

WATER WAR – IMPLICATIONS FOR INDIA

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Abstract: This paper has been written with an aim to highlight the looming large problem of decreasing availability of water in the Indian Subcontinent. The Indian Subcontinent has the largest population in the world which is increasing at a rapid pace, consequently the water resources both surface & ground water is being exploited to meet the aspirations of the nations. However, water fit for human consumption being a finite resource is not recouping itself at a rate matching its exploitation. The centrality of India & China controlling the water tower of the world coupled with competing power equations have added to the water stress. There is a requirement for all affected nations to realize and acknowledge each other needs and work out a formula to satisfy all but the nation states in the region are far from doing that for all feel that they should serve their needs first. The paper analyses the problem and suggests a way forward.

Key Words: Water security, transboundary, centrality of India & Chinese control.

Defining the Contours

“Water conflicts stem from the drive to possess or control other nation water resources, thus making water system & resources a political or a military goal. Development of a global water conflict chronology from 3000 BC to Oct 2006 reveals that incidents of water conflicts seem to be more of 20th century phenomenon”.

- Peter Gleick, Pacific Institute for Studies in Development, Environment & Security, USA

“Water” has been in abundance for centuries & has supported the life cycle unobtrusively. With burgeoning population, climate change & consequent fall outs there is an awakening that water's diminishing supply may lead to problems of survival. The realization has been fairly recent, that is, for the past half a century or so. **This shortage of water, however, is not being felt across the world uniformly; more populous with lesser availability, are experiencing higher strain. Water unlike air is divisible & is amenable to sharing. It's a common pool resource & its usage by one is denial to other. It has multiple uses & users & has resultant tradeoffs. Its excludability is an inherent problem & exclusion costs are high.** The way the water is planned, used & managed, causes externalities, both positive & negative. Many of these are unidirectional & asymmetric. Water in the Earth's ecosphere is approximately 1.4 billion cubic kilometers; when compared with average annual freshwater requirement of a human being, a mere 1700 cubic meters conveys that it's sufficient. However, 97.5 per cent of this water being sea water is not fit for consumption. Fresh water availability is only 35 million cubic kilometers & only 40 per cent of this can be used by human beings. **Asia has 36 per cent of fresh water reserves, with over 60 per cent of the world population to support.** As per Falkenmark Index developed by Malin Falkenmark; based on an estimated quantity of water required for agricultural production, in India, per capita water availability in 1951 was 5177 meter cube per year with population of 361 million. In 2001, as the population increased to 1027 million, the per capita water availability reduced to 1816 meter cube per year. By 2025, the per capita water availability will further drop down to 1341 meter cube & to 1140 meter cube in 2050. The nation, when the water availability is in between 1000 to 1700 cubic meter is considered “water scarce” & “water stressed” when it drops 1000 cubic meter & below . **With the increasing realization that fresh water is a finite resource, its renewal by nature in same measure is not guaranteed & its generation from sea water is extremely costly, a race for holding on to this precious resource has started.** There is relative paucity of frameworks, policies & mechanisms that deal with water. In contrast, there is comparative greater understanding viz land & land reforms. **It is paradoxical that, we the human beings, who are dreaming of colonizing Mars, have neither been able to establish a universally accepted governing body for dispute resolution/ resource allocation nor have we been able to formulate laws.** The latest effort being, UN Convention on the Law of Non Navigational Uses of International Watercourses Convention 1997 which came into effect on 17 Aug 2014, advocates equitable & reasonable use of water, avoidance of significant harm & prior notification regarding works that may affect co-riparian's in transboundary watercourses.

THE CRITICALITY – WILL IT LEAD TO WAR OR CO-OPERATION?

“The challenge of securing safe & plentiful water for all is one of the most daunting challenges faced by the World today.....too often, where we need water, we find guns instead. Population growth will make the problem worse. So will climate change? As the global economy grows, so will its thirst. Many more conflicts just lie over the horizon.”

- Ban Ki-moon, UN Secretary General, 2008

Water Scarcity: Will it lead to War?

