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IILS LAW REVIEW VOLUME 4

ABOUT IILS

The Indian Institute of Legal Studies established in the year 2010, under the aegis of University of North Bengal, approved by the University Grants Commission under section 2 (f) and 12 (B) of the UGC Act, 1956 and recognized by the Bar Council of India is well known for promulgating legal education in the region of North Bengal. It is also emerging as a leading education and research center in the SAARC region through the establishment of the "Centre for SAARC on Environment Study & Research". Acknowledged as one of the best law colleges in India, IILS is nestled between the quaint Himalayas and lush green foothills of North Bengal.

The Institution is an all-time hub of activities. Apart from its regular academic courses the institution organizes various educational seminars and symposiums with the motive of enhancing the knowledge of the students.

The Institution takes pride in hosting workshops for police officers of North Bengal Region on Human Rights and Cyber Crimes. These workshops have been graced by eminent police officers and scholars. These training programs are organized with the aim of imparting theoretical knowledge to the officers who are blessed with practical knowledge. A training program for the public prosecutors by the Government of West Bengal was also organized in the campus of the institution.

The Institution also had an opportunity to organize Regional Training Program on International Humanitarian Law which was held in collaboration with the ICRC. The program was acknowledged by the presence of renowned scholars, professors and judges from neighboring countries.

The Bureau of Police Research & Development, Ministry of Home Affairs, Government of India had delegated IILS to organize a vertical interaction course on "Criminal Justice System" which witnessed the auspicious presence of eminent dignitaries and Vice Chancellors from different National Law Schools.

The Institution has organized a series of national and international seminars. Within a short span of time, the institution has scaled many heights. It had started by organizing National Seminar on "Civil Justice Delivery System" and today is well-equipped to organize international level seminars, with a series of "SAARC LAW CONCLAVE" on legal education and practice, being the phenomenal one.

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MESSAGE FROM THE PATRON

It is a momentous opportunity for IILS to introduce the fourth edition of its flagship Journal titled. "IILS Law Review."

The Review is an annual journal focusing on multi-dimensional legal thoughts and writings.

As the patron, I would like to give a slightly different message this time parting from the traditional trend. Recently, I was going through the book "Idea of Justice" by Amartya Sen and I got the opportune moment for penning down a few extracts.

The Enlightenment authors gave two different lines of reasoning about justice clearly demarcating two groups of leading philosophers associated with the radical thought of the Enlightenment Period. One approach evolved around Thomas Hobbes, later by John Locke, Rousseau. Kant and others who concentrated on identifying "just social arrangements", "just institutions" woven around the idea of a hypothetical "social contract." This mantel of the contractarian approach was forwarded by John Rawls in his classic book 'A Theory of Justice; 1971.

In contrast other enlightenment philosophers as Smith, Condorcet, Wollstone Craft, Bentham, Marx, Mill stressed on the comparisons between different ways in which people's lives may be led, influenced by institutions and people's actual behavior, social interactions and other significant determinants.

This book of Sen draws to a great extent on this alternative tradition by addressing two questions about the enhancement of justice and the removal of injustice in the world but at the same time Sen has also drawn insight from the first approach. Sen has emphasized on reason, objectivity, voice, social choice, rationality, freedom, capabilities, equality, liberty, practice of democracy based on reasoning and so forth.

Sen traditionally belongs to the fraternity of "Economics" but I am astonished by his lucid presentation on an alien subject "justice" entitling him to the coveted phrase-"One of the most influential public thinkers of our time".

Going through Mr. Sen's book on Justice one gets an in depth inside into the various concepts of the theories of justice as critically and analytically explained by Mr. Sen. Thereafter I wish and opt in one of the further editions of this journal a contributor shall come up with an article on this particular subject.

I also take this opportunity to convey my best wishes to the SAARC Law Conclave on "Transboundary Water Conflicts in South Asia" being organized by the college on 28th and 29th of April, 2018 to be graced by eminent legal personalities from SAARC Nations.

