



RESEARCH PAPER

Exploring the Nexus Between Resource-Scarcity and Violent Conflict in Pakistan

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ABSTRACT

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The quintessential consideration of the resource-scarcity and violent conflict relationship is crucial as the increasing scarcity of the natural resources globally is expected to result into a fierce competition among the states and may escalate into violent conflicts. This paper underscores the significant factors contributing to the intra-state violent conflicts in Pakistan based on the global environmental flashpoints and uses the qualitative methodology to explore the issues of structural scarcity and ecological marginalization in Pakistan. Furthermore, the document analysis technique has been used to review the literature on environmentally-induced conflicts and to evaluate the tendency of escalation of inter-state conflicts between Pakistan and India. The paper also explores the 'water wars rationale' by evaluating the water discourse in Pakistan and India and maintains that the issue of water scarcity in both states has the tendency to escalate into a "water war" that would be first of its kind and will have serious consequences for the regional and international peace.

Introduction

Studies have revealed that the environmental degradation in addition to other factors including the scarcity of natural resources like water, contribute to erupting environmentally induced conflicts and may escalate into violence (Akhtar, 2010). Evan Vlachos views the water conflicts as "...a part of a continuum that begins from concerns exemplifying generalized unrest and general debates about water systems; over confrontations reflecting noticeable controversies, cleavages in public opinion and attitudes; to conflicts representing extreme confrontations, clearly defined parties-at-interest, and noticeable constellations of stakeholders; to finally crises involving open defiance of civil authority, protests, counter-movements, resistance to proposed water structures, even violence and social upheavals." (Vlachos, 2004).

There is limited research work that projects the temperature and precipitation extremes resulting from the increasing emissions of CO₂ yet the evidence of the rise of the temperature levels and precipitation due to the climate change can be found in

studies like Lonergan (1998). Climate change and the associated catastrophic occurrences would have the biggest influence on those segments in society that are most vulnerable to external stresses – the disenfranchised and underprivileged, who exist in all countries (Halle, 1997). In addition to living in ecologically vulnerable places, people are particularly vulnerable to environmental changes like climate change. The biophysical, socioeconomic, and political consequences of climate change, as well as the currently being proposed response measures, must be addressed considering the relationship between poverty and the environment. While linking the environmental issues with security, emerging scholarship expands the security calculus by inclusion of human security dimension to it. For instance, Aslam, Gul, and Asghar (2021) have attributed the environmental degradation as an unprecedented threat to human security in Pakistan.

Environmental Flashpoints

In November 1997, a conference was organized by Director of Central Intelligence (DCI) Environmental Center where the participants developed a consensus that environmental degradation has capacity to cause, trigger and amplify the instability and conflicts. During the conference proceedings, the participants were asked to come up with the key environmental issues in their respective regions that have the potential to affect the political stability. The results have been summarized in Table 1.

Table 1
Environmental Flashpoints

Region	Issue	Time Frame
China and East Asia	Flood control: Three Gorges Dam.	current and outyears
	Food security problem (decreased agricultural production)	10 years
Southeast Asia	Water scarcity: Mekong dams	5 -10 years +
	Logging, deforestation	current and outyears
	Regional air pollution	current and outyears
South Asia	India -Pakistan: accelerated nuclear energy production and waste disposal	current and outyears
	India: large-scale energy development projects	current and outyears
	India: food security	10 years
North Africa/ Middle East	Nile water diversion	current and outyears
	Gaza water quality and quantity	1 -2 years
	Tigris/Euphrates watershed	3 -5 years
Sub-Saharan Africa	Kenya: competition for arable land	current and outyears
	Okavango River basin: water	1 -3 years

Sub-Saharan Africa	diversion and withdrawal (Namibia)	
	Sudano-Sahelian and Horn of Africa regions: food security	current and outyears (drought years)
Europe	Nuclear plant accident (more than 60 Russian-designed plants in central and eastern Europe)	open
	Radioactive wastes	current and outyears
Former Soviet Union	Declining seas: Black, Caspian, Aral	current and outyears
	Cessation of methyl bromide fumigation (agricultural imports)	by 2001
Latin America/ Caribbean	Completion of last 60 miles of Pan American Highway at Darien Gap	10 years
	Biodiversity loss	current and outyears

Source Halle (1997)

Factors Contributing to the Violent Conflicts

The following table is based on the works of Homer-Dixon (1994) and Bächler and Spillmann (1996) and shows the various factors contributing to the violent conflicts.