Are we going to witness such a situation wherein a group of people feeling distressed, wage a war? Possibly, as has been & is being propagated by one group of thinkers, latest being a study by European Commission Joint Research Centre wherein they opined that “Water Wars, remain a go to concept, no matter what the facts are”. Out of five hot spots identified two of them, Indus River Basin (IRB) & Ganges-Brahmaputra Basin (GBB) are in the Indian Sub-Continent.

“The wars of next century will be about water” a statement by Ismail Serageldin, former Vice President, World Bank made in 1995 & “Fierce competition for fresh water may well become a source of conflict and wars in the future” Kofi Annan, the then UN Secy Gen in 2001, have however, not seen fructification.

The usage of terminology of “Water War” in its contextual sense was first made post the study of actions & reactions between Israel & Arab nations wherein it was argued by some that the contours of land borders of modern day Israel got shaped by its water needs. Is it or was it so? **In fact, as per Baskin in 1994 “Water in West Bank is equivalent to cost of 0.67% of the then Israeli GDP!”** Would they have gone to war over it?

Water Scarcity: Will it Force Co-operation?

“Water instead being a resource leading to a conflict leads to co-operation” - Aaron Wolf in 1990’s after his study of 263 international river basins. After analysing 412 water crises from 1918 to 1994; he identified only seven cases where water issues contributed to disputes. **To quote Michael Kugelman, Deputy Director, Wilson Center Asia Programme “India & Pakistan have had multiple wars but they have never fought a war over water”.**

THE GENESIS

One of the earliest water conflicts in the Indian Sub-Continent is recorded in the famous Goutama Budhar Kappiyam; a conflict over the sharing of waters of river Rohini between the Sakiyas & Koliyas Clans, which was according to Dr Ambedkar, was the cause of Budha leaving home. Humans do not always perform rationally or in their best interests and possibly this remains a major reason for conflicts to occur.

Each Conflict is Different. Transboundary water conflicts need to be looked at in a wholesome manner ie within a river basin like Amu – Syr Darya, Tigris- Euphrates, Mekong, Nile, IRB or GBB rather than trying to draw parallels from study of other basins where the historical, geographical & cultural context is different. The intricacies of Indo-Pakistan water dispute in IRB are different from contours of water dispute between India & Bangladesh in GBB. **The history of coming into being & further evolution of the nation states also plays a part.** In Jordan River Basin, Israel & its neighbours are at conflict; is water a greater divide or is it their culture?

ISRAEL & ITS NEIGHBOURS

Jordan River Basin(JRB) comprising Syria, Lebanon, Jordan, Palestine & Israel has been the centre of contextual studies by many an author. This complete area is one of the driest in the World. Israel & NW Jordan on an average receive 110 cm of rainfall per year. Only Kuwait, Libya, Singapore &

Oman receive lesser. Very little of this water can be exploited. Central Jordan & West bank receives only 20 million cube meters(MCM) in a year of which only 3 MCM is usable. Syria & Lebanon receive enough rainfall to support agriculture & to recharge underground aquifers. 1880 MCM annual flow of Jordan River is majorly contributed to by Hasbani River originating in Lebanon contributing 250 MCM, Baniyas River originating in Syria contributing 125 MCM and Dan River originating in Israel contributing 250 MCM. 73 per cent of annual flow in Jordan River originates in Arab Countries with Israel's contributing 27 per cent. Approx 36 per cent of Jordan water resources are shared with Syria, West Bank & Israel. More than 50 per cent of Israel waters are shared with Syria, Lebanon, Jordan & West Bank. In addition, Syria, Lebanon & Israel all have indigenous fresh water aquifers. Two main aquifers that provide water to Israel are the Mountain Aquifer located underneath West Bank & the Coastal Aquifer, with the former being the larger one with it contributing 400 MCM of water out of 850 MCM of groundwater yearly being consumed. **The water dispute continues to simmer & grab headlines both in the occupied territories & within nation states. There is neither congruity on comparative needs nor is there a desire to find a solution.**

