

Trans-Boundary Water Sharing Issues: A Case of South Asia

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Abstract

The water issue is gradually becoming the prime focus between the interstate relations. Increasing water shortage has made South Asia a water-stressed region. South Asia has four major rivers basins. They originate from Himalayas and irrigation of vast area of this region; thereby provide edibles and livelihood to the huge population. The four main co-riparian states of the region are India-Pakistan and India-Bangladesh-Nepal are lying in west and east respectively. Water shortage is becoming the bone of contention in this region. With the growing population, industrial, agricultural and domestic uses, glaciers are melting and causing environmental degradation. Conflicts over water issue are growing among the countries and the people of this area. The question of hydropower generation and commercial irrigation is issue of great concern and a source of controversy. The present paper is an attempt to analyze this issue. The outcome of this research reflects that no single policy option will eradicate the conflicts on water shortage; rather a multidimensional and coordinated strategy is required to address the emerging challenges.

Key words: Trans-Boundary, hydro-electric power, water stressed, combined approach, water sharing.

Introduction

Water conflicts are becoming prevalent at all levels. The issues based on this responsive affair are going to conclude the future scenario as practised in the past. Conflicts over water are primeval that the idea is incorporated into language, the word 'rivals' is derived from the Latin 'rivalis', meaning 'the one using the same stream as another.' The incidents and

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rigorousness of conflicts has augmented sharply in recent times. Fresh water resources are extremely limited in supply only 2.79 per cent of the global water resources on the earth, of which 0.03 per cent are available for human use. The rapid increase in world population by about 80 million a year is escalating pressure on freshwater demands of about 64 billion cubic metres a year. Besides, population pressure, jumpy-urbanization, and climatic anomalies are amalgam the problems associated with water scarcity. Since water security directly impacts human security, it is a potential source of conflict. More than 263 trans-boundary river basins are present in the world and over three billion people depend on hundreds of Trans -boundary aquifers.¹

South Asia has four major rivers basins, i.e., the Brahmaputra, Indus, Ganges and the Meghna which provide livelihood to million of people in this region. The South Asian river basins irrigate millions of hectares of fields and provide livelihood to millions of people in this geographical location. South Asian region's four main co-riparian states are India-Pakistan and India-Bangladesh-Nepal lying in the west and in the east respectively. Water distribution, its utilization, its management and above all the hydro-electric power projects are affecting the upper and lower riparian countries. Water security is gradually becoming an epicenter of interstate relations and water scarcity is increasing the miseries of people of this area.² In South Asia's case, timing is also an important issue. As in the case of Pakistan 'if India fill its dams when water is needed for crops in Pakistan, it will be disastrous for Pakistani peasants and the planting season over there.'³

Nature of Issue in South Asia

South Asia is increasingly becoming a water-stressed region. Water shortage is triggering conflict in the region of South Asia. With the growing population, industrial, agricultural and domestic uses, glaciers are melting, and environment is degrading, resultantly, the rivers are also becoming a bone of contention between countries and communities in this area. The question of utilization of water for hydropower generation and commercial irrigation is a matter of great concern and causing conflicts. Pakistan is one of the world's most arid countries in which average rainfall is less than 240mm a year. According to a UN report Pakistan is about to become a 'water scarce' country.⁴ Pakistan has limited water resources. Indus River and its tributaries are the largest water source in here and about two-thirds of water supply for irrigation and in homes is gained from the Indus and its associated rivers.

Pakistan's Growing Water Scarcity

In early 2009, Pakistan was on the brink of a water disaster, as the availability of water which was 5,000 cubic meters per capita 60 years ago has declined to 1,200 cubic meters. By 2020, it may fall to about 800 cubic meters per capita, far below the 1000 threshold. In Pakistan, Primary driver for large storage dams appears to be irrigation and agriculture, while power generation is secondary, though increasing electricity demands is also becoming an important factor. Pakistan can store only 30 days of water, while India can store for 120-220 days and Egypt up to 700 days and the US can store up to 900 days of water.⁵ Pakistan has only three major dams having 6,385 MW capacity as compared to India having 74 with a capacity of 15,208 MW; Pakistan has seven hydro projects under construction while India has 37; Pakistan has planned 35 hydro projects with a capacity of 33,769 MW, while India has planned 318 projects with the capacity of 93,615 mw⁶.

