

CLIMATE CHANGE AND HIMALAYAN WATER CONFLICT IN SOUTH ASIA

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“A river is more than an amenity; it is a treasure, and it offers a necessity of life that must be rationalized among those who have power over it..”

(Oliver Wendell Holmes Jr. New-York, 1931)

ABSTRACT: *When its water usage in consideration, the factor of efficiency holds dire importance as the ever-increasing water scarcity warrants impending conflicts at both, intra and interstate levels. The specific argument of the paper is, “A state must evaluate the interest of other state; while managing its own interests.” The study scrutinizes the intrinsic political nature of cross border water resources. The objective of the study is to render the Himalayan water conflict in South Asia with the perspective of climate change. This paper intends to be a mainstay for water system of the Himalayas encompassing the Upper Riparian states: India and Nepal, Lower Riparian states: Bangladesh and Pakistan, in South Asia excluding Maldives and Sri Lanka because they are islands and Bhutan in comparison to other states of South Asia is ideally water-sufficient. The paper provides Four-D strategy to manage Himalayan water in South Asia. Decision makers are suggested to align their thought process and adapt to a mindset that would facilitate amicable usage and management of water resources as an integral component of conflict resolution to administer cordial interstate relations.*

Key words: Water, Climate Change, Conflict, Creative Decision Making, Innovative Regional Institutions

INTRODUCTION

The politics of water is a growing niche in scholarship and research, an expansion certainly related to the increasing concern for an impending global water crisis. This concern has now become a major factor of global and national development agendas [16]. Management of freshwater resources by definition is a context-specific phenomenon as this study presents the dynamics of Himalayan water¹ conflict. Water system entails security sense when it is cognizant through economic designs and political systems. ‘The six principles of political realism (see Box 1),’ as developed by Hans Morgenthau in twentieth century; the study underscores the composition and dynamics of Himalayan water conflict in South Asia, changes in causative factors of conflict and principles which govern these changes. New regional institutions may insinuate new conflict management policies regarding South Asian conflict of Himalayan water with the perspective of climate change. The assumption sets to harness the questions:

1. What are the correlates of Himalayan water conflict in South Asia?
2. How much is the significance of climate change in Himalayan water conflict in South Asia?
3. How much is the climatic content in the foreign policy of Pakistan?
4. How to identify creative decision making regarding Himalayan water conflict in South Asia?
5. How to insinuate innovative regional institutions regarding Himalayan water conflict in South Asia?

The specific argument of the paper is, “A state must evaluate the interest of other state; while managing its own interests.”

Realization of climate change impact in political setting can contribute to help decision makers to affect shifts in their perception paradigm, context, and practice that are needed for water conflict management. “There is a water crisis, but it is a crisis of management, we have threatened our water resources with bad institutions, bad governance, and bad allocation of resources” [5]. The major events that debated the nature of the ‘water crisis’ are: the first International Earth Summit held in Rio Brazil in 1992, Rio +5 in 1997, Rio +10 in 2002, and Rio +20 in 2012. The World Water Forum which continues to be held from 1997 for the first time to World water forum in 2015 for the 6th time with a gap of every 3 years, the Bonn Freshwater Conference in 2001, UN-Water annual Zaragoza conferences took place to mark UN-Water decade program from 2005-2015, environmental sustainability in MDGs in 2000 and ensuring water resources management in SDGs in 2015.

Himalayan water infringed by; global climate change extremes of drought/flood, water demand patterns, strategic manipulation of water resources will cause and effect conflict in South Asia. This reality makes to underscore the dynamics of Himalayan water conflict in South Asia to achieve the following objectives of the study:

- To present the predictive analysis of Himalayan water conflict in South Asia
- To assess the climatic content in foreign policy of Pakistan

The paper employs Four-D strategy for management of water resources in South Asia, and underscores facets such as ‘the dynamics of decision making support systems, the changing scope of decision making, the political prudence, and the global vicinity.’

¹ Himalayan is fresh water resource; the paper handles the above surface dynamics of Himalayan water system only with reference to South Asia.