Joyjit Choudhury
Founder Chairman
Indian Institute of Legal Studies

CONFLICT OVER RIVER WATER SHARING IN SOUTH ASIA WITH SPECIAL REFERENCE TO THE GANGES

Prof.(Dr.) Jayadev Pati[1]

INTRODUCTION

The national legal or policy framework of States usually provide for the procedure to be followed for sharing freshwater resources that exists or available within their territory. The legal and regulatory framework is implemented in several layers to protect the natural resources. Some States endeavour to do this in more general terms and others with specific provisions to deal with any river water-related conflicts.[2] The water-related rights within the domestic context of any State need to be categorized into two different frameworks. The first category is in terms of specific water rights as regulated by the State which could include such rights as access to clean drinking water, water usage and rights that restrict or vest those rights in certain sections or groups of people, environmental issues, and other related rights, which are enshrined in specific domestic legislations. The second category comprises rights and policies regarding the actual sharing of rivers and other freshwater resources such as lakes and ponds within the domestic context, which is an issue that mostly arises within the federated units or provinces of a State.

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2 Generally on the domestic legal frameworks within the South Asian context see R. Ramaswamy Iyer (Ed.), Water and Laws in India, (New Delhi: Sage Publications, 2009); Tushar Shah, Taming the Anarchy: Groundwater Governance in South Asia, (New Delhi: Routledge, 2009); Kishor Uprety and Salman M. A. Salman, "Legal Aspects of Sharing and Management of Transboundary Waters in South Asia: Preventing Conflicts and Promoting Cooperation", (2011), Hydrological Sciences Journal, Vol. 56 (4) pp. 641–661; Gopal Siwakoti, "Transboundary River Basins in South Asia: Options for Conflict Resolution". Available at https://www.internationalrivers.org/sites/default/files/attached-files/transboundaryriverbasins.pdf. Accessed on December 20, 2015;Shanta Mohan, Sailen Routray, and N. Shashikumar (Eds.), River Water Sharing: Transboundary Conflict and Cooperation in India, (New Delhi: Routledge, 2010).

So far as river-sharing in trans -boundary countries are concerned the policy- makers face two kinds of challenges- first, the willingness to depart from inward looking national strategies for the fostering of multilateral cooperation and secondly to be able to place human development at the centre of trans-boundary cooperation and governance. As per a report of the United Nations Development Program (UNDP), water governance has to imply a range of political, economic, social and administrative systems that have to be put in place to regulate the development and management of water resources and provisions for water services at different levels of society. In such approaches the roles of hydrocrats and technical experts are dominant.

THE RIVER GANGA AND ITS TRIBUTARIES:

The Ganga is one of the important and sacred rivers in South Asian region. It is atras boundary river between India, Tibet (China), Nepal and Bangladesh. Some rivers originating from Tibet region of the peoples of Republic of China passes through Nepal. The tributaries of the great river cover more than one million sq.km spreads over the aforementioned nations. Cooperation among these countries of the basin, especially among Nepal, India and Bangladesh has been a subject matter of discussion at the political and professional levels. India is the dominant user of the Ganga water and major player in regional cooperation of the Ganga basin countries. To fulfil water requirement, India has been pursuing a policy of bilateralism with Nepal and Bangladesh in relation of the water of the Ganga River and its tributaries for the last seven decades.

The Ganga basin outspreads over an area of 10,86,000 Sq.km. In India, it covers states of Uttar Pradesh, Madhya Pradesh, Rajasthan, Bihar, West Bengal, Uttarakhand, Jharkhand, Haryana, Chhattisgarh, Himachal Pradesh and Union Territory of Delhi draining an area of 8,61,452 Sq.km which is nearly 26% of the total geographical area of the country. The Ganga having maximum length and width of approx. 1,543 km and 1024 km .The basin is bounded by the Himalayas on the north, by the Aravalli on the west, by the Vindhyas and Chhotanagpur plateau on the south and by the Brahmaputra Ridge on the east.