India's Water Concerns

India has long standing water disputes in South Asian with her neighbors on distribution of water resources particularly rivers. These disputes are increasing their intensities gradually; as the demand for fresh water is increasing. There is the possibility that if present demographic, economic and environmental challenges may precede then this tension may lead to crisis like situation and probably wars between India and its neighbors thus threatening regional stability. India is in a much better position than Pakistan because of her geographical proximity to Tibet, Kashmir, Himalayas, and the Bay of Bengal. However, the demand for water continues outstripping the supply. the basic driver for hydropower is for growing electricity needs in India. The push for hydropower in India mainly comes from the need to meet the power demands of the 9% plus annual growth rate. Overall for the country, peak power demand in the year 2007-08 was 108,886 MW, while the peak power demand met was 90,793 MW; there was a shortfall of 18,093 MW or 16.6% of peak demand. Pakistan has developed only 12% of 55,000 MW of its hydel potential, while India and China 30% of their potential and rich countries 70%.⁷

India-Pakistan Water Controversy

The water controversy between Pakistan and India lies in the little consideration paid by Britishers, at the time of partition, in the demarcation of boundaries between Pakistan and India. When borders were drawn between India and Pakistan, the origin of river Beas, Chenab, Jhelum and

Sutlej was neglected. India practiced this in 1948, when it blocked flow of Sutlej River into Pakistan and caused severe damage to Pakistani agriculture.⁸ The issue further created suspension and mistrust between the two rivalry states. As In the wake of the Mumbai attacks in November 2008, the issue was raised again in India to scrap the treaty. M. S. Menon sturdily advocated abrogation of the Indus Water Treaty. 'India's intent to withdraw from the Indus Water Treaty can severely hurt Pakistan. If India walks out, it will trigger serious problems of water shortages in Pakistan as India will be able to divert and use its equitable share of Indus waters which she cannot do due to the existing treaty provisions of the treaty.'⁹ He argued that 'the option available to us is due to non acceding of Pakistan to UN Security Council's Resolution 1373 on denial of sanctuaries and support to terrorists.'¹⁰ In the world, the Indus river system and its tributaries together make up one of the largest irrigation canals spanning 1,800 miles. Millions of people in northwestern India and Pakistan get water from it. In order to provide hydropower and irrigation Dams and canals built and they have dried up stretches of the Indus River.

Major Tributaries: Sutlej, Beas, Ravi, Chenab, Jhelum

The Sutlej River rises near Mansorovar in Tibet and meets the Chenab and the Indus rivers after traversing through India and Pakistan. The Ravi follows a north-westerly course after originating near Rotang Pass in Himalayas. Near Dalhousie it turns to the south-west and enters Punjab near Madhopur. It flows as India-Pakistan border for some distance and join the Chenab River. Near the Rohtang pass, the Beas originates in Bias Kund. Near Harika, it joins the Sutlej River. In a spring at verinag, the Jhelum originates in the south-eastern part of Kashmir. The Chenab is formed by the confluence of the Chandra and Bhaga rivers at Tandi located in the upper Himalayas in Himachal Pradesh India. The total length of the Chenab is approximately 960 kilometer.

The first challenge arose as division of the subcontinent blocked the irrigated land of Punjab from the waters of the Ravi, Beas, and Sutlej rivers. The headwork's of the eastern rivers fell under Indian control. After the expiry of standstill agreement on 31 March 1948 for the allocation of water in the Indus basin, irrigation system India shut off water supplies from the Ferozpur headworks to the Dipalpur Canal and to the Pakistan.