THE INDIAN SUBCONTINENT

The River Basins

Indus River Basin(IRB). 10,86,000 square kilometers of IRB comprises Pakistan, India, China & Afghanistan; has Indus as its main river. Indus is joined by Jhelum, Chenab, Beas, Ravi & Sutlej. **As per Indus Water Treaty(IWT), India has priority rights over waters of Beas, Ravi & Sutlej with balance three allotted for usage to Pakistan.** Widely referenced estimates indicate a troubling long-term trend for the flow of the Indus River. In the most severe scenario, melting glaciers will actually lead to a large but temporary increase in the flow of the Indus to as much as 50 per cent above the 2000 baseline by 2030, a steep drop below baseline by 2060, and a 50 per cent fall below the baseline by the end of the 21st Century. **Overall, persistent shortages of water for the Indus River are predicted to begin between 2030 and 2060, even as demand is held constant.** This is when India has not been fully utilizing its priority rights over waters of southern three rivers.

Ganges-Brahmaputra Basin(GBB). Ganges after India, flowing eastward to Bangladesh drains 1.08 million cube kilometers, which is about the area of Egypt. The average annual discharge of the Ganges River Basin is 16,650 cube meters per second, which is nearly 80% of the average annual volume discharged by the GBB. **The key issues affecting the GBB are climate change, water quality and diversion. Nearly 60 percent of the Ganges River discharge is reduced after passing the Farraka Barrage and has a significant impact on the surrounding environment. Groundwater contamination and pollution remain live issues.** Consequently, the actual supply of clean, usable fresh water is less than overall estimates. In the near term, accelerated glacial melting will lead to a temporary increase in water supply. However, this temporary increase would be matched by sharp reductions in overall flow by end of the 21st Century. **Under a best-case scenario of climate change, the flow will decrease to five percent below current volume by 2060, and may decrease up to 15 percent under a worst-case scenario.**

The Centrality of India

The British Legacy. In the Indian Subcontinent, boundaries have been demarcated by the British, without regard to hydrological/ geographical integrity of the river basins. **Main striking feature is centrality & commonality of India to all the other riparian's.**

India's Perspective. India is the second most powerful riparian with the fastest growing population & one of the fastest growing economies. It has good monsoons with uneven distribution but more poor storage facilities. **India has entered into a bi-lateral treaty each with both its neighbours viz IWT, 1960 with Pakistan & Ganges Water Treaty(GWT), 1996 with Bangladesh. The IWT is not time bound whereas GWT has a validity of 30 years. However, both the lower riparian's are not satisfied on differing accounts. Pakistan, contends that India is using more than its share of water & Bangladesh argues that water flow in lean season is insufficient as also that the treaty does not include other trans boundary rivers. India has not ratified UN Watercourses Convention 1997.** The groundwater table is rapidly declining due over exploitation for it accounts for about 80% of domestic water requirement and

more than 45% of the total irrigation in the country. India is slowly moving towards becoming a water scarce country. Pollution is a major issue. There is a dominant view that to make up shortage of water, large dam projects and long distance water transfers are the answer.

China. China's Tibet region is the water tower of Asia – contains the origin point of Indus & Brahmaputra. An estimated 44 per cent of China lives in the northern and northeastern provinces, and some 58 per cent of its cultivated land is also in this area; yet only 14 per cent of the country's total water resources are found in the region. Not surprisingly, this is the area with the serious water deficits, it requires water! To make up this deficit, one of the alternatives is to draw water from rivers available in Tibet nee Brahmaputra. This is the main reason that it has steadfastly refused to enter into any kind of water sharing treaty with any of the lower riparian's including India. **It only shares water flow information.** This too was stopped post Doklam. It has got resumed post Wuhan Summit between Indian PM & Chinese President. **China is also a non-signatory of UN Convention on Water 1997.** It has chosen to go against the Jul 2016 ruling of an arbitration tribunal constituted under the provisions of United Nations Convention on the Laws of the Sea for South China Sea stating that the matter should rather be resolved bilaterally involving other claimants. **It has a non-resolved boundary dispute with India including Arunachal Pradesh which contributes a major portion of water flow to Brahmaputra. It has a rapidly growing population & is one of the largest economies in the World. It has also shown scant regard for lower riparian's in the Mekong River Basin.** The brutal exploitation of Yellow River, at the heart of China's wheat-and maize-producing area, is a grim example - once one of China's main arteries, water flow now no longer reaches the sea on about 200 days of the year. **One of the main points of contention with India is proposed Tsangpo Project in Tibet. It has two components: first is the construction of the world's largest hydroelectric plant that would generate 40,000 Megawatts ie twice the electricity produced by Three Gorges Dam. The second component of the project is the diversion of its waters which will be pumped Northward across hundreds of kilometers of mountainous regions to China's Northwestern provinces of Xinjiang and Gansu.**