Box. 1Six Principles of Political Realism

Morgenthau in his Realist Theory laid down six principles as follows:

1. Politics is governed by objective laws which are based on human nature and psychology. He emphasized on ascertaining of facts and giving them meaning through reason.
2. The politics cannot be understood in moral or religious terms; it can be only understood in terms of *national interest*.
3. National interest is not fixed and is molded by the environments. He assigned important role to environments in determination of political action.
4. *Moral principles cannot be applied to the state's actions and these must be modified according to the circumstances of time and space. Realism also holds that prudence is the supreme virtue in politics; without prudence there cannot be any political morality. A state must evaluate the interest of other state; while managing its own interests.*
5. There is no identity between moral aspirations of a nation and moral laws which govern the universe and asserts that all political actors pursue their *national interests*.
6. Political sphere is as autonomous as the spheres of the economist, or the lawyer or the moralist. The political actors think in terms of *interest* as the economist thinks in terms of utility; the lawyer in terms of conformity of action with moral principles.

Source: Hans. Morgenthau, (1948), "Politics Among Nations: The Struggle for Power and Peace", New York: Knopf

1. Composition Analysis of Himalayan Water Conflict and Climate Change

To explain the composition of the Himalayan water conflict in South Asia following are the dynamics:

- Physical dynamics of Himalayan water conflict
- Economic dynamics of Himalayan water conflict
- Strategic dynamics of Himalayan water conflict

Facts are quoted on the bases of observation, secondary and primary data. *Deductive methodology* is used to infer.

1.1 Physical Dynamics of Himalayan Water Conflict

The global average surface temperature has increased by 0.06 Celsius since 1861. For a distance of 8 kilometers from earth the atmosphere is influenced by stratospheric ozone² depletion, atmospheric aerosols³ and the El-Nino⁴ phenomena; fossil fuel burning and deforestation as well affect earth's atmosphere causing a global climatic change. These enormous factors have considerable impact on glacial systems. The September arctic ice is declining at a rate of 13.3% per decade compared to the 1981 to 2010 average [22]. Rise in sea levels is primarily caused by two factors; added water from melting glaciers and expansion of sea water as it warms [17]. The Himalayan glaciers are retreating at a rate of 10 to 60m per year while many small glaciers melting at a rate of 0.2 Sq./Km have already disappeared [2].

² *Ozone*: A layer in the atmosphere that absorbs UV radiations from the sun. It exists 25 to 35 kilometers above the surface of the earth.

³ *Aerosol*: A fine mist or fog in which the medium of dispersion is gas.

⁴ *El Nino*: A warm-water current, that in some years flows south along the Peruvian coast around the end of December; it upsets the equilibrium of the area because it brings copious amounts of rain to an otherwise arid land.

Following discussion explains the water system of Himalayas engulfing India, Pakistan, Nepal, Bangladesh as the upper riparian and lower riparian states skipping Bhutan, is ranked quite high by UNESCO: 26th amongst 180 countries. Besides, the UNESCO report on the basis of availability of water (2003) suggests that Bhutan need not fear any potential danger to its water resources in the near future; Maldives and Sri Lanka are islands (exempted from sharing), because water sharing punctuates conflicts.

Himalayan Water system has two dimensions referred to South Asia: One is the *Himalayan mountain system* is the planets highest, three out of fourteen rivers arise from the system; Ganges, Indus, Brahmaputra descend to South Asia. Five out of eighteen countries are dependent on Himalayan water; Bangladesh, Bhutan, India, Nepal and Pakistan are in South Asia. Himalayan range from the Indus river valley to the Brahmaputra river valley runs west to east; and the other is the *Southwestern summer monsoon* that occurs during the period of June to September. The Thar Desert and its surrounding areas of the northern and central South Asia heat up a great deal during the hot summer, which gives way to a low pressure area over the northern and central South Asia. To fill this void, the moisture-laden winds from the Indian Ocean rush towards South Asia. These winds are then drawn into the Himalayas, creating winds blowing storm clouds towards South Asia. The Himalayas act like a high wall, blocking the winds from passing into Central Asia, thus leading to precipitation. Some areas of South Asia receive up to 10,000mm/yr of rain.