After negotiations with World Bank mediation (1952-1960), the Indus Water Treaty (IWT) signed between India and Pakistan in 1960. The World Bank continues to serve a procedural role in settling differences between the two countries. The IWT allocated three eastern rivers (Ravi, Sutlej and Beas) to India and three western rivers (Indus, Jhelum, Chenab) to Pakistan. The IWT has remarkably survived despite wars the between parties, although

serious differences are present over various projects being undertaken by India over Jhelum (2 projects) and Chenab (9 projects) rivers.¹¹

Major Provisions of IWT

The IWT gives Pak. rights on waters of the Indus, Jhelum, and Chenab rivers, which constitute 75 percent of the flow of the whole Indus system.

It allows India under specified condition to tap the water of three rivers allocated to Pakistan.

Article III and IV

Provisions regarding western rivers (Article III)

- 1) Pakistan shall receive for unrestricted use all waters of Western Rivers- Indus, Jhelum, and Chenab.
- 2) India shall not interfere with the waters of Western Rivers except for following uses:
 - (a) Domestic Use
 - (b) Non-Consumptive use
 - (c) Agricultural Use (limited)
 - (d) Generation of Hydro-electric Power
 - (e) Storage Works (limited)

Provisions regarding Eastern Rivers (Article IV)

- 1) All the water of the Eastern Rivers is available for the unrestricted use of India.
- 2) Pakistan is allowed limited Agriculture Use of 45,500 Acres from tributaries of river Ravi namely Basantar, Bein, Tarnah and Ujh.

Article IX: Settlement of Differences and Disputes:

- Commission under Article IX(1)
- Two Governments – IX (3) and (4)
- Neutral Expert – IX (2)(a)

- Court of Arbitration – IX (5)

Article X: Provisions to Deal Emergency

The Article provides procedure to deal with emergency situation arising out of the causes beyond the control of parties.

The IWT created a legal frame work for governing water resources; it failed to diminish several important areas of tension. Three key points of the treaty have contributed to the subsequent disputes.

- 1) Pakistan is dependent upon the Indus River for its fresh water supply .The Indus and its tributaries are the only surface water source for the entire country.
- 2) The headwaters of all six rivers are within Indian Territory; accordingly, the Indian government can significantly limit the flow of water into Pakistan.
- 3) India is not permitted to build projects on the Indus, Jhelum or Chenab rivers to divert or store water flowing to Pakistan.¹²

Current Disputes between Pakistan and India

In many reports by UN, a clear warning for Pakistan and India has been repeated. The real cause behind the threat is the rising temperature which will cause glaciers to melt and it will increase people migration and water shortage, because water is a great mobilizing force, behind people's movement from one place to another. Both countries will be affected by this situation. The two nuclear armed neighbors are already having the experience of wars, conflicts and many crises - rivers flowing to Pakistan from India have emerged as a recent bilateral flash point.

As the water scarcity increases in South Asia, India having the largest rural population in the world about 1 billion in 2009 is having many problems. In the region water is essential to food and industrial production. To match the demand, the states of region are in the effort to take new steps and to plan new projects. As on 24 May 2003, India Prime Minister Atal Bihari Vajpayee launched '1150,000 MW Initiative.' This initiative fast tracked hydropower development by taking up time-bound preparation of the Preliminary Feasibility Reports (PFRs) of 162 new hydroelectric schemes totaling around 50,000 MW. India has plans to build this capacity by 2017 and then, in the 10 years following, to add another 67,000 MW of hydropower.