Pakistan. The country is majorly dependent on waters of Indus, Jhelum & Chenab for it literally has very little other fresh water sources; the supply of these through IWT by India is considered a generosity by many. In Pak, IRB is characterized by a massive incidence of water-logging and salinity. The problem is increasing by the day due increasing population, poor management, poor public awareness, lack of sufficient funds & feudal attitude. It is moving faster than India towards becoming a water scarce country. **It's a paradox that it continues to bleed the nation on whom it is dependent for water!**

Bangladesh. Ganges Water Treaty(GWT), 1996 regulates flow of water to Bangladesh which was a water abundant country with a per capita water-availability of 8444 cube meters in 2002. However, the water availability is rapidly going down. The major reasons are increasing population, overexploitation & pollution, the same as for India & Pakistan. **It has critical shortage of water in the lean season in western parts of the country which is being blamed on India. It feels that in GWT India has not it its due. This perception, combined with that of India's size, has coloured Bangladeshi thinking.** The efforts made by them to declare their rivers as living beings signify that they are conscious of this precious resource.

Nepal. While constituting only 8.79 per cent of the Ganges basin area, Nepal's major rivers contribute 47 per cent of the overall flow in the Ganges basin and 71 percent of its glacial-fed flow. Nepal entered into several projects with India viz Kosi 1954, Gandak 1959, which primarily look after its hydro power, irrigation & Indian irrigation needs. **Of late Nepal has been skeptical that it has not got its due. Mahakali Treaty 1996, in which, even exchange of instruments of ratification took place, remains stalled. The distrust & suspicion towards India's real motives has crept in. The change of guard in Nepal inclined to get a better deal looking towards China is an ominous sign.**

Bhutan. Bhutan, like Nepal is richly endowed with water resources. It has entered into Number of successful agreements with India on sharing of water getting revenue in return. **Some voices in Bhutan want to look beyond India.**

An Opinion

IRB Vis-à-vis GBB. IRB is more dependent on glacial flow for the GBB receives much more rain. IRB is smaller in size, has lesser feeders & comparatively poorly managed. Pakistan has been

benefitting from less than optimal utilisation of waters allotted to India. India has other water resources whereas Pakistan has none.

China; the Arbiter. Tibet's strategic position has become obvious in recent years for its glacial mass, comprising world's largest fresh water resources outside the Polar Regions, controls the flow of fresh water of the most of the rivers of IRB & GBB. This gives a lever to China to exploit, for its use, even if it's at the cost of lower riparian's. It's even legally covered under the "Doctrine of Prior Appropriation". However, these water resources are critical for sustaining the Indian Subcontinent! Should China remain the lone arbiter of the fate of Tibet's waters?

Chinese Reach Out. China already has Pakistan on its side & been making a bid to woo Bangladesh, Nepal & Bhutan with its economic & infrastructural proposals. Possibly, China has begun to eye the rivers that originate from Nepal – particularly the Kosi; biggest feeder for Ganges. **Should the water in Ganges get reduced, India & Bangladesh could face extremely tough times. It could become a matter of life and death.**

Lack of Regional Co-operation. Beijing's disinclination to set up, as agreed during its President's state visit to New Delhi in Nov 2006, a joint expert-level mechanism on interstate river waters contrasts poorly with India's consideration toward downstream Pakistan, reflected both in the 1960 IWT and the more recent acceptance of World Bank arbitration over the Baglihar Dam. As a reminder, one cannot forget that on 01 Aug 2000, a flash flood had occurred in the Parichu (Tibet), which was carried into the Sutlej from a place called Khab on the border of Himachal Pradesh with Tibet, without any warning from the Chinese authorities. **The correspondent of The Telegraph in Beijing wrote in October 2000: "Chinese leaders are drawing up plans to use nuclear explosions, in breach of the international test-ban treaty, to blast a tunnel through the Himalayas for the world's biggest hydroelectric plant."** Thus it is no surprise, giving the past history of mistrust that China appears intent on aggressively pursuing projects and employing water as a weapon or bargaining tool in future negotiations over contested borders. Its damming on Mekong is a live example.

