temperature, which then induces sea level rise and increased and intense extreme weather events causing land degradation, landlessness and

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reduced freshwater affecting on agricultural production, infrastructure, employment opportunity, economy, health and so on. It then may lead to population displacement within the country. Increased population in the destination areas may create resource shortages and may create potential conflicts between the migrants and locals. Large number of population displacement may cross national borders, particularly neighbouring countries - causing more traditional security threats. Additionally, the effect of global warming may lead to increased melting glaciers and thus affecting the supply and quality of shared water resources through increased flooding and drought. Demand for fresh water is likely to increase and competition over water resource may induce cross-border tension.

Structure of the paper

Barring introduction and conclusion, the paper is divided into six successive sections. **Section I** entitled 'Literature Review' reviews the literature of *climate change and security* issue within the broader spectrum of environment and security. It also points out the research gap in the existing literature. **Section II** titled 'Methodology' describes the method of information and data collection and how they have been used. **Section III** entitled 'Framework Analysis' provides the theoretical framework for analysis and describes those theoretical perspectives, i.e a) human security b) traditional concept of security. **Section IV** titled 'Climate Change Scenario of South Asia' provides background information related to climate change scenario of South Asia and its overall effects to contextualise the study. **Section V** titled 'Why and How Climate Change is a Security Threat to South Asia' discusses the interrelationship between climate change and security in South Asia. Subsequently, Section VI titled 'Analysis' discusses the impacts of climate change in South Asian countries and analyses those impacts in the light of human security perspective; illustrates how the human insecurities induced by climate change may create conventional security problems for South Asia. It specifically focuses on the possible climate change-induced population displacement across border and its implication for the traditional security concern. It also analyses how the effects of climate change on transboundary rivers of South Asia can create potential traditional security problems. Finally, the paper concludes the study by summarising the findings, answering the research questions and providing limitations of the study.

Section I

Literature Review

The following section will provide a literature review of climate change and security within the broader spectrum of environment and security issue. The study now looks at the arguments made by the scholars on environment and security.

Environment and Security

The academic literatures on environmental change and security are characterised by debates revolving around whether environmental change is a security threat or not. Scholars such as Thomas. F. Homer-Dixon (1991 and 1994), Norman Myers (1993, 1997), Jon Barnett and Neil Adger (2007), Rafael Reuveny (2007) argue that environmental change is a security threat, based on the claim that environmental change can induce violent conflict, can be source of vulnerabilities affecting human security and can be a source of threat multiplier. Other scholars such as Ben Lieberman (2007), Daniel Deudney (1990) offers a divergent perspective. They consider environmental change as

an environmental concern. This dissertation claims that environmental change particularly climate change is a security threat.

During the 1970s, some scholars claimed environmental change was security issue and orthodox security discourse and practices were not able to manage those security risks. Among them, Richard Falk's 'This Endangered Planet: Prospects and Proposal for Human Survival' (1971) and Harold and Margaret Sprout's, 'Towards a Planet Earth' (1971) are prominent (Barnett 2016: 231).

In 1986, Lester Brown talked about the new sources' threats to the national security. To him these new sources of threats emerge from oil depletion, land degradation, deforestation, desertification and climate change. These threats affect the natural system and resources on which the economy depends. Consequently, affecting the national economic and political stability and international economy as well (Brown 1986: 25). He also argued that conventional approaches of military forces are not able to meet the challenges posed by this new form of threats of climate change (Brown 1986: 25).

Some Scholars tried to develop an analytical framework on environmental degradation and conflicts. The most influential research on this issue was done by Thomas Homer-Dixon. His focus was on potential violent conflict over resources. He argues environmental change may cause conflict in a variety of ways (Homer-Dixon 1991: 77). Several environmental changes, either discretely or jointly, may produce four interrelated social effects: reduced agricultural production, economic decline, population displacement and disruption of region and legitimized social relations. These social effects may then create conflicts between countries, and between ethnic groups which have serious security implications for the developed world (Homer-Dixon 1991: 78). He recognised six types of environmental changes as probable causes of violent inter-group conflict (Homer-Dixon 1994: 6). But he concluded that among those changes immediate concerns are scarcities of agricultural land, water, forests and fisheries, whereas climate change would probably not have a major independent effect for several decades on international security issues. To him, climate change may likely to create conflict only in combination with several other political, social and environmental variables such as weak political institution, illegitimate government and ethnic division etc (Homer-Dixon 1994: 39, 40).