Pakistan has objected to the construction of 67 projects by India on the Indus river. India has not shared the pre-feasibility studies with the basin states of South Asia which is giving rise to apprehensions in co-riparian countries.¹³ On Jan. 28, 2009, President Asif Ali Zardari in an article in *Washington Post* warned:

“The water crisis in Pakistan is directly linked to relations with India. Its resolution could prevent an environmental catastrophe in South Asia, but failure to do so could fuel the fires of discontent that may lead to extremism and terrorism.”¹⁴

Again, in UN, Pakistan's concern was repeated by Pakistani President, as he stated that: “Pakistan would be paying a very high price for India's move to block Pakistan's water supply from the River Chenab.”

Planning Commission Deputy Chairman Sardar Assef Ahmad Ali while speaking at a seminar on 3 January, 2010 stated India will have to stop stealing Pakistan's water as it can initiate a new war on water issue. On the same day, Ayub Mayo the Chief of Pakistan Muttahida Kisan Mahaz said the irrigation system of Pakistan is damaged by stealing water by India in violation of the treaties. Jamaat Ali Shah who is Pakistan's top water negotiator on water issue also showed deep reservations over the issue.¹⁵

Indian position is that it is not violating the IWT and all the projects are constructed according to the requirements of the Treaty.

Indian Projects on Western Rivers

- Chenab: India has commissioned 11 projects; another 24 are under active consideration.
- Jhelum: 13 projects are commissioned; 74 power potential schemes are identified
- Indus: 9 projects are commissioned/under construction.

Wullar Barrage/Tulbul Navigation Project

The Project was started by India in 1984, halted in 1987 after Pakistan raised objections. India is insisting on revival of work on the project while Pakistan has asked India to abandon it. Pakistan maintains, it was a lake created by nature and artificial storage could not be built on under IWT of 1960, and it can obstruct flow of Jhelum River, affecting the agriculture and

power sector in Pakistan. Wullar Lake feeds the Jhelum River and fills Pakistan's Mangla Dam and has been Asia's largest freshwater reservoir. India initially presented the project as a regulating structure but afterwards it has changed the position that it is a navigational lock, not in violation of the IWT. At the 4th round of talks on the World Bank held in August 2007, both parties agreed to set up a technical-level mechanism to take forward talks on the issue¹⁶.

Baglihar Dam Dispute

On river Chenab, the 900 MW Baglihar hydro-electric project is in the southern Doda district in J&K. This project was framed in 1992 and approved in 1996. The construction on it began in 1999. Pakistan was left with no choice but to move the World Bank for arbitration as provided for in the IWT. The verdict of the neutral expert announced on 12 February 2007, accepted three out of four of Pakistani objections in its final determination on the design of Baglihar hydropower project.

Pakistan had raised four concerns on the design of the project and sought modification on free board, level of power intakes, pondage and spillways. Only on the design of spillways, the neutral expert Lafitte disagreed with Pakistan's position. a 450-MW hydroelectric power project was the first phase of the overall project and it was completed on October 10, 2008. Pakistan has asked India to inspect it before its operationilization.¹⁷

Summary of Baglihar Judgment

S.No.	Petition of Pakistan	Indian Point of View	Judgment of Neutral Expert (NE)	Explanation/Justification
Maximum Design Flood	Pakistan's calculation for flood was 14,900 m ³ /s at Site	16,500 m ³ /s	NE upheld Indian point of view and retained the value of 16,500 m ³ /s	Climate change vulnerability in Chenab Basin is unprecedented
Spillway, Un-gated Or Gated	Spillway Should be Un-gated	Spillway must be gated	NE upheld Indian point of view, and decided that Baglihar Dam requires a gated spillway	Pakistan needs to consider State-of-art technology while in design. Judgment was based on analysis done by the NE on 13,000 existing spillways in the world.
Spillway, Level Of The Gates	Spillway not with the provisions of the Treaty	Spillway designed to pass Max flood for passing and sediments.	NE upheld Indian point of view,	Treaty is based on technology on reservoir sedimentation in the 1950s. Consult Bulletin 115 of ICOLD(1999) and Use state of art knowledge of Science
Free	4.5 m	1.0 m	Fixed at 3.0	Need minor adjustment
Pondage	37.5 MCM	6.22 MCM	Fixed at 32.56 MCM	Use state of art knowledge of Science for calculation of pondage

Source: Shaheen Akhter, presentation at *NDU*, dated February, 10, 2010.