Table 2
Factors Contributing to the Violent Conflicts

Contributing Factor	Relationship with Intrastate Violent Conflict	Relationship with Interstate Violent Conflict	Strength of Relationship
Political System	Probability of violence varies inversely with the degree of democratization.	Stable democracies are unlikely to escalate violent conflict with one another.	Strong
Geographical Contiguity		Neighboring states are more likely to escalate conflict than non-neighboring states.	Weak
Ethnic Fragmentation	Probability of violence increases with the degree of ethnic fragmentation.	Ethnic linkages across borders increases the probability of conflict diffusion.	Strong
Population Density	Probability of violence increases with the population density.		Strong
Power Status		If there is a substantial difference in power	Medium

		status, the probability of violence increases.	
Previous Conflict	Violent conflict in the previous two years increases the prob. of violence.	Violent conflict in the previous two years increases the prob. of violence.	Strong
Human Development	Probability of violence varies inversely with the level of development.		Strong
Resource Scarcity	Probability of violence increases with increased levels of resource scarcity.	Probability of violence increases with increased levels of resource scarcity.	Weak
Natural Disasters	Unknown		

Source Bächler and Spillmann (1996) and

Environmental Degradation and Violent Conflict in Pakistan

In Pakistan, scarcity of natural resources and environmental degradation is not the only cause of violent conflict rather it works with other variables triggering the issue. These variables include absence of the role of the state in adaptation to the environmental changes, addressing the issue by generating the policies and stabilizing the social equality. Marginalization, ever growing economic issues and instability of state-institutions provoke deprivation conflicts on community, ethnicity and class bases resulting in intrastate violence. The ecological atrophy in Pakistan serves to increase struggle and conflict over scarce resources resulting in intensification of grievances. The state's inability to address these grievances is aggravating urban violence. The ever-growing environmental scarcities in Pakistan have been demand induced, supply induced and structural. Intercession of rapid growth in population with declining quality of the renewable resources stimulates the process of resource capture by elite (Homer-Dixon, 1994).

Increasing Scarcity and the Lack of Accountability

The ecologically marginalized groups suffer in this context due to lack of accountability and planning on state's part. The lack of accountability and liability of high-profile officials and their proponents has been causing great exploitation of resources in Pakistan as shown in the figure 1.

