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THE HYDROPOLITICS OF SOUTH ASIA: AN ANALYSIS

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ABSTRACT
This paper gives a comprehensive analysis of hydropolitics of the region of South Asia. It discusses different types of water issues prevalent in the region. However, its primary focus is on the water disputes between India and Pakistan, India and Bangladesh, India and Nepal, and Pakistan and Afghanistan. This paper argues that water security has assumed great importance in South Asia because of the demand-supply gap of water. Such a regional water deficit is due to a number of factors which include climate change, over-population, intensive use of water in irrigation, and the changing lifestyle. This water crisis has resulted in regional co-riparian water disputes. These water disputes are gaining complexity due to different regional dynamics like power imbalances, upper-lower riparian syndrome, territorial disputes, and trust deficit.
Keywords: South Asia, Hydro politics, Water, Indus, Ganges, Brahmaputra

INTRODUCTION

South Asia is a geographical entity stretching from the Himalayas in the North to the Indian Ocean in the South. It comprises India, Pakistan, Bangladesh, Nepal, Bhutan, Sri Lanka, Maldives, and Afghanistan. It has various ecosystems ranging from tropical and temperate to dry deserts. Its climate also varies from the hottest regions with the shortest rainfall to the coldest regions with the highest rainfall. Politically, the region has different kinds of political systems ranging from democracies to dictatorships and monarchies. State boundaries are often overlapped with one another's nationalities and are therefore prone to boundary disputes. Socially, religiously, culturally, and linguistically, the region is a great deal heterogeneous. Economically, its GDP is the lowest in the world. It is one of the most populous regions hosting 1.4 billion people and 40 % of the world's total poor (Singh, 2004). The main source of living of people of the region is agriculture for which rivers water is the main source.

The societies, cultures, economies, geography, and politics of South Asia are deeply intertwined with its waters. Historically, the Indus valley civilization of the South Asian region was shaped and reshaped by its waters. The ancient cities of Harappa and Mohenjo-Daro, established between 2800 and 2600 BCE and the cradles of the then Indus Civilization, prospered on the huge system of agriculture and abundance of water resources. These cities were abandoned when the climate went dry due to the changes in monsoon patterns; water resources dwindled, and the soil lost its fertility. Such a scenario may repeat itself once again due to the swift warming of climate in the region. For example, the rate of rainfall at the time of Indus civilization is estimated to be between 800 to 400 mm per annum whereas the present rate is 200 mm per year (Lal, et al., 2010).

This change in rainfall pattern has occurred due to climate change; a phenomenon which was equated with chemical warfare in a UNSC debate on climate change in 2007. 80% of Indus Ganga Brahmaputra Meghna (IGBM) river basins are fed by monsoon rains from June to

September, and 20 % of its waters are provided by the glaciers of the Himalayan region and other non-monsoon rains. Therefore, the aforementioned decline in the rain-fall rate and 10 to 60 meter (m) retreat of the Himalayan glaciers due to climate change would create a cycle of abundance and scarcity in water supply in South Asia (Singh, 2004). This would ultimately result in a severe regional demand-supply gap and a subsequent complex hydro politics and disputes of different types at different levels would be a natural corollary.

METHODOLOGY

The methodology adopted in the article is qualitative, and analytical in its nature. Data is collected from both the secondary and primary sources. However, secondary sources of data are mainly relied on. The secondary sources consulted in this paper includes research articles from different renowned journals like water international and geographical journal and hydrological sciences journal. Moreover, books produced by water experts on the hydropolitics of South Asia, reports and other publications from research institutes and think tanks are also consulted in this regard. This study doesn't cover all the aspects of the hydropolitics of South Asia. The intra-state water politics is ignored, and the article mainly focus on the international water disputes in South Asia.

To have a comprehensive understanding of its hydro-politics, this paper first discusses the status of water supply and demand in the region of South Asia as the basic premise driving different water disputes in different part of the world is water demand-supply gap. The second part of the paper analyses different types of intra-state water disputes, however, primary focus is on the inter-state water disputes. The third and important part of this paper discusses different regional dynamics that determine regional hydropolitics followed by some specific factors that determine South Asian hydropolitics and water disputes.