Kishenganga Hydro-electric Project

The 330-MW Kishenganga hydro-electric project is about to build on Neelum River (Kishenganga) in Gurez Valley. This valley is situated near

Bandipora in Kashmir. A dam is being constructed on the Kishenganga in the Gurez Valley. It will create a large reservoir of water. A channel and a 27 km tunnel will be dug south through the North Kashmir mountain range. It will re-direct the Kishenganga waters to the Wullar Lake at Bandipur. It is the area where a hydro-electric project will be built. The river will be diverted by 100 km. Pakistan has pointed out that India has redesigned Kishenganga project. It will address some environmental concerns. It envisages a diversion of Neelum River to Wullar Lake and there will be little water for Neelum Valley in AJK¹⁸.

Pakistan has said that India cannot divert water from rivers allocated to Pakistan according to IWT. The diversion can endanger some hydropower development plans in Pakistan such as Neelum-Jhelum project. The water diversion can affect agriculture and environment of Neelum Valley. Although, the construction work has not begun yet, surveys have been conducted and people of the Gurez Valley are expressing environmental concerns.

Uri-II Hydro Power Project

Pakistan has also formally raised concerns at the 'unilateral' construction Uri-II hydro power project. It is of 240MW project on river Jehlum in IHK. Pakistan wanted full engineering data this project. Pakistan wants to block its construction until the issue is settled. Pakistan objects on the structure of dam and the poundage level and free board. Pakistani side had made it clear that India could not build a gated structure on the Uri-II hydropower project according to IWT. Pakistan has threatened to seek World Bank intervention if project continues.

Pakistan's Concerns

- Pakistan has several concerns on effective implementation of the IWT by India
- Pakistan has raised concerns about data sharing and transparency. As the all rivers bases are present in India and she can control the flow.
- Inadequate data supply to Pakistan by India on newly developed projects like Baglihar, Dul-Hasti and Uri-II Hydroelectric Plants, and other newly installed grand observation stations for under construction and planned projects.
- Provision of such information is essential for Pakistan to ensure that run-of-river plants are being operated according to treaty

India-Bangladesh

Bangladesh shares 54 rivers with India. It is a lower riparian include three major rivers, Ganges, the Brahmaputra and the Meghna in the Himalayan system. Ganges originates from Gangotri (UP). Its major tributaries in India are Yamuna, the Tons and Gomati, in Nepal - Kamala and Mahakali and in Tibet Kosi and Gandhak. Its total length is 2,500 km's. Its 80 percent of basin is in India; 18 percent in Bangladesh while only two percent in Nepal and China. Brahmaputra originates in southwestern Tibet where it is called as the Yarlung Tsangpo River. It flows through Himalayas into Arunachal Pradesh and Assam Valley of India before entering Bangladesh. Its total length is 2900 km. Ganges, Brahmaputra and the Meghna Rivers serve as the natural surface water resources in Bangladesh. Bangladesh problem is too much water in the monsoon and drought in dry season. Still, rapid population growth, economic activities and climate change putting stress on water resources.¹⁹

Dhaka has serious differences with New Delhi over the sharing of Ganges, Brahmaputra and eight other rivers. Ganges, Brahmaputra, Meghna and Teesta are among the trans-boundary rivers on which India is constructing barrages, canals and irrigation system. Sharing of the waters of Feni, Manu, Muhuri, Khowai, Gumti, Dharala and Dudhkumar rivers is also creating problems.

Sharing of Ganges Water

Ganges is shared by India with Nepal, Bangladesh and China. The main issue is of sharing of the Ganges water during the lean period. In 1951, India decided to construct a barrage across the river Ganges at place of Farakka present in West Benga. It was to divert water by the Bhagirati-Hoogly system. It will benefit port of Calcutta. Pakistan objected. India began construction of the FB unilaterally in 1960 and was completed in 1974.