Contemporary authors who have considered environmental change as a security issue include Ian Rowlands (1991), Jessica T. Mathews (1989), Robert D. Kaplan (1994) and Norman Myers (1993). Myers (1993) argued that environmental problems can be causes of conflict. It has become a security issue in many parts of the world and will remain at the heart of the security concerns of the world (Myers 1993: 17). He argues that environmental issues may not always trigger outright conflict but it may quicken the process of destabilizing societies in an unstable world. Security concerns are no longer limited to the traditional military security as it includes environmental elements. If a nation's environmental foundations like water, soil, forest, climate are depleted, its economy will decline. Consequently, the society as well as political structure will become destabilized. These concerns should be viewed as equally important to a state's traditional security (Myers 1993: 20-21).

Myers (1997) warned about the growing numbers of displaced people due to drought, land degradation, deforestation and other environmental problems. He claimed that this number would increase if the prediction of global warming take place. Global warming would cause sea level rise, flooding of many coastal communities, loss of agricultural lands and change the pattern of weather events. Consequently, it might create as many as 200 million people to be put at risk of displacement (Myers 1997: 167-168).

Reuveny (2007) argues that if climate change cause severe environmental degradation, it potentially creates several population displacements, especially in least developed countries. This, in turn, may lead to conflict between displaced population and people in the receiving areas (Reuveny 2007: 657). Underdeveloped societies are more vulnerable to environmental problems of climate change, particularly if they are dependent on environment for their livelihood (Reuveny 2007: 658). He argues that climate-change induced population displacement potentially promote conflict in receiving areas but it does not necessarily lead to conflicts. In fact, migration can benefit the receiving areas by increasing the work force and tax-base. Hence, reducing the risks of conflicts. However, at the same time he warns about the risk of conflict (Reuveny 2007: 658-660). To him, in some instances, climate change-induced displacement crosses international borders and plays a role in conflict (Reuveny 2007: 669).

Jon Barnett tried to explain the connections between climate change and security issue in detail. He explained the issue in terms of human security, national security issue and military roles. Also, he discussed about the assumption of climate change may induce conflict (Barnett 2003: 7). According to him climate change is a security for some states and communities. He cited the example of atoll countries - vulnerable to climate change related sea-level rise reduces the possibility of people living in those island areas. In worst case scenario climate change may put their sovereignty at risk (Barnett 2001: 2; Barnett 2003: 7). Also, sea level rise potentially undermines the national security of some states by resulting the loss of territory and possible population displacement (Barnett 2001: 3; Barnett 2003: 9). Such displaced population potentially pose problems for state's legitimacy and internal harmony. Climate change may have other indirect negative effects which may undermine a state's economic and military capability and can increase the inequalities amongst people. For example, negative effects on health because of reduced availability of food and fresh water (Barnett 2001: 4). He warns about the links between climate change and conflict. To him most of the literature regarding this issue are not empirically driven (Barnett 2003: 9). Subsequently Alan Dupont and Graeme Pearman (2006), Christian Webersik (2010) and others made the similar claims.

Adger and Barnett (2007) claim that climate change undermines the human security and it will increase in the future. The effects of climate change decrease the quality of natural resources and limited the access to those resources which are important to sustain livelihood. They also claim that in certain situations these indirect impacts on human security potentially increase the risk of violent conflict (Adger and Barnett 2007: 639).

In 2017, The United Nations Security Council, responsible for world peace and security, adopted resolution 2349, which recognizes the adverse effects of climate change on the stability of the Lake Chad and Sahel region, including water scarcity, drought, desertification, land degradation and food security (United Nations Security Council Resolution 2349, 2017: 7).

Some scholars opposed to link environmental degradation and national security. For example, Daniel Deudney doubted about the relationship between environmental degradation and national security on three grounds – first, it is analytically misleading because traditional focus of security is different from environmental problems or solutions; second, linking environmental degradation with national security may lead to the rise of nationalistic attitude to protect the national environment which can be counterproductive; third, he is doubtful about the environmental degradation can cause interstate war (Deudney 1990: 461-468). Also, he is sceptic about the claim that resource scarcity leads to conflict. He claims that fighting for scarce resources are not rational. Because there exist cheaper solutions to conflict, like finding substitution, trade etc.

(Deudney 1990: 469-470). Berdal and Malone (2000) argue that it is not resource scarcity, but resource abundance determines conflict (Berdal and Malone 2000, cited in Trombetta 2008: 592).