The Ganga rises in the Gangotri glacier in the Himalayas at an elevation

of about 7,010 m in the Uttarkashi district of Uttarakhand. At its source, the river is called as the Bhagirathi. It descends down the valley upto Devprayag where after joining another hill stream Alaknanda, it is called Ganga. It is a place of pilgrimage for Hindus. The total length of river Ganga (measured along the Bhagirathi and the Hooghly) up to its outfall into Bay of Bengal is 2,525 km. The principal tributaries joining the river from right are the Yamuna and the Son. The Ramganga, the Ghaghra, the Gandak, the Kosi and the Mahananda join the river from left. The Chambal and the Betwa are the two other important sub-tributaries. The major part of basin in Indian Territory is covered with agricultural land accounting to 65.57% of the total area and 3.47% of the basin is covered by water bodies. The basin spreads over 239 parliamentary constituencies reported in 2014 comprising 80 of Uttar Pradesh, 40 of Bihar, 40 of West Bengal, 25 of Madhya Pradesh, 16 of Rajasthan, 12 of Jharkhand, 8 of Haryana, 5 of Uttarakhand, 4 of Chhattisgarh, 2 of Himachal Pradesh and 7 of Union Territory of Delhi. As per the latest assessment, the hydroelectric power project over the Ganga basin is 6296.8 MW out of which 5129.8 MW is in operation and 1167 MW is under construction. There are total 773 numbers of dams constructed on the river Ganga basin. The total numbers of Hydro electro projects is 37. The sate wise distribution of drainage area in Uttar Pradesh, Madhya Pradesh, Bihar, Rajasthan, Wet Bengal, Haryana, Himachal Pradesh and UT of Delhi covers total of 861404 square Km.

CONSTITUTIONAL FRAMEWORK IN PROTECTING WATER RESOURCES IN SOUTH ASIA

The Constitutions of the South Asian countries though not refer to the protection and preservation of water resources directly, still some of them try to deal separately with the resolution of river water disputes within their boundaries.[3] The Indian Constitution, when come into force

3 Both India and Pakistan provide separate provisions for conflict resolution for such disputes by excluding any jurisdiction for the Courts. Article 262 of the Indian Constitution seeks to provide for a separate law to adjudicate "any dispute or complaint with respect to the use, distribution or control of the waters of, or in, any inter-State or river valley." Pakistan provides in Article 155 of its Constitution that any complaint with respect to the use and

in 1950, initially didn't contain any provision for protection and preservation of environment and forests. It is only after the 42nd Constitutional Amendment in 1976 Article 48-A and 51-A(g) was added which provided the State to endeavour to protect and improve the environment and to safeguard the forests and wild life of the country.[4] Bangladesh recently in 2011 inserted an amendment to its Constitution to include Article 18A which states that, "The State shall endeavour to protect and improve the environment and to preserve and safeguard the natural resources, biodiversity, wetlands, forests and wildlife for the present and future citizens." The provisions inserted both in Indian and Bangladesh Constitutions are found to be similar in the obligations created within the Constitutions both in terms of the placement of the provisions as well as their wider interpretations to include water bodies and rivers.

The Constitution of Sri Lanka makes a reference in its Article 27(14) to "protect and preserve and improve the environment for the benefit of the country". However, besides having Constitutional provision, Sri Lanka too has nearly fifty more legislations to deal with water resources and related issues and also about forty agencies to deal with these issues.[5] The present Nepalese Constitution in Article 51(g) outlines its policy on various aspects of preservation and management of environment and natural resources.[6] Nepal, while pursuing policy of "conserving the natural resources and imbibing the norms of inter-generation judicious use of it for the national interest" seeks to achieve

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distribution or control of water by the Federal Government or the Provincial Government should be handled by a Council in which Prime Minister and Chief Ministers of all the Provinces are members. It also excludes jurisdiction of any Court in these matters.

4 Article 48-A is in Part IV (Directive Principles of State Policy) and 51-A(g)Part IV-A(fundamental duties) of the Constitution of India, which is unlike Part III (Fundamental Rights) is non-justiciable. Article 37 of the Indian Constitution provides that the provisions contained in Part IV are not to be enforceable by any court, "but principles therein laid down are nevertheless fundamental in the governance of the country and it shall be the duty of the State to apply these principles in making laws".