Water shortages occurred in Bangladesh by blockade of the Ganges water by Farakka barrage. Sudden water releases can cause floods and extensive damage in the rainy season including the loss of property and human lives. India consulted Bangladesh for test operation of the FB and feeder canal. The then PM Sheikh Mujib agreed to India's proposal for test operation of the barrage and feeder canal. Initially, in 1975 India was allowed to river to flows varying from 11000 to 16000 cusec for a period of 41 days from 21 April to 31 May 1975 with the understanding that India will

not operate feeder canal until a final agreement was reached between India and Bangladesh on the sharing of Ganges water.²⁰

India started diverting the Ganges water in the upstream unilaterally in 1976 and 1977 by violating this understanding. It affected environment, agriculture, industries, fisheries, navigation, river regime, salinity contamination in the surface and ground water.

Bangladesh presented matter in UN General Assembly in 1976. India signed an ad hoc agreement for five years on Ganges water sharing in 1977. Sharing proportion of Bangladesh and India was 60:40 respectively with a minimum flow of 34,500 for Bangladesh and 20,500 cusec for India. In case of decrease in flow at Farakka under extreme situation Bangladesh was guaranteed with 80 percent of its share during each of the slots.²¹ Both are going on in the Joint Rivers Commission which has held a meeting in March 2010 after a gap of 5 years. Formed in 1972, this commission is the highest forum for dispute resolution between two countries

India's River Link Project and its impacts

India is planning to build a project to divert water of Ganges and Barhamputra. It is also a bone of contention between two countries. India says that proposed project is to resolve the problems of drought and flood by water diversion from 'surplus river basins' to 'deficit river basins' in the country. The plan threatens the life of more than 100 million people in Bangladesh. More than 80 percent of Bangladesh's small farmers grow rice and they depend on water coming from India²².

Tipaimukh Dam

Indians are constructing of the massive Tipaimukh barrage on the Barak river with a capacity of 1500MWs to entertain Indian state of Assam. This is again another violation of International River Law because Indians are doing it without taking Bangladeshi government into confidence. It will have damaging effect on agriculture of Bangladesh as it is drying up Surma and Kushera River over there. It will also harmful to ecosystem and climate of this region. Bangladesh gets seven to eight percent of its total water from the Barak River. This will affect the agriculture and fishing of millions of people in this area.²³

Nepal's case

In South Asia's case, the major problem behind the water issue seems to be the political mistrust. In India-Nepal issue, this element is escalating the conflict. Nepal is the upper riparian state in the shared Himalayan waters of South Asia. The major rivers of Nepal, like the Mahakali and Karnali,

originate in the Himalaya and fall into Ganges. The Karnali, Sapta Gandaki and Sapta Koshi, all trans-Himalayan rivers flowing through Nepal, contribute 71 per cent of the dry season flows and 41 percent of the annual flows of the Ganges.²⁴ Nepal's hydropower generation capability is some 83,000 MW in total, out of some 42,000 MW is financially and technically feasible. Only one percent is tapped so far. It is estimated that the cost for the production of Nepal's capacity of 42,000 MW would come roughly to US\$ 80 billion and for 25,000 MW; it would be around US\$ 50 billion.²⁵

As an upper riparian, Nepal has a different relationship with India and faces many problems about the projects proposed by India. Nepal is concerned about inundation and backwater effects of the proposed storages and link canals. Nepal's mistrust, beside other factors, has been reinforced by what it perceives to be various unequal treaties, starting from Sharada Dam construction (1927), 1950 Treaty and Letters of Exchange of 1950 and 1965, Koshi Agreement (1954), Gandak Agreement ((1959), Tanakpur Agreement (1991) and the Mahakali Treaty (1996)²⁶.