Ben Lieberman, a senior policy analyst at the Thomas A. Roe Institute for Economic Policy Studies at The Heritage Foundation, is sceptic about the climate change-conflict nexus. To him, temperatures have risen and fallen many times in the past. Hence, current climatic changes fall within this historic range of natural variability. He also asserted that over the last few decades' global warming has not been harmful for human beings or the earth. The assessment of the negative of climate change is speculative (Lieberman 2007).

Overall, this literature review reveals that climate change can have direct or indirect negative effects on individuals, states and international security. However, there are limited systematic and comprehensive analyses of implications of climate change to security of South Asia. The aim of this research is to fill this gap by answering the central research question – i.e., how far and in what ways climate change poses security threats to South Asia. From the literature review it can be said that climate change is a security issue as it effects and has the potential to effect world peace and security. Climate change can be security issue in the following ways. Firstly, it can trigger competition over natural resources. Secondly, it effects food, water and health security; third, climate change related natural disaster may induce mass population displacement; and fourth, climate change related population displacement has the potential to increase the risk of social tensions and instability. Hence, climate change has the potential to effect both human and traditional security.

Section II

Methodology

To answer the research question, this paper uses information from both primary and secondary sources. As a primary source, it analyses various national and international official documents and publications related to climate change. Findings collected from various scholarly articles and publications are used as secondary source. Since this paper tries to find a relationship between climate change and security, it requires an analysis of existing data and information regarding climate hazards like droughts, flooding, cyclones, sea level rise etc. and their effects on various sectors such as land loss, crop yields, freshwater availability etc. This information has largely been used from primary sources. It also uses information from the literatures which analysed the link between climate change, insecurity and violent conflict.

Additionally, press reports are being used to get more in-depth information and realities about climate change and security issues. Due to time and resource constraints, this study could not do primary research, i.e., field study, focus group discussions and interviewing, which could allow triangulation method and increase the authenticity and trustworthiness of the study. However, the used methodology is an appropriate one as it used information from both primary and secondary sources.

Section III

Framework Analysis

This research looks at the climate change scenario of South Asia through the lenses of two theoretical frameworks: a) human security approach and b) conventional security approach. The reason behind employing these two theoretical perspectives not to verify

the validity or explanatory value of particular theoretical viewpoint, rather to offer a comprehensive and knowledgeable explanation of empirical processes, utilising several theoretical ideas in a practical manner.

Human Security

In the 1994 Global Human Development Report, the United Nations Development Programme (UNDP) introduced the idea of human security (Barnett 2003: 14; Gomez and Gasper: 2; Persaud 2016: 139). This approach extends the definition of security beyond just protecting a territory to include protecting individuals (Gomez and Gasper: 2).

The 1994 Human Development Report states that ‘human security is not concern with weapons- it is a concern with human life and dignity’ (UNDP 1994: 22). Seven essential dimensions of human security as listed by the report are – economic, health, food, environmental, personal, political and community security (UNDP 1994: 24-25). Later the report also listed seven essential dimensions of human security- economic, health, food, environmental, personal, political and community security (UNDP 1994: 24-25).

Simply, the human security approach moved the referent object of the conventional security approach from the state and its borders to the individual. While the human security approach places emphasis on protecting individuals from a wide range of threats that affect their well-being and security through a broad spectrum of measures and policies, the traditional notion of security centres on the protection of the state and its borders through military means (UNDP, NHDR 2006:1).

Traditional Concept of Security

Traditional approaches of security put stress on the territorial protection and core values of states against any kind of foreign imposition (Booth 2005: 23; Miller 2001: 17). In international relations this approach has been dominated by realist paradigm. Realism considers state as unitary actor. International system is anarchic in the absence of any world government. Hence states must rely on self-help for their defences and must build their own military capacities by their own efforts ((Glaser 2013: 14-15; Sheehan 2013: 150; Miller 2001: 17).

A state conventionally has been the referent object - the thing to be secured through military might. Realism envisages states as rational actors – i.e., they take decisions to maximise their interests and minimise their losses. (Collins 2013: 2; Glaser 2013: 14-15). Hence, within the realist paradigm, the core value of conventional security entails preservation of sovereignty, national independence and maintaining territorial integrity (Miller 2001: 17).