5 These agencies include both governmental and community-based agencies. Governmental agencies usually undertake regulatory functions, the community-based agencies seek to supplement and implement these regulatory and policy framework at the grassroots. For detailed account on this see V. K. Nanayakkara, "Sri Lanka's Water Policy: Themes and Uses". Available at http:// publications.iwmi.org/pdf/H042809.pdf. Accessed on December 20, 2015.

6 Article 51 of the Nepalese Constitution is titled as "State Policies" and deals with various national policy aspects relating to important areas, which interalia, also include in clause (g) policies regarding the conservation, management, and use of natural resources.

a fair distribution of benefits by giving local people priority and preferential rights. Specifically, Nepal provides in Article 51(g)(2) that "The State shall pursue a policy of prioritizing national investment in water resources based on people's participation and making a multi-utility development of water resources." Bhutan, in its Constitution, has several provisions on preservation of environment, its culture and traditions, and related issues. Article 5 specifically deals with the 'environment' and regards every Bhutanese as a trustee of the Kingdom's natural resources and environment for the benefit of present and future generations. There is also reference to the State's ability to extend special protection to any part of Bhutan by declaring it a "nature reserve", "critical watershed, or such other categories meriting protection".[7]

A brief survey of all the South Asian Constitutions shows that there are general references to the protection and management of environment and related aspects. The legal and policy framework relating to the regulation of water related issues, including the sharing of river waters flow from these broad constitutional provisions.[8] Both India and Pakistan seek to exclude any intra-State conflict or dispute from the purview of formal adjudicatory bodies like courts, including their Supreme Courts. Any such conflict, as elaborated in their respective Constitutions will have to be resolved through the establishment of Tribunals or Commissions which will be comprised of water engineers and legal experts.

In this context it seems that both these countries follow the United States model in resolving intra-State water conflicts through the formation of expert bodies that would take into account concerns of all stakeholders and provide a solution based on the practical assessment of the ground reality. In adjudicatory process this kind of flexibility is not available to the stakeholders resulting in the non-acceptability of the final verdict as it becomes difficult for them to convince their affected

7 Article 5(5) of the Bhutanese Constitution provides "Parliament may, by law, declare any part of the country to be a National Park, Wild Life Reserve, Nature Reserve, Protected Forest, Biosphere Reserve, Critical Watershed and such other categories meriting protection."

8 Afghanistan seems to be the only exception, as it does not have any specific or remotely connected provision on water or environment related issues.

population. It should also be noted that intra-State conflicts, like the trans-boundary conflicts, also involve dealing with complex socio-economic and political dimensions. It might become difficult for the stakeholders such as provincial units or federal units to convince members of their populace who are adversely affected by these decisions. In such a scenario, negotiated and mediated decisions seem to be the best alternative and some of the South Asian countries have adopted this method while dealing with their intra and inter-state conflicts.

WATER DISPUTES AND TREATIES IN SOUTH ASIAN REGION

A number of water treaties have been signed between India and Pakistan as well as between India and Nepal[9]. Quite a few of them turned into full fledged disputes, understanding the mistrust with which South Asia governments view each other since the beginning of the process of decolonization in the subcontinent. One major hindrance to the successful resolving of the conflict over the sharing of the waters of South Asian rivers, especially those of trans-boundary Rivers, is the absence of regional cooperation at the sub continental level. There is a clear need for fresh local and sub-national perspectives on water management, the absence of which continues to prevent sustainable development and successful management of trans-boundary water resources for the improvement of livelihood, food security, reduction of poverty, and effective adaptation to climate change in a region that is increasingly becoming extremely susceptible to the global warning process. A nuanced understanding of the political economy of the South Asia with regard to the effective management of its water resources would succeed in offering some solutions to long standing disputes over the sharing of the waters of the Ganges and Teesta . There are bound to be winners and losers in these negotiations, but the first and foremost