Due to an increase in the temperature; the monsoon system is unable to reach the northwest and western ends of its cycle, encompassing India and Bangladesh moreover losing its intensity on its course to regions that include Pakistan [1]. Presently 65 percent demand in arid areas of South Asia is met through water mining. Iqbal, Mohsin [11] opined that current flash floods in Pakistan are climatic extreme: the groundwater aquifers recharge will be nominal. The melting of Himalayan glaciers will constitute a grave threat. The glaciers in the region are retreating at an average annual rate of 10-15 meters [27]. There has been a general perception that the fast pace of melting glaciers will constitute flooding and uncontrollable river systems. Nevertheless, with the passage of time, these melting glaciers will consequently reduce flows of water in the Indus, Ganges and Brahmaputra. Climatic extremes droughts/floods accompanied by water mining will impact the physical properties of water conflict in South Asia.

Water systems in arid/semi areas South Asia: The paper includes another water system of arid/semi-arid area, as I think that the shrinking water resources in arid areas of South Asia (particularly of Bangladesh, India and Pakistan) will also burden the Himalayan water system due to eco migration in because of future climate patterns. In this paper water system of Quetta (one of the water richest in arid/semi-arid areas) the capital city of Balochistan has been evaluated to show the climate change impact (Table 1-2). I deduce that if climate change has impacted one of stronger climatic place; it will impact with severe consequences in weaker climatic places.

Table. 1 Temperature Profile of Quetta City of Selected Years in Celsius

Temperature	FEB	Year
Max	13.5	2007
Min	5.1	
Max	22	2017
Min	-6	

Source: Regional Meteorological Centre Quetta Balochistan 2017
The years of 2007 and 2017 are selected to compare the temperature and precipitation trend in Quetta valley.

Table. 2 Rain Profile of Quetta City of Selected Years

	MAR	YEAR
Rain mm	34.2	2007
	0.01	2017

Source: Regional Meteorological Center Quetta Balochistan. 2017

1.2 Economic Dynamics of the Himalayan Water Conflict

Scarcity signifies economic relativity of any phenomenon. Human life depends on water because of its certain values (see Box.2). Water resources were thought to be abundant in contrast to demand and therefore were not an important factor for economics, whose task is the efficient utilization of limited resources to manage unlimited ends.

Box. 2 Values of Water

- a) Water for survival: It provides multiple goods and services essential to life and livelihood.
- b) Water for food: About 70% of all freshwater withdrawals go to irrigate agriculture.
- c) Water for energy: Hydro power is a renewable and environment-friendly source of energy. Water is needed for cooling purposes in all thermal sources of power, including nuclear. The need to substitute other sources of fuel with alternatives led to the recent increase in the production of bioenergy, which has significant impacts on water quality as well as availability. Subsequently energy is required to elevate groundwater, pump it through pipes and lastly to treat both, groundwater and wastewater.
- d) Water and climate change: Because of climate change some countries will get low annual rainfall e-g arid areas of South Asia, or heavy rainfall e-g Bangladesh, causing floods, or some will face the brunt of either low or extreme rainfall e-g Pakistan. These variations hold the importance where they affect large populations. Pakistan faced the worst flood in 2010 affecting 1/5th of land area, while 20 million people were hit and many displaced. Drought has been quite a frequent phenomenon in the country. The drought of 1998-2003 is considered to be the worst in the drought history of Pakistan.

Source:National Disaster Management Authority [18]

Large proportion of Himalayan water is consumed for food production. According to statistics given by ministry of population welfare Pakistan has reached 1700 cubic meter (per capita per year) in 1992 and further declined to 1500 cubic meter in 2002 [16]. Water scarcity is expected to reach 1000 cubic meter in 2035. Agriculture and industry are worst affected by shortage of water. Demand is continuously escalating, projected to reach 274 MAF (million acre feet) by

2025, while supply is anticipated to remain stagnant at 191 MAF resulting in a considerable supply and demand gap of 83 MAF (IMF June 2015). In 1995, 30 percent of water resources were utilized for industrial purposes and in 2025; the quantity is expected to exceed 60 per cent owing to growing urbanization and industrial development [20].