Section IV

Climate Change Scenario of South Asia

South Asia is one of the vulnerable regions due to the impact of climate change. Bangladesh, Pakistan and Nepal ranked among the 10 countries most affected by climate change from 2000 to 2019 according to 2021 Global Climate Risk Index. The same index ranked India and Islamic Republic of Afghanistan among the 10 most affected countries in 2019. South Asia is particularly sensitive to the effects of climate change due to its geographic location, high rates of poverty, and dense population. Increasing population means increasing demands for resources. About 600 million people living on less than \$1.25 per person per day in the United States. Hence, even slight changes in the

environment have the potential to create irreversible losses and push a sizable portion of the population into poverty (World Bank 2009, p 4).

Natural disasters are common occurrence in this region. Nearly 750 million people have been affected by the at least one natural disasters during 1989- 2009 (World Bank 2009, p 4). South Asia shares common geological structures and river basins. Hence, natural disasters often transcend national boundaries. The frequency and incidence of such natural disasters will increase due to the effects of climate change. Besides, the region is heavily reliant on the monsoon. This significant climate event bears more than 70% of South Asia's yearly precipitation – lasts only four-month period. A proper monsoon means harvests and economic security. But insufficient and excessive monsoons mean widespread economic losses and sufferings (World Bank 2009, p 4). The increased glacier melting due to the global warming in the Himalayas might pose the significant challenges to the region. For South Asia, Himalayas are essential source of life – 1.5 billion people those live directly in the floodplains of its many rivers for example, Indus, Ganges, Brahmaputra, and Meghna are dependent on the Himalayan ecosystem (The World Bank 2009, p 4).

Major rivers, for example, the Ganges, Indus and Brahmaputra are highly vulnerable to glacier melt and snowfall reductions (World Bank 2013, cited in World Bank 2018:26). These three rivers are the sources of water for about 750 million people (World Bank 2018: 26; Nepal and Shrestha 2015: 201). It indicates climate change will pose a significant threat to these populations by glacier melt induced flood and reduced fresh water availability during the crop growing season (World Bank 2018: 26).

The Ganges, the Brahmaputra, and the Meghna rivers and their tributaries, collectively known as the GBM basin flow across five countries – China, India, Bangladesh, Nepal and Bhutan (Baten and Titumir 2016: 14). Both the Ganges and the Brahmaputra rivers originate from the Himalayan Mountain range. The Ganges originates from Gangotri glacier in the Himalaya (Tanzeema and Faisal 2001: 13; Whitehead et.al 2015: 1059; Nepal and Shrestha 2015: 202) and the Brahmaputra River originates on the northern slope of the Himalayas in China, where it is known as Yalung Zangbo (Whitehead et.al 2015: 1059; Nepal and Shrestha 2015: 205). The distributaries of the Meghna originate in the mountains of eastern India (Whitehead et.al 2015: 1059).

Asian rivers are more vulnerable to the effects of climate change. For instance, increased glacier melting due to increased global warming will increase the flow of waters in the Ganges River for a short-term period. Consequently, it may cause severe floods. In the long run, the water flows potentially decrease by up to two-thirds. Thus, it will create severe scarcity of water (Sharma and Sharma 2008, cited in Baten and Titumir 2016: 16). Cruz et al. (2007) state that snow and glacial melt are significant hydrologic processes in the sources of these GBM rivers (Cruz et al. 2007, cited in Baten and Titumir 2016: 15). The impacts of climate change are likely to expedite the process of glacial melting - causing changes in the hydrological characteristics of these rivers (Baten and Titumir 2016: 16; Islam et al. 2017: 129).

The extent of South Asia's climate crisis is enormous. Since pre-industrial times, average temperatures have increased by 1 °C, resulting in an increase in intense heatwaves across Pakistan and India. Even with worldwide emission reductions, the region may warm by an extra 3–4 degrees Celsius by 2100. Severe cyclones like Fani, which hit Bangladesh and eastern India in 2019, are becoming more frequent. The fast retreat of the Himalayan glaciers is endangering the availability of fresh water. Changes in monsoon patterns could result in a 10-15% decrease in crop yields by 2050.

The lives and livelihoods of South Asia's 1.9 billion inhabitants and the region's delicate ecosystems are threatened by these changes. According to the World Bank South Asia Climate Roadmap 2021-25, about 800 million people in this region may witness sharp decline in their living conditions due to climate change. Millions will experience starvation and displacement due to crops lose/failure and sea level rise resulting swallowing coastal communities (Jha 2023).