WATER CRISIS IN SOUTH ASIA: THE WATER SUPPLY-DEMAND GAP

The Hindu Kush-Himalayan region (HKH) is the largest water tower in the world. It gives birth to three mighty rivers of the Indus, the Ganges, and the Brahmaputra. The Indus is a 1800 miles long river that originates near Lake Manasarovar in the Himalayan mountain of Tibet, China. For the first 600 miles, the Indus travels across India in the northwest direction and then turns south and travels through Pakistan and then flushes into the Arabian Sea. It is fed by the Himalayan glaciers and the monsoon.

70% of its run-off happens from June to September. The river Indus and its five major tributaries of the Chenab, the Ravi, the Sutlej, the Biyas, and the Jhelum partially or in some cases entirely flow through Indian Held Kashmir (IHK). It makes India the upper riparian and Pakistan the lower riparian. River Kabul, a non-Himalayan river that flows from Kabul and joins Indus at Attock. In the river Kabul's case, Afghanistan is the upstream whereas Pakistan is the downstream country. The Indus and its five tributaries along with the river Kabul constitute the Indus river system or basin (Uprety & Salman, 2011).

The Ganges arise inside the Himalayas and the Brahmaputra from the trans-Himalayan region. Both the rivers creeps eastward through India and then through Bangladesh. The average annual flow of these rivers is 1200km. The Brahmaputra joins the Ganges near Goalanda, a town in Bangladesh. From this rendezvous, the river adopts the name of Padma River. Meghna Barak; a non-Himalayan river, a rainfall-fed river originating from Naga Hills, joins the Padma River at Chandpur, near Dhaka, Bangladesh. The Ganges and Brahmaputra along with the Meghna constitute the world's third-largest river system after the Amazon and the Congo (Singh, 2004). This Ganges Brahmaputra Meghna (GBM) then empties into the Bay of Bengal. The Brahmaputra alone constitutes 50% of GBM's total flow which is double than that provided by the Ganges (Uprety & Salman, 2011). However, the IGBM river systems are at the mercy of monsoon which is a prominent event in the climate of the subcontinent. 80 % of its flow occurs from the months of September to June whereas the rest is in the remaining of the months.

Different countries of South Asia have different water demands. India though will have to upgrade its present water supply only by 5 % by 2025, yet a huge portion of its population (280 million in 1990) is in the category of absolute water scarcity (Uprety & Salman, 2011). Pakistan, in order to meet its growing population's demand by 2025, will have to increase its

food production yield by 50 %, which could only be maintained by bringing nearly 2 million hectares of its land under irrigation.

Sri Lanka has enough water resources, yet most of its rivers and freshwater reservoirs are reported to be drying up. Nepal too is bestowed by nature with abundant water resources, but in the last three decades, its agriculture production has decreased. The current water crisis in Nepal is due to the lack of efficiency and lack of equity in water use. Bhutan, enjoying the highest availability of water resources, faces a water crisis as only 78 % of its population has access to safe water. Bangladesh faces a crisis in the shape of land erosion by floods. The rivers flow in the monsoon period but experiences drought in the dry seasons, thereby damaging the livelihood of its inhabitants (Seckler, et al., 1998). Such a gap in water demand and supply has resulted in numerous water disputes at different level in the region of South Asia.

Types of Water Disputes in South Asia

Due to their complexity, water disputes in South Asia cannot be categorized under a single genre or type. Yet, disputes that fall within the jurisdiction of different states are treated within the category of intra-state disputes, whereas the conflicts that are of international nature have been categorized as inter-state water disputes. As this paper is about international water disputes of South Asia, therefore, a detail of the intra-state disputes has been avoided. However, its brief outline is presented as follows because intra-state water disputes have direct implications for international water disputes.

Within the states of South Asia water's quantity and quality are contested amongst different constituent units, communities, social classes, tribes, and sectors. Such disputes are further classified as under. In the cases of South Asian federations, inter-unit disputes are most visible. For example in India, water sharing is disputatious amongst the states of Punjab, Haryana, and Rajasthan. In Pakistan such an inter-provincial feud over water is serious and all the provinces, especially the Punjab and Sindh and Punjab and Khyber Pakhtunkhwa (KP) are at loggerheads with one another over water sharing.