South Asia hitherto, is facing a serious threat of water security. The aftermath might be failure of access to drinking water in rural areas, where half of the population lives in South Asia. Large part of South Asian economies is agro-based and thus mostly dependent on Himalayan water. Scarcity of water will cause a decrease in food production;out of total 77.1 million acres of cultivable land, Pakistan is cultivating a mere 54.5 million acres. The scarcity of water may also result in shortage of electricity in Pakistan where the demand for electricity exceeds supply by 5000-8000 MW. The installed electricity generation capacity is 22000 MW [7]. For cooling purposes water is needed in all thermal sources of power including nuclear. The climate change impact will be severe on water economy⁵of South Asia.

1.3 Strategic Dynamics of Himalayan Water Conflict

The political division of South Asia gave political dimension to water system of Himalaya in South Asia. The division of South Asia on political basis seems unnatural when the water holistic view of resources is applied; the division assigned the status of upper/lower riparian status to states. In 1923 Nepal was recognized as independent state. Pakistan and India secured independence in 1947, and Bangladesh was created in 1971. The four states under discussion have following treaties with each other.

Sheikh Mujeeb-ur-Rehman the leader of Bangladesh allowed the construction of the Farraka water withdrawal project under the friendship treaty with India in 1975. It was built on the Bhagirathi River in the Indian state of Bengal. Bangladesh and India had always been in a state of detente regarding withdrawal of water by India. Also, the shortage of water had impeded the construction of the Ganga Barrage in Bangladesh. The consequences of reduced water flow to Bangladesh were moisture depletion, contaminated fisheries and deforestation. In Dec 1996 India and Bangladesh signed Ganges Treaty to reconcile the prevalent water practices. Mahakali river treaty 1920 remained a source of conflict between India and Nepal [14]. The treaty had been revised between India and Nepal in May 1996 making use of an opportunity for meaningful cooperation to benefit millions of people populating the two countries whose livelihood ostensibly depends on the waters of the Mahakali River.

In 1920 *Nepal* concluded an agreement with British India. Under its ambit the Sarda barrage was built and 4000 acres of Nepal were consequently ceded to British India. Following the independence this area came under Indian rule (now Uttar Pradesh). Nepal ratified bilateral agreements with India pertaining to construction of dams, building of energy infrastructure, and water sharing. They include the Kosi

⁵Water Economy is analysis of indicators related to environmental efficiency of business emphasizing water footprints of product, processes, and production units combined with development of cost effective and cost benefit methodologies to support decisionmaking.

agreement of 1954, the Gandak project of 1959 and the Mahakali river treaty.

In 1960 The World Bank mediated an agreement between India and Pakistan which was coined as the Indus Water Treaty. The treaty made a practically simplistic and straightforward attempt to share the available water resources among the two adversaries by allotting the eastern rivers (Ravi, Sutlej and Beas) to India while the Western rivers (Indus, Chenab and Jhelum) to Pakistan. The treaty also barred India from any plans of storing water or constructing any water storage projects on the western rivers that could result in a reduced flow of water to Pakistan. However, India's capacity to manipulate the timing of flows had not been accounted for in the Indus water treaty of 1960. This was only done by limiting the amount of "live storage" (the storage that matters for varying the timing of flows) in each and every hydropower dam that India would build on the two rivers Chenab-Jhelum [3].

The water conflict between India and Pakistan perseveres due to India's water storage plans. India has embarked upon projects such as, Kishanganga (the dam being built on the Neelum, along with 19 hydel projects on the Jhelum). The sources of water for Mangla dam in Pakistan are the Jhelum, Neelum and Poonch rivers. India planned Wullar barrage on Jhelum at the mouth of Wullar lake, and Baglihar on Chenab, which flows from Kashmir into Pakistan. Guarded by tight security, on 7th October 2008 the Indian Prime Minister Manmohan Singh visited Jammu and Kashmir to officially launch the start of the controversial project.