The Nature of Indo-Nepal Issue

There is a variance in the boundary of Maha Kali river since 1816 when East India Company signed a treaty. In 1997 this issue escalated when Nepal wanted for formulation of treaty regarding this matter. Both countries have their own claims about its source. India favours Lipu Lekh as its source but Nepal favours the Limpiyadhura. Sino Indian border lies near this region and because of its close proximity it is very important²⁷.

The Nepalese feel that they have been 'cheated' in these agreements and projects. Opinion about Mahakali Treaty is divided in Nepal. The main issues pertain to potential benefit from these projects regarding flood control, irrigation and power generation.

Indo-Nepal Mahakali Treaty

All the downstream projects are included in this treaty. Therefore it validates Sharda Treaty (1920), the Tanakpur Agreement (1991) and endorses the idea of Pancheswar Multipurpose Project.

Mahakali Treaty

Issues of Negotiations

Major issues of Disagreement	Nepal's stand	India's stand
Status of Mahakali River	Border River	Border river stretches
Equal sharing of water	Mahakali boundary River, hence both countries has 50:50 share over water	The river can be used by the two countries but does not belong to either; Equal sharing really applies to the incremental benefits and costs attached with Pancheswar Project.
Existing consumptive uses	2 Mha areas irrigated from the Lower Sharda Barrage, 160 km. Further, downstream in India, is outside the scope of the Mahakali agreement and not a protected existing use.	Area comes under existing consumptive uses
Benefit sharing	Power benefit is to be assessed on the basis of saving is actually replacement or avoided cost.	Alternative means can be other HRP's, gas based projects, thermal projects and not necessarily the thermal source only.

Source: Emma Condon, *Resource Disputes in South Asia: Water Scarcity the Potential and for Interstate conflict*, 2009, p.63.

Sharda Barrage

Nepal deserves 1000 cusecs of water from this barrage from 15 May to October 15 and 150 cusecs onwards. It is compulsory for India to maintain flow of at least 350 cusec water downstream of it in Makhali River to sustain the ecosystem. Indian sovereignty is necessary over this region to construct a bund and pondage area of about a hectre.

The Treaty provided an enhanced package to Nepal, of 1,000 cusecs of water in the wet season and 300 cusecs in the dry season, and 70 million Kwhrs of electricity (as against the earlier agreed figure of 20 million Kwhrs) free of charge from the Tanakpur power station, with transmission line to its border.

- Pancheswar: 50:50 cost benefit split on this project is ensured by treaty.
- The Pancheshwor dam on the Sharda River has issues of cost, the sharing of the waters, the price at which the electricity generated will be provided and, above all, the rights of the state where the waters originate attached to it. These issues have arisen because of the differing interpretations of the 1996 Mahakali Treaty by Nepal and India.
- Inundation of areas in Nepal: India is constructing on almost 17 places and Nepal is encountering many problems because of it.
- India agreed to take care of 'sluice gate' on Laxmanpur Bund but India rejected Nepalese point of view over the inundating the Lumbini which is the birthplace of Buddha.

Conclusion

Water is the lifeblood of one quarter of world population living in the South Asian Subcontinent. The discussion made in above pages reflects that nothing is straight forward or simple in this region. Disputes over water are central to the political economy of South Asia. At the broadest level, the management and utilization of water resources in South Asia is important in the geo politics of the region. Trans-boundary disputes are playing important role in disputes about water. Retreat of glaciers and water scarcity are the new growing challenges. Environmental cooperation may offer pathways to confidence building. The passable will can help to resolve the future contestations over water in the region. In spite of the established agreements and treaties its is a fact that matters of water sharing, management and the hydropower projects are consistently the bone of contention between India and rest of the countries i.e. Pakistan ,Bangladesh and Nepal. There is a dire need to develop a regional cooperative approach to resolve the problems like glaciers retreat and water management along with the environmental degradation.

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