The Ministry of Earth Sciences of India conducted research in 2020 which predicted that India will get dryer and hotter in the upcoming decades, with average temperatures rising by over 4 degrees Celsius by the end of the century. The IPCC report comes to similar conclusions. There is also prediction of longer monsoons, warmer temperature in the Indian Ocean, and sea level rises of about one foot in the coming decades (Kugelman, 2021).

Section V

Why and How Climate Change is a Security Threat to South Asia

Water Shortages

The climate vulnerability of South Asia may pose a security risk. Major River basins in South Asia are transboundary. For instance, Indus- shared amongst Tibet, India and Pakistan; Kabul River is shared between Afghanistan and Pakistan; Ganges between India and Bangladesh; Brahmaputra is shared among Tibet, India and Bangladesh (GMACC, 2016).

South Asian rivers are already prone to significant regional and seasonal fluctuations. Hence, there is possibility that tension/ conflict may arise between upper, mid- and lower-riparian states. The climate change effects the water supply to the population. Sometimes this prompts people to depend more on ground water concentrated with higher arsenic. For example, Bangladesh (GMACC 2016: pp 9-10). Tensions over shared rivers between China, Pakistan, and India are more likely to increase with worsening water shortages due to climate change. Pakistan's primary source of surface water comes from the Indus River, that flows downstream from Indian-administered Kashmir. The effects of climate change may sharpen the grievances of Baloch insurgents in Pakistan and Naxalite insurgents in India. Both insurgent groups blame their respective governments of seizing water and other valuable resources (Kugelman, 2021).

Population Displacement

According to IPCC's sixth assessment report, by 2050 in South Asia, climate change-induced internal migrants who migrate due to climate change and its associated effects such as water scarcity, crop failure, sea level rise and storm surges will be forty million and that is 1.8% of regional population. There are methodological debates about this projected migration estimation. But it is certain that some countries will be more affected than others. Sea level rise may displace 0.9-2.1 million people in southern part of Bangladesh by direct inundation by 2050 [Jevrejeva et al., 2016; Davis et al., 2018, cited in Shaw et al., 2022]

South Asia's migration hotspots include the Gangetic Plain and the Delhi-Lahore corridor, and coastal cities such as Chennai, Chittagong, Mumbai. These areas will be experiencing the effects of climate change, major migratory hotspots and increased rural-urban migration (Ober, 2010 cited in Shaw et al., 2022). However, there is disagreement on projected number. Because, there is doubts around how local policies and individual behaviours will influence migration decisions (Shaw et al., 2022: p. 1469).

However, the most powerful catalyst for instability could be climate change induced migration. A 2018 World Bank report predicts that by 2050, there would be about 40 million climate migrants in South Asia, with more than 13 million of them Bangladesh alone, if there are no climate-friendly public policies. The report also predicts that there will be close to 20 million climate change induced migrants even with climate- friendly policies. In addition, the migration from rural to urban areas may result in resource shortages in urban areas. This has the potential to increase the danger of radicalization among those who lack access to basic necessities (Kugelman, 2021).

Climate refugees are becoming a growing phenomenon due to individuals being uprooted or displaced by natural disasters linked to climate change. According to UN estimates, there may be 200 million climate migrants in the world by 2050; some projections put the figure as high as 1 billion. India already manages up to 1.5 million internally displaced people every year. India and other South Asian countries need to increase their capability to address the climate change induced displacement as extreme weather events becomes more regular in this region (Siyech 2019).

Growing number of climate refugees may poses security challenges. For instance, if a state is not adequately equipped with to deal and to take care for a large refugee population, domestic resentment towards refugee population can intensify intercommunal violence. Climate refugee may worsen the scenario. But further research is required to find the linkage between climate change, migration and conflict (Siyech 2019).

Pakistan is likely to experience widespread population displacement due to climate change. Climate change-related weather events including floods, droughts, changing rainfall pattern affect the agricultural productivity in Pakistan and consequent increase of rural-urban migration. According to a report of 2016, 50 percent of Pakistan's rapidly growing population could be pushed to urban areas in the next 10-15 years, and nearly 70% by the end of the century. These facts raise serious concerns as Pakistan's urban centers lack the institutional capacity to deal with the climate change induced challenges. In terms of air quality, hardly a single city in Pakistan stands up to the guidelines set by the World Health Organisation. Karachi is currently one of the tops least 10 livable cities in the world. There will likely be soon water crisis in Lahore. People have low living standards even in Islamabad, the federal capital of Pakistan (Khan 2019).