Different sectors of water utility like agricultural and industrial, domestic use and environment, urban and rural residents, upstream and downstream localities, energy and trade purposes, etc also fight over waters. The Keoladeo National Park Rajasthan issue in India where water was disputed between the agriculture and recreational and environmental stakeholders is an example of such water disputes. Similarly, the Kalabagh Dam in Pakistan, where the irrigation and the energy sectors were the parties to the dispute, is another example of this category. Within the same use, conflicts exist amongst different users. Such conflicts have roots in the old and deeply entrenched traditions, customs, and social structures. For instance, in Bhutan, within irrigation use, the difference exists among different classes of the farmer as the Thruelp class farmer can take half of the water, the Cheap, half of the remaining half, and the Chatho, half of the remaining half of the Cheap. The Lhangchu, the water beggar, would get water only when the rest would give him (Menon & Joy, 2006).

In India, due to class division in their social structure, water access is denied to the lower class as Dalits. Dr. Ambedkar had to launch a water Satyagrah in Maharashtra some 80 years ago to protest water denial on the basis of class divisions. Even in Pakistan, The Khans, Waders, Nawabs, and Chaudharies have free access to water, whereas the rest of the poor sections are denied such equity. The main reason behind such conflicts is the lack of water distribution rules and institutions at local levels.

Water use at a certain upper point can harm its downstream users in the form of pollution, diseases, and damage to soil health, etc. Such disputes too are widespread across the region. South Asia is the region at the mercy of the monsoon. Its seasonal occurrence, from June to September, necessitates the construction of dams in South Asia. Dams and their consequent displacement generate many conflicts. Such conflicts too are in abundance in South Asia. The Kalabagh dam dispute in Pakistan and the Narmada project in India is the classical example of such a dispute. Similarly, as in other parts of the world, South Asia is also facing disputes over water privatization. The famous Plachimada case in Kerala, India, and the Sheonath River case Chhattisgarh, India is such an example of water privatization disputes (Menon & Joy, 2006).

Along with different disputes at the domestic level, South Asia is mired in inter-state water disputes which is the main focus of this research paper. Nearly all the states of the region that are co-riparians are involved in power pursuits regarding water resources. The Indus water dispute between India and Pakistan, the Farakha barrage dispute between India and Bangladesh, the Mahakali river dispute between India and Nepal, and the recent Kabul river dispute between Pakistan and Afghanistan are such instances of regional inter-states water rivalries. In order to understand these disputes, it is imperative to analyze regional political dynamics and their implications for the hydropolitics of South Asia.

South Asian Political Dynamics and its Hydropolitics

The present-day world hydropolitics holds both instances of cooperation and conflict over waters, therefore, these different instances must be observed in their respective environments. For example, the USA and Canada may be cooperating over their water resources. On the contrary, Israel and Palestinians may have actually moved their respective military forces for water security. The difference of cooperation and conflicts over water sharing is of difference in different political, hydrological, climactic, supply and demand, and other regional dynamics. These different regional dynamics actually determine conflict or cooperation over water resources. Therefore, different regions would be having different hydropolitics, depending upon the mentioned dynamics of the region.

The regional dynamics or features that determine hydro politics could be numerous. This paper attempts to discover and enlist the important ones. These are discussed as follows. First, if a region is water scarce as Middle East, South Asia, or Central Asia, water disputes would be abundant. As all of the co-riparian states of South Asia have mutual water disputes of one kind or another. If a region is as affluent in water resources as Western Europe, then fight over waters would be irrational. Western Europe is mostly free from water disputes. Second, cold political relations put water relations on ice and vice versa.

Within this dynamic falls the bigger picture of the nature of political relations amongst regional states as borders disputes, historical animosity, and mutually conflicting interests, vulnerabilities, and threats. If these political dynamics are in interplay, then water relations too would become disputed. Mutual distrust adds strategic concerns to water issues and makes them difficult to resolve. Consequently, a vicious cycle comes into being and water disputes then further aggravate the political relations. For example, water questions between the USA and Canada are resolved peacefully in a peaceful environment, whereas in South Asia and in the Middle East, the issues are getting nettlesome due to acrimonious regional relations.