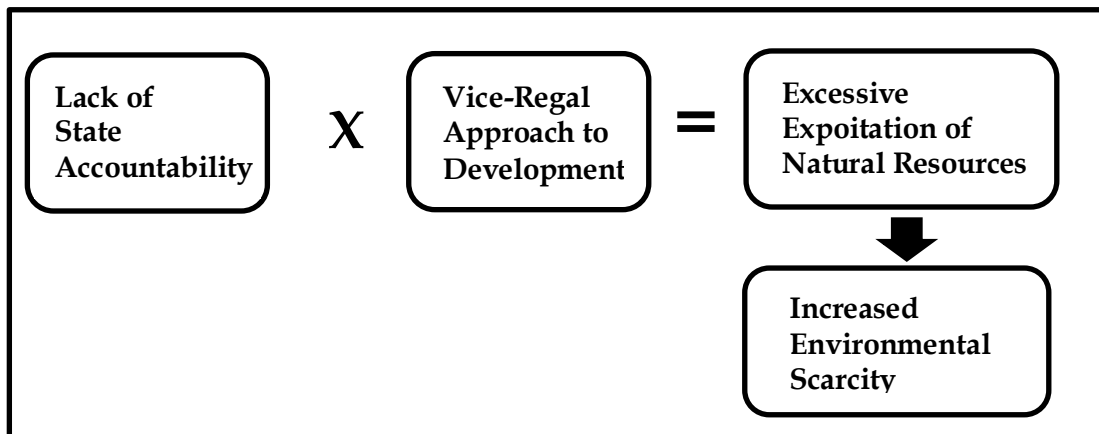


Figure 1. Cause of Increased Environmental Scarcity in Pakistan

The British Empire created the vice-regal system in its colonies in order to practice maximum resource exploitation accessing utmost profit from the “hinterland”. Resource sustainability and welfare of the native population was never the focal point under this system. The vice-regal system and the resource base transgression practiced under it remained intact even after the independence of Pakistan. The colonial beneficiaries have been replaced by nation’s high-profile officials and elites while commoners have constantly remained deprived. While planning national development strategies, the techniques to yield long-term benefits were completely overlooked and the outdated agricultural practices helped only in meeting short-term needs (Mumtaz & Habib, 1989).

Industrial development only fructified low-cost, cheap productions increasing pollution and threatening the environmental serenity. The infrastructural mega projects like dams and reservoirs have incorporated less in national development and more in grievances of local communities (Iob, 1994). Over the period of time, the inequity in wealth distribution through vice-regal developments and unaccountability of the elite have resulted into resource scarcities.

The supply-induced scarcity processed from resource exploitation in the name of developmental projects that drained the renewable resources such as water, agricultural land and forests privileging only the elite. While the supply-induced scarcities resulted from lack of strategical planning and investment in social welfare and human resource development. Along with depletion of resources, Pakistan witnessed a rapid growth in population that is impoverished, illiterate and devoid of basic resources.

Structural Scarcity

In Pakistan, the disparities of resources among all the provinces have always been a matter of fact. The provinces of Punjab and Sindh are most populated of all the provinces. With better irrigation channels, best agricultural lands and progressive industrial capacity these two provinces surpass structural resources of KPK and Baluchistan. Distributional inequalities have also been witnessed on class, ethnicity and race levels throughout the country.

The institutional system of Pakistan has only helped to aggravate the social inequality. Although the elite and middle class makes a very little part of the nation's population, yet they utilize an immensely large share of natural resources and other privileges. They lead a comfortable lifestyle with an access to more resources and services even in crisis areas of Pakistan, while the impoverished class is left deprived (Hasan, 1993). The wealthiest class that makes 25 percent of the urban population benefits from almost two-thirds of housing and services. Moreover, large landowners in rural areas enjoy supremacy and are the main agriculture beneficiaries. Government policies have only been aiding in strengthening their supremacy. For example, "green revolution" introduced techniques to spur the agricultural yield, but that only served large landowners (those with over 40 hectares), while smaller farmers were left deprived. The land reforms by government have always resulted in favoring the privileged class. The legislation of 1959 and 1972 inflicted restrictions on individual land ownership which affected the small landowners while large landowners maintained their dominance (Baxter, 1997). The survey records show that poor agricultural household has decreased from 11% to 10% between the years 1972 and 1980, while the share of the large landowners increased from 55% to 57%. The distribution of rural income also witnessed the same statistical changes. A report generated by the Pakistan Administrative Staff College, states that Pakistan is "a predatory and factional country. Economic policy and management . . . are often designed to serve the interests of the elite, who are engaged in obtaining advantages for themselves." (James & Roy, 1992).

Resource Capture

The Green Revolution

In early 1960s a revolutionary plan to increase the agricultural yield was launched under the title of "Green Revolution" in Pakistan. The aim behind this program was to introduce such agricultural techniques that could help increase production in order to fulfill the demands of an ever-growing population. Green revolution established better irrigation ways, use of fertilizers along with high-yield hybrid grains. These stratagems resulted in a better output with a progressive agricultural performance. However, it only served to surplus the owners of larger agricultural lands. They were not only capable of using the technologies efficiently but also generated larger revenues enabling them to increase their cultivations by buying more land. Eventually, the farmers with mediocre (3 to 10 hectares) and smaller land holdings were left landless. Consequently, the tenant farming was also affected badly as the emerging technologies made large landowners independent of the occupant farmers. The unfortunate consequences transposed medium farm holders to smaller farms and the latter to landlessness.

Therefore, the inadequate attempt of the state to overcome yield shortage and deal the scarcities endorsed dominance of rural elite and resource capture. The resulted landlessness among common peasants compelled them to migrate to other areas in search of employments.