Resource Scarcity

Rural population who are dependent of agriculture may witness decline in their financial income due to the long-term effects of climate change-related natural disasters, such as drought, soil infertility. This is particularly relevant for India and Bangladesh, where majority of the population live in rural areas. Climate change may exacerbate local grievances by threatening rural communities and their livelihoods. In turn. It may contribute to insurgent group recruitment. For example, the Naxalites is an insurgent movement mainly based in rural areas of India. They usually have benefited from the increased support from people affected by agricultural hardship. Climate change related resource scarcity may also intensify resource -related conflicts between the insurgent/ rebel groups and local population and the governments. For instance, the Naxals killed 500–1000 farmers in 2004 to guarantee food security for their own cadres during a severe drought that hit Bastar and Dantewada (Siyech 2019).

Pakistan's national security is also threatened because climate change may exacerbate conflicts over limited resources. Conflict is more likely to occur and threatens to reverse Pakistan's gains in the fight against terrorism due to tensions between

provinces over resource allocation, ethnic group disparities, population displacement, uneven and disordered urbanisation, food insecurity, and poverty (Khan 2019).

Climate change puts food security at risk. Even though Pakistan's agriculture is especially susceptible to climate change, the industry nevertheless employs over 45% of the country's workforce and generates 21% of its GDP. The most widely used farming methods in the nation are old-fashioned, incredibly inefficient, use the majority of freshwater resources. Furthermore, extreme weather events such as floods, droughts and changes in rainfall pattern decrease the agricultural productivity, resulting in food insecurity. Among the main reasons of the Syrian civil war were food insecurity and increases in migration to urban areas. However, Pakistani policy circles still do not view climate change from a national security standpoint (Khan 2019).

It is difficult to establish the connection between climate change and conflicts. Bangladesh is among the countries most vulnerable to the effects of climate change. It ranked seventh among the most severely affected countries due to the effects of climate change. Several non-traditional security areas like food, water, health and migration have already been affected by climate change in Bangladesh. These effects/ impacts may raise security concern in Bangladesh by a number of interrelated issues like poverty, resource scarcity, ethnic conflicts, malnutrition (Rafee 2019).

In Bangladesh, about 40% of its labour force engaged in the agricultural sector, generating 13% of nation's Gross Domestic Product (GDP). Due to climate change-related increased, severe and frequent natural disasters Bangladesh is vulnerable to food grain shortages. Over 560,000 hectares of Bangladesh's land were either completely destroyed or severely damaged by flash flooding in 2017. In Bangladesh, nearly 40 million people are considered being food insecure despite improvement in food production. Additionally, rising sea levels have led to an increase in groundwater salinity, which has contaminated and reduced access to water (Rafee 2019).

Section VI

Analysis

Overall, the effects of climate change have already posed threats to some aspects of human security of South Asian countries. There is no doubt about how climate change affects human security. They have the power to destroy infrastructure, the food chain, economic output, and, in the worst case, human lives (Webersik 2010: 17). It is clear that different regions of the world are affected differently by climate change in terms of human security as discussed in Barnett and Adger (2007). This is because climate change related vulnerabilities depend on certain factors. Simply, people who depend more on climate-sensitive natural capitals are more vulnerable to the negative impacts of climate change (Webersik 2010: 17, 21; Barnett and Adger 2007: 641).

However, climate change does not pose challenges to human security in isolation. Number of socio-economic factors like poverty, government's policy, people's access to economic opportunities, the degree of social cohesion, etc. effect different dimensions of human security. These factors determine a person's entitlement to economic and social capitals as well as their capability to adapt climate change effects (Barnett and Adger 2007: 641). The IPCC fifth assessment report confirms this statement that environmental impacts of climate change will be more severe in poor and low-income countries (IPCC 2014: 1-32). Their vulnerability stems from their demographics, economic structure, and geographic location, as well as their inability to adapt to climate change (Webersik 2010: 22).

Analysing the case of South Asia from these perspectives, as mentioned earlier South Asia is a densely populated region and most of the people depend on agriculture for their livelihood. Most of the land is used for agricultural purposes. Hence, climate change has increased South Asian countries' vulnerabilities by shrinking their agricultural land or making their land less fertile, which has an impact on every aspect of human security. Droughts, flooding, cyclones, and sea level rise have all damaged or have the potential to ruin crops, agricultural lands, and people's jobs. As a result, they cause livelihood stress, which in turn causes migration. In many situations, migration has put their lives in danger and has not offered them a high-quality existence.