Third, if the co-riparian states are balancing one another, then peaceful sharing of water is possible, whereas when an imbalance exists, then the heavyweights utilize their "exploitation potential" in terms of infrastructure and technological wizardry at the expense of the others. Indian water hegemony in South Asia and Israel's in the Middle East are such examples. Fourth, in the regions where regional political and water dispute resolution institutions and legal covers are available, its nations easily settle their water disputes. One cannot find such visible water disputes in the US-Canada case and other European countries because of the development of certain rules and norms, social consensus, and legal and infrastructural umbrella.

Next, if the nations living in a region are culturally, socially, and politically homogeneous, then water disputes could easily be resolved through regional dispute resolution mechanisms as is the case with European Union and ASEAN. Sixth, the region with large demography and rampant poverty is more prone to water conflicts. More population means more water for domestic consumption, food, electric needs, and industrial outputs. In order to meet such needs of its population, states would go for capturing more water resources which would ultimately result in interstate water conflicts. This dynamic too is much prominent in the case of South Asia.

Seventh, water consumption is on the rise in developing nations as more urbanization, modern housing, augmented industrialization, improved diets, infrastructure, demands more water. So, to meet these growing demands, nations would compete for water. Again, water is finite and runs across time and space, so being a zero-sum game, the gain of one would be the loss of the other, and resultantly a dispute would be the natural outcome. Eighth, wealthy

nations, due to their technological advancement and other means of water recycling, efficient use of already existing resources, or innovating new methods for irrigation, power generation, sanitation, etc. can avert water crises. Modern irrigation in Australia, Israel, and sanitation in Japan are examples in this regard.

Ninth, though, climate change is a global phenomenon, yet, some regions are facing immediate wrath of global warming. According to glaciologists, the northern slope of Mount Everest in the western Himalaya is experiencing an alarming retreat as compared to other glaciers of the world and consequently, most of the rivers of South Asia have experienced a dramatic reduction in the water supply (Ye, et al., 2009). Last, the upstream-downstream syndrome is also an important dynamic. Rivers shared by more than one nation are prone to conflicts more than the ones being shared by a single nation. Waters of the mighty Nile being running through a dozen of different states carries more disputes than any other river running within the geographical province of a single state.

At present many analysts consider the Middle East and North Africa as the regions where water wars would first appear. The popular uprising of the Palestinians, Intifada II, and the recent crisis in Darfur, Sudan are cited as omens of such an eventuality. Even if one goes through the world literature about water security, then it becomes obvious that nearly half of the literature is about Middle East and North Africa water issues.

Undoubtedly, the rivers flowing across South Asia provide the region with a geographical wholeness and provides a sense of collective belonging to the diverse communities of the region (Singh, 2004). However, as discussed above, nearly all the co-riparian states of South Asia have mired in such complex water disputes that any hope for cooperation over water resources in the near future seems a pipe dream. In order to further elaborate on the hydro-politics of south Asia and answer the questions of why the nations of the south have failed to resolve their mutual water disputes, all the regional dynamics discussed above are appropriate to be revised in the perspective of South Asia hydro politics. Unfortunately, South Asia hydro politics has some additional features as well, which has added new dimensions to the already existing regional hydro rivalries. These factors are discussed as given below.

Firstly, the division of India was the division of the waterways as well. The division was conducted so haphazardly that no attention was given to the division of water resources and its implications for future regional hydro politics. As a consequence, water disputes surfaced amongst the newly born states of the Indian sub-continent. The Indian act of stemming the flow of canals into Pakistan in April 1948 is an appropriate example of such a hectic division and its implications for water disputes. Since the partition of India between India and Pakistan was done on different ideologies of nationalism, therefore, unfortunately, these water disputes too were entangled with the mutual hatred for one another and became the emblems of nationalism of respective states.