By making two treaties in 1996 India has emphatically carved out foreign economic relations with Bangladesh and Nepal, especially insofar as water resources development and regional cooperation are concerned. Indeed, the factor of geographic proximity of Bangladesh and Nepal to India has impelled these countries to cooperate with India regarding utilization of water resources. Nepal is an upper riparian⁶ state but landlocked and dependent on India in respect of trade and development know how. Bangladesh is the lower riparian state. The dependency notion of interstate relations is ipso facto leveraged by India.

The Himalayan water system defines Indo-Pak relations referred to physical, economic and strategic dynamics of South Asia.

2. Predictive Analysis of Himalayan Water Conflict and Climate Change

The Himalayan water resources in South Asia compounded by climate change, economic and strategic factors; will cause following reactions:

Displacement reactions: Climate change is powerful phenomena it displaces the human and physical structures. As per the climate change predictions the displacement would cause eco migration 50km towards foothills. According to Rummel the definition of power in ecological terms is "the

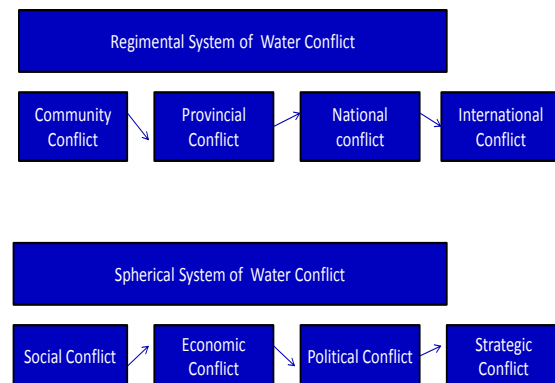
ability of one cluster of activities or niches to set the conditions under which the others must function" (1983). The scenario allows predicting natural movement of population towards upper riparian state (India) from Pakistan and Bangladesh; that India may not be able to resist.

Double displacement reactions: The displacement in natural system may cause changes in geopolitical system of South Asia. The situation seems insoluble with traditional thinking. Dr. Robert G Wirsing, (2008) intimated, "the Indus Water Treaty 1960 had inherent weaknesses the solution to water disputes is heavily tied with the fate of Jammu and Kashmir."

Addition displacement reactions: Upper riparian states water management plans cause the addition displacement in lower riparian. For example the water security threat to Pakistan (a frontline state against terrorism) will change the threat perception of public, military at national level, which will affect strategic stability between Pakistan and India in consequence all this will affect its commitment to war against terrorism.

Decomposition reactions: Contrary to addition displacement reactions the emerging situation will decompose into psycho and social conflicts; because the natural-economic-political environments design the individuals. The situation has mass convertible to conflict patterns either of regimental or spherical (see Fig 1) particularly in the lower riparian states of South Asia.

Fig 1. Water Conflict Patterns



3. Assessment of Climate Focused Trends in National and Foreign. Policy of Pakistan

In this section climate focused trends are evidenced; the international commitments and national initiatives to fulfill those commitments. The first consolidated environmental legislation, Pakistan Environmental Protection Ordinance (EPO) was promulgated in 1983. It became the source to create Pakistan Environmental Protection Council (PEPC). The law also created Pakistan Environmental Protection Agency (PEPA) 1997 at federal level and four EPAs at provincial level. It empowers all citizens to approach courts if they face any environmental damage. Special tribunals were made to hear all such cases at provincial levels. The National Environmental Quality Standards (NEQS) were issued in 1983

⁶ The Indo-Nepal river system ranging from east to west, can be classified into seven river systems namely Mahananda, Kosi, KalmaBalan, Bagmati, BruhiGandaki, and Ghaghra. All these rivers alongside their major tributaries originate in Nepal and, after traversal from various places in Nepal, enter into India and join the Ganges.

but implementation remained at the back burner. The National Conservation Strategy (NCS) prepared in 1992 was a major step in setting targets for natural resource conservation, and this led to a plan of action for the next 10 years (1993-2002). Pakistan is found part of all international commitments regarding sustainable development and climate change organized in Rio 1992-2002-2012. Pakistan has signed; Convention on Biological Diversity, United Nations Framework of Convention on Climate Change UNFCCC, United Nations Convention to Combat Desertification.