The Timber Mafia

A similar case of despotism had been witnessed in the forests of Pakistan. Besides the issue of deforestation, the state has forsaken the efforts to implement

property right legislations. As a result, the mighty urban and rural mafias have illegally occupied many of the government lands. A report by the Pakistan Administrative Staff College in Lahore used the term “timber mafia” for the group of people exploiting the forests for their commercial interests. The influence of these mafias increased in the late 1970s and early 1980s which further manifested the control of tribal chiefs over native people both socially and politically. The infrastructural development near the forest areas brought ease to the commercial cutting of timber forests resulting in immense deforestation. The surroundings of district Chitral in KPK have been experiencing a gross suffering in the hands of timber mafia where cutting and smuggling of these trees have become a forsaken rife. Sustained overharvesting of timber and exploitation conspiracies has been compelling the local Kalush people to migrate. The residents of Malakand and Hazara are also the victim of a consubstantial grievance.

Land Mafia and the Tanker Mafia

Meanwhile, the practice of land seizure has been directly proportionating to the general advancement in the land value. In larger cities, for instance Karachi, exceeding population and increasing commercial and industrial projects have resulted in a boost in land value. Although, more than four-fifths of land in the city is owned by public, yet unaccountability and corruption has enabled land mafias to appropriate them. Inequality and corruption in distribution of other necessary services is also widely prevailing. Karachi, for instance, is suffering under the villainy of “water mafia”. The illegally obtained water is sold for profit, and the inhabitants have no choice but to pay heavily for it.

Ecological Marginalization

Degradation of environment in Pakistan, coexisting with scarcity of resources has been commencing resource capture by elites eventually resulting in higher rates of ecological marginalization as shown in the figure 2.

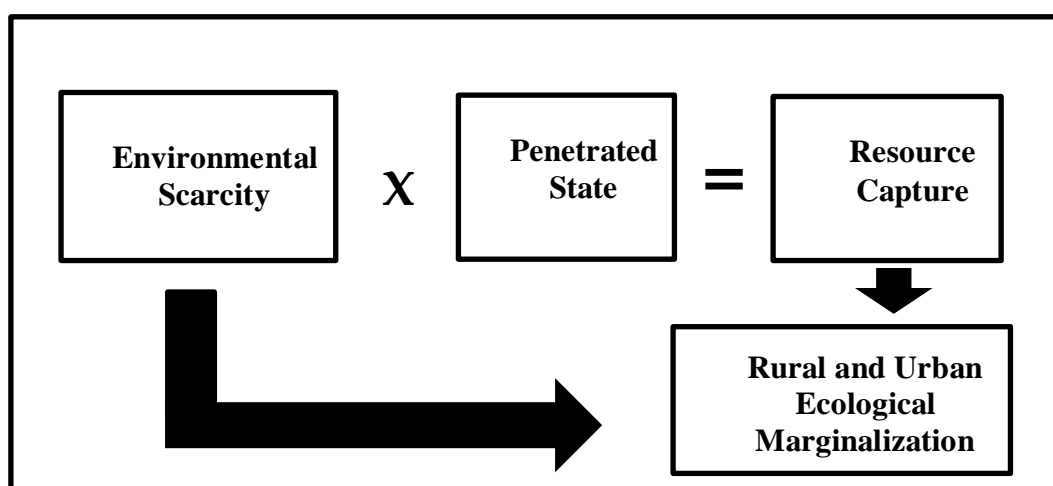


Figure 2. Resource Capture and Ecological Marginalization

Meanwhile, in Pakistan extortion, corruption, unaccountability and sustained scarcities of the renewable resources like forests, land and water results in inflated prices inducing resource capture by elite class. Country’s corrupt political system

paves path for this resource capture by the elites helping them to maintain preferential access and power to exploit it. Favoritism, bribery, buy offs and nepotism allows high profile individuals and their acquaintances to appropriate state properties such as lands and forest and other renewable resources. These practices cause misery and grievance for the commoners who face inability to access the basic facilities and resources.