Secondly, in South Asia, India is the dominant regional power. In order to strengthen its hold upon the region, India is protracting the resolution of water disputes (Malhotra, 2010). According to a report of Tufts University (2010), the responsibility of the existence of water issues between India and Bangladesh lies with India. Similar is the case of Indian water disputes with Pakistan and Nepal. Being a stronger state, it has the capacity to resolve disputes but is prolonging these disputes for political purposes. Due to its dominant position in the region, and its location as the upstream state, India is a source of insecurity for other smaller states (Iyer, 2003). This has created a political deficit in the region.

Thirdly, though in some cases water issues are serious enough that it hampers the political relations yet in most of the cases it is the general environment of hostility prevailing across the horizon of the region that has made the hydro politics of the region messy (Malhotra, 2010). In the India-Pakistan water disputes, the fragile political relations between the two states due to Kashmir, Siachin, Sir Creek, mutual interference in one another's internal affairs have made the water issues intractable. In the case of India and Bangladesh, the issues of illegal immigration, insurgency operations, and boundaries issues are the core concern. The Farrakhan dispute, the Tipaimukh dam issue, the Teesta problem, all remained unresolved due to the lack of appreciation of the other side's opinion and concerns due to the mutual trust deficit.

Similar is the case with India-Nepal water issues. The controversies over the Kosi agreement, the Kosi dam compensations, and the different treaties all owe much to the political deficit between the two states. India insists on the prior resolution of all these disputes on bilateral terms before taking on the water disputes, which has delayed the resolution of the aforementioned long-standing water disputes. The same argument holds water for the Pak-Afghan emerging water disputes as well. Similarly, if one looks into the water relations between India and Bhutan, both states are collaborating in this regard because they enjoy mutual political trust to a greater extent.

Thirdly, as discussed above, the bilateral approach instead of the multilateral and regional approach is also a reason in this regard. Bilateralism is an important feature of Indian foreign policy. India defends its bilateral approach on the grounds that it is more expeditious as compared to the multilateral approach and fears multilateralism as a kind of "bargaining coalition" on the part of the smaller states. On the contrary, smaller states of the region consider such an approach a drive for regional dominance and hold that it strengthens the perception that the game of water politics is a "zero-sum game" which is a major hindrance in the peaceful management of international rivers (Crow & Singh, 2000).

Since bilateralism is based on national visions without looking into the consideration of the other neighbor that's why most of the proposals under such an approach are rejected by the disputing parties. For example, in the case of the Farrakha barrage dispute between India and East Pakistan and later on Bangladesh, the main point was the question of increasing the flow of Ganges during the lean seasons. Both India and Bangladesh presented their own proposals for increasing the water flow. Bangladesh proposed the construction of some 80 large water storage reservoirs in India and Nepal whereas India insisted on transferring the water from the Brahmaputra. Both these national visions were rejected by the other side. Because such national visions are formed without little consideration for the sensitivities of the other party and therefore fail.

Fourthly, a logical outcome of the above-discussed factors is an analysis of Peter Gleick of Pacific Institute for Studies in Development, Environment, and Security. According to this analysis, water conflicts originate due to the use of water resources as a military, a political goal, or a strategic goal by controlling the enemy's waters (Salman & Uprety, 1999). Due to the division of the region of South Asia, the power imbalance, and lack of trust, regional states are trapped in a security dilemma. This persisting security dilemma compels the regional states to use water as a military tool and hence militarization of waters has occurred. If a thorough analysis of all the disputes discussed is made, it becomes obvious that strategic consideration is a dominant factor in the hydro politics of South Asia. Mutual objections of Pakistan over the gated spillways of most of the Indian projects, of Bangladesh over the Farakha barrage, and Indian criticism upon the proposed Nepalese projects speak volumes for the relevance of Gleick's analysis in South Asian perspective.

Next, no doubt there exist treaties and institutions to govern and manage south Asian water relations between different states. Yet they are inadequate. For example in the case of India and Bangladesh there exist only one water treaty however both nations share 54 rivers.
Similar is the case with the institutions responsible for water disputes resolution or management of water. Either they are inadequate or lack the power and capacity independent of political leadership to reach solutions to the disputes. Another problem is the non-sharing of information amongst different states of the region about river flows, their volumes, different projects, and maps. The relevant data is not systematic and coordinated. For example, the Indus Water Treaty between India and Pakistan explicitly asks both the states to share information on a regular basis, yet this aspect of the treaty does not comply with its true spirit. The Indian government has not bothered to organize a single database having information about different aspects of its rivers and projects (Malhotra, 2010).