[9] Some of these treaties were the Indus River Treaty between India and Pakistan (1960), treaties between India and Nepal for the equitable sharing of the water of the Kosi (1954), Gandaki (1959) and the Ganges Water Sharing Treaty (1966), for more details see Political Economy Analysis of the Teesta River Basis (San Fransisco: Asia Foundation, Mar. 2013).

task of the subcontinent's officials, whichever side they may belong to, India or Bangladesh is to ensure that in the long run disputes arising over water sharing in the region are settled without causing too many collateral damages to the standard of living of the large majority of indigenous communities that continue to live in areas that are most likely to be effected by the building of dams and barrages for irrigation and hydro-electric projects.

WATER DISPUTE OVER THE GANGES

The Ganges water dispute is one of the oldest and most intractable disputes in the contemporary history of South Asia. The Ganges, which flows down from the Himalayan Nada Devi range through India, Bangladesh, Bhutan, Nepal and China, is economically, socially and spiritually crucial to the lives of the people living in the regions through which the river flows. More than half a billion of people depends upon Ganga River's water for their livelihood and existence. The larger part of Ganga flows through India before joining the Brahmaputra and Meghna in Bangladesh. Thus it seems quite justified for India claiming for larger share of the Ganges' water.

To fulfil her water requirements, India has been pursuing a policy of bilateralism with Nepal and Bangladesh in relation to the waters of this river and its tributaries for the last six decades. She seems to be thinking of changing her policy from bilateralism to regionalism in the context of the construction of the dams on the Brahmaputra river by People's Republic of China and her inter-basin water-transfer projects and India's own growing water demands in her northern heart land Ganges flows 2,525 km across the northern India, fertile plains of this region of India and Bangladesh before finally meeting the Bay of Bengal. It is joined by several major tributaries from Nepal and India along the way to the Bay of Bengal. The Gangetic plains are considered the granary of northern India; its water is home to a variety of fish, the source of food for millions of people. The major north Indian industrial towns are also located on the banks of the river, as a result of which the river is facing pollution problem. Its delta area, Sunderbans, is considered to be home 'to a host of rare and iconic species. The Ganges is the natural drainage

of all the rivers flowing from Nepal. The overall contribution of the rivers of Nepal to this river is 46 percent of its flow and it is as high as 75 percent during the lean season (March to May) with that of the Farakka 2 flows.

Nepal, in addition to her vast water resources, has suitable sites for large storage projects capable of 77 billion cubic meters of water, constituting about 68 percent of the total monsoon flow. Nepal, after meeting her water demands, is in a position to contribute to the down-stream countries during the lean period to meet their water demands in different sectors. Because of these facts, Nepal for the first time in 1977 offered a proposal to cooperate with her southern neighbouring countries in the water resources sector. Since the commissioning of the Farakka Barrage on the Ganges in 1975, Bangladesh has been trying to get more water in the Ganges to meet her growing demands for different purposes through augmentation measures in the upper reaches. In addition, the demand for water is increasing in each country of the Ganga basin. Withdrawal of water in its upper region reaches for different purposes causing water scarcity in the lower regions of the river both in India and Bangladesh. In fact the flow of the Ganges at the Farraka has been decreasing over the years, mainly because of the withdrawal in the upper reaches. To overcome this problem the bilateral commission that exists between India and Bangladesh, Joint Rivers Commission at the 37th meeting of held in New Delhi in 2010, Bangladesh had proposed that Article VIII of the 1996 treaty could be implemented by India, Bangladesh and Nepal, jointly building a reservoir at a satiable location in Nepal, to benefit all the three countries.

CONCLUSION

Being a river whose catchment lies in a number of countries, regional cooperation for the Ganges has been subject of discussions at the government, non-government levels including research and academic institutions for a long a time. But concrete shape is yet to take place. India being the main player, whose attitude becomes the critical factor in the whole exercise, has been following the bilateralism in relation to her water-resource relationship with her neighboring countries. It seems that she has started changing her attitude in this regard, and Bangladesh

wants to capitalize the situation. But Nepal, because of her current transitional political scenario, is not in a position to take a decision on the regional cooperation in the water-resources sector till a new constitution comes into force and a duly elected government takes control of the country.