Exploitation of resources for profit by the elite increase dependency upon leftover stocks which in turn are rapidly consumed and exhausted. Therefore, the impoverished and deprived lot migrate to the urban areas of Pakistan in search of better livelihood. The ecologically marginalized migrants usually settle in densely populated, least facilitated areas which are devoid of basic services such as transportation and water.

Environmental Scarcities, Population Growth and Violent Conflict

The Conflict in Rural Areas

It can be noted that in many rural areas environmental degradation and pressures generated by it is already producing conflict causing grievances. The deprived population has adopted unfair means to attain their rightful facilities. Such a case of violent conflict is the organized banditry in Pakistan that has noticeably increased in 1980s. In rural Sindh, the bandits are mostly the small farmers who migrated from northern regions in search of livelihoods after suffering from deprivations due to a number of unaddressed economic issues (Tariq, 1983).

Lamb (1991) stated that "a combination of the feudal system, unemployment and the difficulty of eking a living from the unforgiving land through which salinity is creeping like a white plague, rendering thousands more acres uncultivable each year." These rural bandits justify their activities as an insurgency and revolt against the unfair resource capture and environmental exploitation by the established elites. Hence this is one serious form of violence caused by supply, demand and structural scarcities. While in KPK the more obvious conflict is between haves and have-nots, due to marginalization and unchecked exploitation caused by the activities of timber mafia.

The Conflict in Urban Areas

The civil strife witnessed nowadays in Pakistan is the subversive form of urban violence. Rapid growth of population and inundating rural-urban migrations have brought different ethnicities, cultures and groups into contact. Along with this, the incapability of limited urban resources to meet ever growing needs is causing social unrest and conflicts on ethnic and class grounds.

Karachi is the main abode of such issues. The major part of city's business and industry is being ruled by Muhajirs. Yet Punjabí's and Pushtun's are becoming a constant challenge for them in economic race. Pushtun's are the major working class in the city and they have attained a monopoly over the transportation sector. In the meantime, Sindhi minority has maintained its political dominance in provincial government. The competition between different ethnic groups to attain and maintain a dominant social status provoke rivalries. Karachi has a high urban growth rate-

about three to four hundred thousand persons per year - due to growing population along with the growing number of rural-urban migrants. Local government's inefficiencies supplemented by corruption, weak institutions and unaccountability makes the problems severe and result in a rise in violent conflicts. Lack of basic facilities and services in less-privileged urban areas also aggravates violence. Demonstrating against and attacking on the offices of Karachi Electric Supply Corporation and the Karachi Water and Sewage Board have become commonplace. It can be established therefore, that a degrading urban environment dealing with scarcities and institutional inefficacy can frequently establish scenarios for ethnicity and class based rivalries and violent conflicts.

Environmentally Induced Conflicts and Warfare

States inability to deal with environmental scarcities and other prevailing issues has triggered violence. This violence is usually inflamed by long prevailing rivalries in the society on ethnicity, community, and class basis. Thus, resource scarcities are escalating grievances which eventually results in violent conflict. Although the studies have not provided much evidence for environmentally-induced wars, yet the environment as a potential source of armed conflict cannot be ignored. Gleick (1990) termed environment as a potential "strategic tool". For example, during the Gulf War the irrigational system of the Persian Gulf was destroyed because of the oil discharge and that resulted into the Somalian conflicts. The history thus maintains that the environmental factors contribute in triggering the conflicts and act as the "auxiliary catalyst". The Available literature regarding disputes between the riparian states reveals that water can be a source of conflict between states that conflict can be of any level, i.e., it can lead to a hostile situation between states. The continuous change in climate will lead to scarcity of water resources, ultimately leading to the water wars, or potential conflict between states on water distribution as indicated by number of hydrologists and the experts on water resources. Violent water disputes are indication of "resource war" or an issue which is related to management. Aaron Wolf, an expert of Oregon State University, in his research which covered 124 states and 122 of the world's 265 international river basins, linked water scarcity with violent conflict which can shake international peace and stability (Boesen & Munk Ravnborg, 2004).