Today, Pakistan faces several major risks regarding climate change including glacial melt, variable monsoons, recurrent floods, and rise in sea level, higher average temperatures and higher frequency of droughts. A vast population of millions is affected and huge damages are caused on recurring basis. Pakistan is spending 6% of budget on climate change adaptation and mitigation from 2010 to 2014 [26]. Pakistan is facing 7 major crises: food, fiscal, fuel, frontier (a frontline state), functional democracy, fragile governance and fragility of climate change (called a 7-F theory) When we try to resolve any one of 6 crises and leave the 7th we would fail in resolving the crises [24]. Climate change is a threat multiplier which exacerbates the pre-existing social problems, including poverty, governance food, water, energy security. These climate factors impact poverty and governance that contributes to security threat [21].

Bringing these issues into attention, Pakistan has formulated its climate change policy in 2012, [10] which propounded the integration of climate change with other national policies, further focusing on pro-poor gender sensitive adaptation and mitigation in cost effective manner and emphasized to enhance skills, awareness and capacity of related stakeholders. Pakistan's Intended Nationally Determined Contributions (INDC) 2016 has indicated key development plan and projects that will be undertaken for adaptation and mitigation of climate change related challenges. It is assumed that mitigation can only be actualized through financial grants, technical assistance, transfer of technology and development through capacity building. It further assumes that climate resilient investment in energy infrastructure and industrial processes will qualify Pakistan as one of promising carbon markets in the world. National Climate change policy of Pakistan primarily provides a comprehensive framework of adaptation and mitigation efforts to pursue sustained economic growth and climate resilient development by appropriately addressing climate related challenges. In 2016 Pakistan created Climate Change authority. Different projects will be prepared under this authority through consultation that will be implemented by provinces. Pakistan is among few countries having this authority. It will also be responsible to implement Kyoto protocol and Paris agreement.

The adage of threat perception that is widely accepted as: threat perception = estimated capability × estimated intention of adversary to use the capability [23]. For instance the political face of India used the water issue as a weapon in the counter terrorism debate against Pakistan, and after the Uri attack in September, 2016 the first ominous mention of water and Pakistan's reliance on the Indus water system came from Prime Minister Modi. The connection was dangerous and immediately clear: if Pakistan did not address the concerns

India had about terrorism, the latter would turn to water means to try and exert pressure on Pakistan [4].

The composition of water conflict in South Asia enables us to propose four D strategy with facets such as the dynamics of decision making support system, the changing scope of decision making, the political prudence and global vicinity.'

4. Four D Strategy to Manage Himalayan Water Conflict in South Asia

"The significant problems we face cannot be solved by the same level of thinking we used when we created them." Einstein

Globalization being an eminent cause, each system is encompassing multi-boundaries, it is argued that even US economy has to ostensibly face certain consequences of water conflict in South Asia; so it is apposite to fix the amplifying factors of water security in South Asia whether they are steered at national or transnational level. The water conflict between India and Pakistan is compounded and unresolved as compared to water conflict between India and Bangladesh or India and Nepal so we focus more on India and Pakistan. The strategy aims at changes in context, paradigm and practice. The strategy has four dimensions.

4.1 Dimension 1: Climate Change Decision Support System (based on climate change knowledge) should be added in the existing Dynamics of decision making support systems;

Decisions are maneuvered by several factors, primarily the significance of the issue, the impacts of the decision, and the political culture of the nation. Presently the decision makers are dependent on certain support systems as follows.