Development of water resources, however, needs to be considered judiciously taking into account social, ecological, and environmental implications of water resources development and considering the views of diverse stakeholders. Strategic environmental assessment including detailed studies of technical and economic feasibility are required to identify potential hydropower areas and to demarcate fragile zones where heavy construction must be avoided, for example at high altitude and in vulnerable watersheds[10], Similarly, resettlement of affected people should be well planned and managed so that their lives could improve further and their ownership is built. Joint research and fact finding are critical to support informed decision-making at trans-boundary level. In developing water resources, it is not enough to develop physical infrastructure alone; development of institutional capacity is also critical as weak institutional capacity not only poses a major obstacle for planning and implementation of complex trans-boundary project but also causes serious damages as happened in the breach of Koshi Dam in 2008. The catastrophe of the dam breach could have been avoided with timely repair and maintenance of the weak part of the dam, which was identified well in advance. Making water a part of economic development calls for multidisciplinary research, not only on technological issues but also on issues of social, economic, legal, and environmental concerns, as the problems of water resources management are multidimensional. Sustainable water development in the mountains and the mitigation of natural disasters in river basins depend on large-scale measures to protect upstream water sources, forests, and soils in mountain areas. Protection and conservation of the mountain environment are thus critical for long-term sustainable economic development of downstream areas. At present, there is no

[10] (Rasul 2014Rasul, G., 2014. Food, water, and energy security in South Asia: a nexus perspective from the Hindu Kush Himalayan region. *Environmental Science & Policy*, 39, 35–48. doi: 10.1016/j.envsci.2014.01.010[Crossref], [Web of Science ®]

such policy or institutional mechanism for sharing the benefits generated from mountain water and hydropower resources. If these issues are addressed, water cooperation has the potential to change the economic and social landscape of the region as well as serve as a means to improve trust and peace-building in the region.

GOVERNANCE OF TRANS- BOUNDARY WATER DISPUTES IN SOUTH ASIA

Dr. Yuvraj Dilip Patil and Sabir Kachhi[1]

ABSTRACT

South Asian countries have a major source of international river water, including the Indus, the Ganges and the Brahmaputra. The increasing urbanisation, climate change and impact on river ecology, have all impacted flows of fresh water in South Asia. Major trans-boundary Rivers including the Indus, Ganges and Brahmaputra, which flows from international borders and support the lives of millions of people are in need of improved water governance.

CONFLICT BETWEEN SAARC COUNTRIES ON WATER ISSUE: ANALYSIS

TREATY BETWEEN INDIA AND BANGLADESH

Bangladesh and India share 54 rivers, including the Ganges, the Brahmaputra and the Meghna. The 1996 agreement on Farakka Barrage[2] has resolved a longstanding dispute between the two countries.[3] Another major issue between the two countries is India's river linking project.

THE FARAKKA BARRAGE AGREEMENT

The Farakka Barrage problem precedes the creation of Bangladesh itself. India first took a decision to construct the Barrage in 1951; the actual construction work began in 1961; and the construction was completed in 1971. The purpose of the construction of the barrage was

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[2] Treaty between the Government of the Republic of India and the Government of the People" s Republic of Bangladesh on Sharing of the Ganga/Ganges Waters at Farakka, signed on December 12, 1996.

[3] The Farakka Barrage is constructed in West Bengal, about 10 miles from the border with Bangladesh. The Barrage is about 2240 metres long, and has a capacity of diverting 40,000 cubic feet of water per second (cusecs) from the Ganges.

to "ensure that the Hoogli River would receive, however low the flow of the Ganges may be, up to 40,000 cusecs of water diverted from the Ganges".[4]