THE WAY FORWARD

Will There Be War? The water situation is fast deteriorating. All the nation states instead of looking inwards for better water management are looking for an outside solution; **can it lead to war? Yes, but will it resolve the problem, a most definite No, for even after war, one will have to come to the negotiating table.** The war will in fact worsen the situation for the warring parties will attack the water works viz dams & headwork's making the situation even worse as can be seen recently in Iraq where ISIS destroyed such structures. The same has even happened in South Sudan, Yemen, Syria, Eithopia & Kenya.

Regional Mechanism. The nuclear power dominated South Asia needs to find a regional answer to its water woes, for the international mechanisms will neither be able to find one nor will it be acceptable; **amply demonstrated by Chinese actions post ruling against it in South China Sea. Basic trust & acceptance of mutual co-existence will need to be the principles. The discourse will have to be lead & guided by China & India, the two most important riparian's.** The centrality of India to all the riparian's places it in an unique position wherein a little bit of yielding ground even if it is a barter can drastically improve the water scarcity. **There is a requirement to take inspiration from US Global Water Strategy whose essence is in its vision, quote " Our vision is a water secure world, where people have sustainable supply of water of sufficient quantity & quality to meet human, economic & eco system needs while managing risks from floods & droughts" unquote .** It will need to be a give & take for the humanity to prosper.

Formation of a Joint Commission each for IRB & GBB. The Tibet Autonomous Region has 448.2 billion cubic meters of water. **Research figure shows that rivers originating from Tibet sustain the lives of 47% of the world population and 85 per cent of the Asia's total population. Since these rivers bring fresh water to millions of Asians, the protection of those headwaters becomes very urgent. China intends to control these and use them to serve its needs. The same is a recipe for disaster.** It is practical that for realistic planning, and to extract the full benefits from such rivers, a closer dialogue and

collaboration should be established. **All the other riparian's will need to stand together.** Example of such a commission is not difficult to find. In Southeast Asia, Laos, Thailand, Cambodia and Vietnam have jointly formed the Mekong River Commission.

India – Pakistan; Renegotiate IWT. If the IWT is not re-examined and perhaps re-drawn, it could become another fierce point of contention for the two nations for Pakistan will soon run out of water. It heightens the risk of conflict in the future, a sentiment already being echoed by scholars & leaders in Pakistan. For Pakistan it shall become a matter of survival and thus a cause of war. India has spare waters for it receives much more rainfall & it does not fully utilize its share.

India and Bangladesh. By 2025, Bangladesh will approach the threshold of absolute water scarcity and fall well below that threshold by 2050, meaning it will not have enough water to meet its people's needs. A re-look could also be had at a 1978 proposal from Bangladesh that a canal could connect it directly from Nepal.

India & Nepal. The future India – Nepal water relations should focus on giving more concessions to Nepal by way of higher revenue. India's willingness to co-operate with Nepal at an even keel could play an important role in resolving these disputes. China attempts need to be countered seriously for India may lose the influence it has & desire to keep.

CONCLUSION

The physical geography of Pakistan, Bangladesh, Nepal, Bhutan, and China has inter-linked these countries not directly with one another but with India. This environmental, economic, political and security interdependency has also provided this region with unmatched, multiple-use developmental potential. **The Himalayas have thus far effectively prevented China from playing major role and therefore counter-balance the dominant position of India in the region. But this is set to change with China already established in Tibet, having made inroads into Nepal, Pakistan & Bangladesh. Faced with political hegemony by dominant China & India, the smaller riparian states have made use of strategies such as power balancing, internationalization of conflict and selective non-cooperation as the focus of their policies.** India to a large extent has been able to effectively thwart all such attempts primarily because the physical geography of the basins involved prevents other riparian states from directly cooperating with one another. But as the dominant riparian state it has had to pay price for non-cooperation.

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