Seventhly, it has been made clear that water relations are much influenced by international political relations. Similarly, international political relations are also influenced by intra-national relations. In the case of water relations, any move by a specific political party or group to resolve a dispute and reach an agreement has been criticized by the opposition parties or groups. The parties and leadership that signed the Ganges Treaty between India and

Bangladesh have been severely criticized. The signatories of the Indus Water Treaty too faced the same magnitude of criticism at their respective domestic fronts with the labels of "traitors and cheaters". Such a political culture at the domestic level leave little space for diplomatic maneuvering to resolve a dispute and subsequently, issues have remained in the cold storages.

Eighthly, water mismanagement at the domestic level is also a major reason in this regard (Salman & Uprety, 1999). In fact, water at the domestic level is used such mercilessly and carelessly that even river Amazon, Congo, and the mighty Nile along with the already available IGBM rivers would fall short of meeting the regional needs of South Asia. This water mismanagement is due to a common regional water use culture. A prominent feature of such a culture includes lack of water governing institutions, absence of administrative capacity and the necessary infrastructures, and insufficient participation by the local communities. As a consequence, efficient use of water in South Asia is very low (Chakraborty & Serageldin, 2004) and water scarcity is spiraling up.

CONCLUSION AND WAY FORWARD

Almost all the national governments of South Asia seek the causes and solutions of domestic problems in the external factors. If water distribution causes a feud amongst the federating units of Pakistan or India, or amongst different farmers, classes, communities, and sectors of Nepal or Bangladesh, then instead of finding the cause with the enemy within, the enemy outside is blamed. In order to cover up their domestic failures, the other co-riparian is blamed for curtailing the water supply. Similarly, in order to assuage the rising demands of waters and diffuse domestic tensions over waters, solutions are found in external factors. External factors mean snatching more water from the other water-sharing party, which ultimately results in international water disputes. In other words, the escalating domestic needs of South Asian states have caused intra-state disputes of various types and in order to solve them, states go for the attainment of water resources at the cost of the other neighbor which results in international water disputes. This domestic compulsion has linked the intra-state water disputes with the inter-state water relations. Such a causal relationship between domestic water demands, its ensuing disputes, and international water disputes is prevalent in other regions as well. For example, the same link was found in the first intifada of the Palestinian uprising of 1987 against the state of Israel. The degraded water quality due to Israelis exploitation of water resources for 3 decades caused widespread water diseases which ultimately compelled the Palestinians to rise against Israel.

In South Africa, in 1998, following domestic turmoil over water resources, the government of South Africa deployed troops on the border of the upstream neighbor state of Lesotho to secure water supplies of the Orange River (Giordano, Giordano, & Wolf, 2002). In South Asia, such instances of the interplay of domestic and external forces are in abundance. In the 1960s, due to the construction of the Farakha barrage, many domestic disputes arose in Bangladesh. Water quality and quantity declined, water-born diseases proliferated and fishing and navigational sectors suffered (Giordano, Giordano, & Wolf, 2002) making thousands of people jobless and homeless. This in turn led to mass migration, thereby generating conflict between the local and the migrating communities. Moreover, the overall impact of such a social tension entailed cross border movement of Bengalis to India which strained the water and ultimately the political relations of the two states. Thus, with increased scarcity, domestic water issues would increase. These domestic water issues would complicate water relations between the regional states and cold water relations would resultantly lead to regional political crisis. The region of South Asia is already in the grip of international political animosities, and the addition of another dimension of troublesome hydropolitics water has serious ramifications for the socio-economic fabric of the whole of the region. In the face of the looming water crisis, the states of South Asia must resolve their water disputes on a priority basis. Facilitation of efficient use of waters at the domestic level and then extensive negotiations amongst all the co-riparian states of South Asia could resolve regional water disputes and bring peace across the horizons of South Asia.

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