Bangladesh is a least-developed country of South Asia which attained independence from Pakistan in 1971. After a number of short-term agreements signed between Bangladesh and India since 1972 for sharing the Ganges waters at Farakka, India and Bangladesh signed the Ganges Waters Treaty in 1996 for a period of thirty years which will end in 2026. A dispute had emerged between India and Bangladesh as a result of India's construction of the Farakka Barrage on the Ganges in 1975, which had been termed as —the Kashmir of Bangladesh's grievances with India. The Treaty aims at sharing the Ganges waters at Farakka, which further lays down that the waters released to Bangladesh will not be reduced below Farakka except for reasonable uses by India. "The parties also agreed to make joint studies and take joint action in the fields of flood control, river basin development and the field of hydroelectric power and irrigation".[5] The Treaty establishes a joint committee to record the daily flow of waters at Farakka and to serve as the first mechanism for resolving any difference or dispute between the two countries arising out of implementation of the Treaty. Any such unresolved difference or dispute shall be next referred to the joint-river commission and finally to the governments of the two countries. The Treaty is guided by equity, fairness and no harm to either party.[6]

THE RIVER LINKING PROJECT OF INDIA

Another problematic issue between Bangladesh and India is India's major river-linking project. India has announced to undertake the river-linking project, which will divert water from "water-surplus areas" to "water-deficit areas". The major river basins in the eastern region, including the Ganga and the Brahmaputra basins, have been identified as marginally surplus and surplus areas, respectively, while the southern

[4]http://www.ipripak.org/wp-content/uploads/2014/10/3-article-s14.pdf (Visited at 1p.m on 10/MARCH/2018 Saturday)

[5] Id

[6] https://www.athensjournals.gr/law/2018-4-1-1-Pratap.pdf (Visited at 10.18 a.m on 11/MARCH/2018 Sunday)

and western regions are identified as water deficit regions. Under this project, India intends to divert a large volume of water from its eastern region (i.e. from GangaBrahmaputra basin) to its western and south-western regions. Bangladesh has taken it seriously, and has voiced its serious concern to the Indian side. Bangladesh has felt that the Indian response so far has remained "discouraging to initiate a fruitful dialogue on the issue" and it was hoped that the change of Government in India from NDA to UPA would help review the plan.[7] However, the Manmohan Singh-led UPA Government not only decided to go along with the project but also reiterated it in early 2014.

1.2 TREATY BETWEEN INDIA AND PAKISTAN

India and Pakistan were part of the British India before 1947 and thus only the British India was responsible for laying the foundations of the water sharing regime between India and Pakistan. The regime comprises of and concerns the six rivers of the Indus basin (Indus, Jhelum, Chenab, Sutlej, Beas and Ravi) which originate in the Himalayas and pass through India and the Indian state of Jammu and Kashmir before crossing over to Pakistan and part of Jammu and Kashmir controlled by Pakistan. India and Pakistan agreed in 1948 to pay as charges for the re-establishment of water flow. But Pakistan repudiated it in 1951, characterizing it as unfair, and the dispute did not resolve until both the countries signed the Indus Waters Treaty (IWT) in 1960 under the auspices and mediation of the World Bank. This Treaty has withstood major wars between India and Pakistan, and has been successful in regulating the water issue between the two countries. The World Bank played crucial functional role in negotiating the Treaty. The Bank also acted as the Administrator of the Indus Basin Development Fund. The IWT was signed to regulate water sharing between the two countries after "the Indian government resisted Pakistan's 1949 proposal to take the Indus waters dispute to the Court."[8]

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[7] http://www.ipripak.org/wp-content/uploads/2014/10/3-article-s14.pdf Pg no. 59 (Visited at 03.55 p.m on 11/MARCH/2018 Sunday)

[8] Supra Note 5 Pg no. 9-10 (Visited at 01.18 p.m on 11/MARCH/2018 Sunday)