- *SELF Decision Support System* – how the person in decision making thinks about the issue in question.
- *Social Decision Support System* - how the person in decision making has been socialized about the issue by different social institutions particularly family and education.
- *Political Decision Support System* - how the political factor of the society hedges the education institutions in its own interest.
- *Power Decision Support System* - where the power exists in other structures of society e-g military establishment of India and Pakistan [12]

4.2 Dimension 2: Stable relations between India and Pakistan must be realized in the interest of global stability;

in international system, the two nations India and Pakistan are important amongst the South Asian States, India because of its *geo-economic potential* and Pakistan because of its *geo-economic location*.

India: India produces approximately 3 million graduates, 700,000 post-graduates and 1,500 Ph. Ds annually. It has been appraised that 10% of researchers and 15% of scientists engaged in the R&D in the US are of Indian origin. In 2015 FDI in India increased by 48% following the launch of 'Make in India' initiative [8]. India is among top five nations in the field of missile launch technology. India has the second most entrepreneurial culture in the world. Small businesses in India create 1.3 million jobs every year and provide the largest share of employment following agriculture. IMF ranks India as the second fastest growing economy after China in 2017 [25].

Over 1,031 MNCs have set up R&D facilities in India up till 2013

Pakistan: Pakistan is on the conflux of Central Asia, Middle East and South Asia; a frontline state against terrorism, in both ways **water** may cause or effect conflict. Pakistan has to manage trade to and from Central Asia to South Asia also including rest of the world. Pakistan has a real geo-political role in the emerging regional economy comprised of CPEC Plan worth of \$52 billion. India and Pakistan are nuclear states.

These factual statements reflect the status of states in terms of knowhow, valuation in international political economy and water demand. Chari, (2008) believes, "Negotiating an Indus Water Treaty 2 would be huge Confidence Building Measure (CBM) as it would engage both countries in a regional economic integration process." Siddiqui (2006) comments, "Indus water system should be managed both at domestic and international level." The forum of South Asian Association for Regional Cooperation (SAARC) should be vitalized with following objectives:

- To practice bilateral water agreements in letter and spirit.
- To organize Joint fund to enhance water storage mechanism in South Asia in view of climate change impact.

4.3 Dimension3: Political prudence should be recognized based on following two paradigms

Urgency: water conflict should be managed on urgent bases because; Climate change impact is causing scarcity of water and unequal access to water. Population growth is increasing demand for water, further the per-capita consumption of water is increasing because of socio-economic behaviors driven by consumerism– Water shortage could lead to socio-economic riots.

We-ness: India and Pakistan have symbiotic relations with each other in history and practice; environment and sustainable development is new discovery to manage bilateral relations. Water conflict management should be taken as mutual benefit that would lead to, fair trade in South Asia, Energy supply of oil and gas from Central Asia to South Asia via Pakistan, Management of Extremism/Terrorism in and around South Asia and Management of water related migration at national and regional level.

4.4 Dimension4: Global vicinity should be realized based on knowledge of pragmatic global interaction

Commitments fashioned around Millennium Development goals 7-8 related to water security, and adaptation as embodied in the United Nations Framework on Convention of Climate Change (UNFCCC) based on gaining a better understanding of the effects of climate change and making informed decisions on practical measures with different responsibilities for developing and developed countries (Rowland, 1995) focused on equity principles should be practiced as follows: The principle of differentiated but common responsibility, which identifies the need for international cooperation but demands developed countries to lead in reducing harmful emissions as they are the largest contributors to climate change and moreover also have the stronger financial and requisite technological resources to cope up with the problem. The principle that funds and

technology be transferred to developing countries, which may be especially vulnerable to the adverse impacts of climate change, to assist them in their endeavors to mitigate the effects and adapt to ensure that such funds and resources go beyond existing development aid.

5. Conclusion: The New Context, Paradigm and Practice!

The paper explored the relevancy of water security to manage the interstate relations in South Asia. It is emphasized that climate change is threat to the Himalayan water system and to its beneficiary states; Bangladesh, Nepal, India and Pakistan, but water sharing is an opportunity to manage the bilateral relations. The dynamics of Himalayan water conflict is helpful in identifying the relationship between water conflicts and political economics. It is concluded that the water security is urgent to get managed but it is not taken seriously by the decision makers for regional or global peace.