The "Trans boundary Freshwater Dispute Database (TFDD)" provides a complete well briefed data of events related to water during the time period of 1948-2005, covering 6,400 cases related to water disputes (A. Wolf, 2001). The data gives an approaching relation between international disputes and cooperation, linked to the water resources. A. T. Wolf and Hamner (2000) maintain that at international level violent disputes are hardly ever caused by or gave attention to water resources.

The international political institutes which are dealing with the water resources either formal or informal lead to increased scarcity without resorting to war to secure water supplies throughout the history, rather than cooperation between different states by using multidimensional ways (Michel & Pandya, 2009).

India-Pakistan Water Dispute

Water has always been a major fault line between India and Pakistan since partition of British India in 1947 which divided the Indus Basin system. As a result of

this division India became an upper riparian state having control of the canals that supplied water to Pakistan that became a lower riparian state. After the partition in 1947, because of the geographical location India became upper riparian while Pakistan became lower riparian and it resulted into the trust deficit and a hostile relationship. Both states tried to settle the problem bilaterally, but no viable solution was found until the World Bank acted as the mediator (Aslam, 2022).

India in the recent past has started building chains of dams on western rivers against the IWT provisions. This move has highlighted the prospects of the water conflicts between the two states. Pakistan became a water-stressed country with 1700 cubic meters per capita per year water in year 2000 according to World Bank (Briscoe & Qamar, 2008). India uses the water as a political weapon against Pakistan and increasing water scarcity may act as a catalyst for escalation of the tensions and can even trigger the “water war” between India and Pakistan (Wirsing, 2011).

Water Resources of Pakistan

With an annual rainfall of less than 240 millimeters on average, Pakistan is often ranked as one of the driest countries in the world. Rainfall, rivers, glaciers, and ground water make up most the country's available water resources. The annual influx of water into the Indus Basin is approximately 180 billion cubic meters. This water flows primarily through India and is heavily dependent on glacier melt in the western Himalayas. Both the population and the economy are highly dependent on this water supply (Briscoe & Qamar, 2008).

According to several reports, Pakistan is transitioning from a “water-stressed” to a “water-scarce” state. Report by “Pakistan Strategic Country Environmental Assessment, 2006”, stated that the amount of available water per person has significantly decreased since 1947, when it was approximately 5,000 cubic meters, reaching only 1,100 cubic meters in 2006. According to the projections, the amount of available water will fall below 700 cm per capita by the year 2025 (Bank, 2006). Similarly, the report published by the World Bank in 2005 observed: “Pakistan is already one of the most water-stressed countries in the world, a situation which is going to degrade into outright water scarcity.”

According to another report published by the Asian Development Bank (ADB) in 2007, Pakistan is “nearly at water scarcity threshold of 1,000 cubic meters/person/year” (Felipe, 2007). According to the Economic Survey of Pakistan (2009-2010), the total amount of water that is available per person in the country is 1066 cubic meter which demonstrates quite clearly that Pakistan is now a country that suffers from a severe water shortage (Go, 2019).

Water Resources of India

Geographically, India is relatively in a better situation than Pakistan due to the presence of the Tibet, Kashmir, and the Himalaya's water resources in vicinity. It is classified as a semi-arid region. The geographical location makes it an upper riparian in the basins of the and Meghna rivers, Ganges-Brahmaputra, and the Indus basin. Additionally, India possesses rivers that are part of the coastal drainage basin and rivers that are part of the inland drainage basin. In addition, India intends to construct a large river-linking project, which will involve the process of transferring

the water from "surplus river basins" to "deficit river basins" throughout the country. This will allow for the redirection of vast quantities of water from rivers such as the Ganges and the Brahmaputra.

From 1950 to 2005, India's per capita water has decreased from 5,000 cubic meters to 1,800 cubic meters. In 2025, there is a possibility that the per capita water in India drops to the 1000 cubic meters. (Waslekar, 2005). The predominant viewpoint in India is that " the growth of population, pace of urbanization and economic development will accentuate the pressure of increasing demand on a finite resource, and that the answer lies in large supply-side projects and long-distance water transfers" (Iyer, 2005).