The possible and ongoing climate change-induced population displacement in South Asia has the potential to pose traditional and transnational security risks. In the line of the argument made by Reuvney (2007) that migration may induce tension if environmental migrants and the inhabitants of destination areas belong to different ethnic groups. Local people may feel threatened and receiving states may fear separatism and local peoples' responses can be aggressive (Reuvney 2007: 659).

The effects of climate change are likely to induce more cross-border population displacement from South Asia in the future. If any of the south Asian countries follows the same traditional security policies, it may increase border clash between the countries. Therefore, climate change will pose threats to the state security as well. It should be remembered that there exists no international convention for the protection of climate refugees. The existing international convention for the protection of refugees does not cover this type of refugees either. Consequently, in the absence of an appropriate legal framework, it will be difficult to differentiate between the climate refugees and illegal migrants. Hence, there is a possibility of existing traditional security risks may worsen with the impact of climate change.

Although climate change has the potential to pose traditional security threats to South Asian states, the conventional military approach can not address the risks. It requires cooperation between and amongst the states to limit the greenhouse gas emissions and a binding international legal framework accepted by all states.

Overall, the potential climate change-induced population displacement amongst the South Asian countries may pose threats to traditional security of this region in future by exacerbating existing traditional security risks.

If the glaciers continue to melt with the rising temperature, there is a possibility of temporary increase in the flow of fresh water. In some cases, it may cause floods and soon it will decrease and create fresh water shortage in the GBM basin. Being also vulnerable to climate change and dependent on this basin, the upper riparian states may try to use water of these rivers for their own purposes. Analysing the past history, it has become clear that India has already used and diverted the water from these rivers. In certain instances, Bangladesh did not get her equitable share of these transboundary rivers causing human insecurities.

Following the realist tradition, India has acted as rational actor – taking the decision unilaterally to protect and maximise its interests. The effect of climate change may worsen the scenario in future. From the view of traditional security perspective, there is a possibility that India will try to protect her national interest, which will then create a risk to human security of Bangladesh. There are no instances of conflict between the two countries regarding the water sharing of these transboundary rivers. Past tensions were resolved by agreements. However, the future conflict due to fresh water scarcity, caused by climate change, should not be ruled out between the two states. Hence posing traditional security risks to Bangladesh.

Similar to climate change-induced cross-border population displacement, traditional security risks from climate change-induced water scarcity cannot be addressed by traditional military security. They also require cooperation amongst the states to have an effective and binding international convention to reduce the greenhouse gases and accepted by all states.

Conclusion

The overall findings of this research suggest that climate change has posed and has the potential of posing threats to the security of South Asia directly or indirectly both to the human security and traditional security. The analysis indicates that climate change increasingly leads to various dimensions of human insecurities in South Asia by reducing and losing cultivable lands, affecting on economic livelihoods, damaging homes of many South Asians causing permanent or temporary population displacement, in most cases, living in a degraded situation. In relation to traditional security concern, the findings of this research indicate that possible cross-border climate change-induced population displacement in South Asia have the potential to become traditional security risks. Additionally, the absence of an international legal framework for the protection of climate refugees is an added concern.

The possible resource scarcity induced by climate change, particularly water of the shared rivers may pose traditional security risks to South Asian nations. South Asian countries like Bangladesh and India are heavily reliant on these shared rivers. The growing demand of South Asian countries and reduced amount of freshwater due to climate change may bring them into conflict in future. Countries in this region have tried to address the water sharing disputes by agreements and negotiations. Despite being one of the least emitters of greenhouse gases, the effects of climate change have caused and have the potential to cause serious threats to the individual security and state security of South Asian countries. These climate change-induced insecurities cannot be solved by traditional military security. They require an effective international cooperation among all countries.

As for the limitations of this paper, it could not to do primary research due to time and other resource constraints which could increase the validity of the study. However, the methodology the study used both primary and secondary sources. Despite these limitations, the findings of this comprehensive study may contribute to the scholars, working in relation to climate change and security. In the policy level, the findings hopefully can encourage both national and international policy makers more environment friendly policies, particularly in reducing emissions of greenhouse gases and advocating for an international convention for the protection of climate change-induced displaced people.

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