Relativity between water security and policy decision making is pragmatic, precisely to have changes in context, paradigm and practice to manage emerging conflict trends. As such water security should be added to policy decision making. In terms of four D strategy to manage water security in South Asia national/regional/international political systems can play important role. It can help states to apprehend and comprehend the water conflict context changes. The water security has been managed between Bangladesh and India and Nepal and India; so is desirable between India and Pakistan.

The established frameworks at international conventions and conferences must descend at regional level. Attempts to prioritize adaptation to climate change and address climate-sensitive conflicts and security problems in a comprehensive manner are yet nascent and at a conceptual stage. Jabeen [13] has argued that Global Governance is the belief which the world is now prepared to accept. It is a global civic ethic based set of core values that can unite people from all cultural, political, religious and philosophical backgrounds (2003). Regional initiatives can prove to be more efficient than programs at the state level as they cover a manageable geographical area, eliminate duplication of efforts and create a more accountable regulatory environment. Central theme to climate change governance at regional level [15] must include: the development of policy with specified objectives, policy tools for implementation, monitoring programs based on measurable goals, indicators to track the climate change management at regional level between and among the nations. The paper presents few of the regional artifacts regarding climate change management.

Africa: Climate-induced armed conflict is considered high for Africa. According to a study done by Institute of Security Studies Africa, every 1 °C increase in the temperature remarkably results in a 49 per cent increase in the incidence of civil war in sub-Saharan African states [9] Conflicts that arise between the pastoral communities of northern Kenya, southern Sudan and southern Ethiopia in arid and semi-arid borderlands are directly linked to competition over access to pasture and water, livestock raiding and the heavy presence of small arms. In states of Africa, UN regional commissions support intergovernmental consultation processes to exchange information about policy options regarding adaptation and mitigation of climate change.

In a session of the African Union held in January 2007, in liaison with the private sector, civil society and development partners, the heads for African states pledged to integrate climate change considerations into future development plans, strategies and programs at regional and national levels. Together, they requested the African Union Commission (AUC) and African Development Bank (AfDB) to commence a major plan on climate change and development in Africa (see Box 3).

Box. 3 African Collaborative Actions

The collaborative actions are undertaken at regional level in the following areas:

- Supporting national planning of climate change
- Assessing the cost of climate change
- Supporting mitigation efforts
- Supporting adaptation efforts among African states minimizing the conflict and challenges arise due to climate change

Source: Institute of Security Studies Africa [10]

Pacific Islands: States belonging to Pacific islands in 2005 formulated an Action Plan on climate change. The framework goal is to ensure Pacific islands people and communities build their capacities (see Box 4) to be resilient to the risks and impacts of climate change.

Box. 4 Principles of Pacific Islands Action Plan 2005

Following are the principles:

- Implementation of adaptation/mitigation measures among the island members
- Improving the collective understanding of climate change
- Partnerships and cooperation at institutional level for governance and decision making against climate related challenges
- The dissemination of education, training and awareness in perspective of climate change

Source: UN Secretariat of Pacific Regional Environmental Program [19]

South Asia: States can also encourage transnational civil society and new organizational structures to help support governments in formulating policies. Climate Action Network South Asia (CANSA) is a coalition of 149 civil society organizations from 8 South Asian countries including India and Pakistan, promoting equity and sustainable development in the design and development of an effective global strategy to reduce greenhouse gas emissions and ensure its implementation.

The study emphasizes on managing climate change as a conflict management tool between two neighboring states and practice of climate change governance at regional level as imperative to regional stability.

It is anticipated that if water resources management will not be taken as important component in policy decision making;

thereby states will have more water conflicts, food insecurity and energy insecurity.

"It is up to political leaders to protect our water and conserve for future, and many of them are dropping the ball". (Daine Rains Ward, the author of "Water Wars", 2003)

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