In India, the primary impetus for the development of hydropower is the rising demand for electricity, which is primarily driven by the requirement to satisfy the power requirements of an economy that has been expanding at a rate of more than 9 percent in the previous decade. In 2007-2008, the peak power demand for the entire country was 108,886 MW, while only 90,793 MW was met. This indicates that there was a shortfall of 18,093 MW, which is equivalent to 16.6 percent of peak demand. In spite of the fact that there is a significant push for major hydro projects in India, the truth remains that 89 percent of the country's huge projects generate less power than was originally projected for them to (D'SOUZA, 2008).

Water discourse in India and Pakistan

The water discourse of Pakistan and India is being shaped predominantly, by the issues of water scarcity. Since the early 1990s, there has been a rise in water stress in both countries, which has placed further strain on the Indus Water Treaty. This argument is primarily being pushed by the increasing demand for freshwater resources, the declining availability of those resources, and the degree to which those resources are dependent on transboundary water resources. The Water Stress Index (WSI) developed by Falkenmark is frequently used to assess water shortage. This index takes into account a nation's total population and divides it by the volume of its available water resources. If the resulting average amount of water that is available per resident falls short of a certain threshold value (1700 m³ per year), then the country is considered to be "water stressed." If it falls short of 1,000 m³ per person per year, then it is considered to be "water scarce." Finally, if it falls short of 500 m³ per person per year, then it is considered to be "water poor" (Boesen & Munk Ravnborg, 2004). Taking into consideration this Water Stress Index India is now considered to be in a state of "water stress," whereas Pakistan is considered to be in a state of "water scarcity."

In March of 2009, a group consisting of more than 20 distinct United Nations entities issued a warning that, due to the fact that water has become the dominant factor in fueling tensions between India and Pakistan. These tensions have the tendency to escalate to the "water war" that would be first of its kind and will have serious consequences for the regional and international peace (Bokhari, 2010).

Conclusion

The effects of climate change may have substantial repercussions for the availability of resources, agricultural productivity, the production of economic

output, the generation of environmental refugees, and flooding along coastal areas. The magnitude of the extreme environmental issues is more likely to cause the political instability and social disruption specially in the areas which are more vulnerable to climate disruptions particularly floods and droughts. In South Asian region, both the frequency of coastal flooding as well as the magnitude or level of coastal flooding is on rise. This has the potential to generate population shifts as well as other concerns associated with environmental refugees. It is possible that the periodic droughts that occur in arid and semi-arid countries, which are now a cause of population relocation and conflict, may become more common and will endure for a longer period.

Disputes over water resources can directly and visibly lead to conflicts and tensions between parties. The long-term and rather diffuse repercussions that may follow from climate change, which many people believe to be the most pressing ecological problem of the 1990s, are more difficult to quantify and could potentially be more destructive than the short-term and more direct impacts.

Both India and Pakistan are experiencing a growing water crisis, which poses an environmental risk to the river systems that drain into the Indus basin. As a result, the Indus Waters Treaty is coming under increasing pressure. This has resulted in a heated debate on the subject of water in India and Pakistan, in which warmongers on both sides are discussing the possibility of water wars and the abolition of the Treaty. The crux of the matter is that the Indus water treaty was signed in order to provide a long-term solution to the issue of water sharing that existed between the two countries during a time when water was plentiful in the Indus basin (Aslam, 2022). The Indian basin is witnessing the increased water insecurity as a direct result of the ongoing climate change, which has led to the politicization of the water issue. The increasing water scarcity coupled with India's desire to control the water has resulted into development of a significant hydropower facilities, particularly on the river Chenab and river Jhelum. These plans are expected to take several decades to complete. Pakistan is apprehensive since India has not been reluctant in providing the details of the projects as required by the IWT. Although India claims that these are "run-of-the-river" projects and are in accordance with the IWT, but Pakistan has shown concerns and alleged India of taking undue advantage of being the upper riparian by manipulating and controlling the water flows into Pakistan. In addition, Indian projects often have unfavourable transboundary implications, both in terms of the environment and in terms of the amount of power that they generate, as is the case with the Neelum-Jhelum project. This has undoubtedly led to a further deterioration in the level of trust that exists between India and Pakistan and propelled the problem of water to the top of the bilateral agenda, so elevating its status to that of a central concern in the context of India-Pakistani relations.

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