According to the Indus Water Treaty, all the waters of the Eastern Rivers, viz. the Sutlej, the Beas and the Ravi, shall be available for the unrestricted use of India. Pakistan agreed not to permit any interference with the waters of the Eastern Rivers, except for domestic and non-consumptive use. Similarly, all the waters of the Western Rivers, viz. the Indus, the Jhelum and the Chenab, shall be available for unrestricted use of Pakistan; and India would not interfere with their waters, except for domestic and non-consumptive use. However, in addition to domestic and non-consumptive use, each country was allowed to use waters of the rivers allocated to the other party for agricultural use and generation of hydropower. Under the Treaty, India and Pakistan also agreed to cooperate in undertaking engineering works, and to exchange data and other relevant information. They also agreed to a comprehensive dispute settlement mechanism, under which any differences would be settled by the Indus Water Commission, comprising a Commissioner from each party. If the Commission cannot settle the differences, they would be referred to a neutral expert. In case the neutral expert fails to resolve the issues, they would go for arbitration.[9] And despite otherwise strained relations between India and Pakistan, the IWT has survived all conflicts between them. The International Law Commission (ILC) has termed the IWT as one of "the prime cases of equitable apportionment or utilization".

1.3 TREATY BETWEEN INDIA AND NEPAL

Nepal is rich in water resources, with 237 billion cubic metres of average annual potential of internal renewable water resources. It has also very high potential of hydropower generation, with a potential of 83,000 megawatts of electricity. But due to lack of awareness, financial capacity and technical expertise, Nepal has so far not been able to develop and harness its water resources adequately. Not that these two countries have not thought about or acted on developing Nepal's water resource. So for this reason between this two country there subsist three treaties the koshi agreement in 1954, the Gandak agreement in 1959 and

[9] http://www.ipripak.org/wp-content/uploads/2014/10/3-article-s14.pdf Pg no. 59 (Visited at 06.35 p.m on 11/MARCH/2018 Sunday)

the Mahakali treaty in 1996. There are a number of other agreements and understandings between Nepal and India on developing and harnessing Nepal's water resources.

There is a feeling among the Nepalese people that India, as a big and powerful neighbour, has taken undue advantage from the earlier agreements on Nepal's water resources, at the expense of Nepal's rights and interests. Which is quite true if we resort ourselves to the analysis of Indian as well as Nepalese scholar. S. D. Muni, one of the Nepal analysts, says:

> "There is some truth in the allegation of one-sided and exploitative use of Nepal's water resources by India in what is known as mutual benefit projects between the two countries such as Koshi and Gandak projects. It is generally conceded that these projects give greater advantage to India than to Nepal and thus could have been better designed to ensure adequate benefits to the Nepali side."[10]

THE KOSHI AGREEMENT OF 1954

Nepal and India concluded the Kosi Agreement on April 25, 1954. Though the project was essentially conceived for flood control, it is a multipurpose scheme including hydropower generation, irrigation, and canal also. It is criticised and revised in 1966.

THE GANDAK AGREEMENT OF 1959

Nepal and India signed the Gandak Agreement on December 4, 1959. A barrage has been built at Bhaisalotan, on the reaches of the Gandaki River, which forms the boundary between Nepal and India. Two canals have been constructed on either side of the barrage. In total, the canals irrigate 57,900 hectares of Nepalese and 1,850,000 hectares of Indian land. A powerhouse with an installed capacity of 15,000 kw of electricity has been built in Nepalese territory. It needs to be noted that

[10] http://www.ipripak.org/wp-content/uploads/2014/10/3-article-s14.pdf Pg no. 53 (Visited at 05.24p.m on 11/MARCH/2018 Sunday)

the project was built by, and at the cost of, India. Nepal would get an aggregate maximum of 10,000 kw of electricity, up to 60 per cent load at power factor not below 0.85. However, Nepal has to buy this electricity on the basis of the actual cost of production. As this Agreement, too, was criticized in Nepal, it was revised in 1964. The revision attempted to address some of the concerns of the Nepalese side. The amended Article 9, for example, gives Nepal exclusive right to withdraw for irrigation or any other purposes from the river and its tributaries such supply of water as may be required from time to time.

THE MAHAKALI TREATY OF 1996

The Mahakali Treaty[11] was concluded between Nepal and India in February 1996. It is significant that it sets forth the foundation for an integrated approach in developing and harnessing water resources between Nepal and India. Moreover, this is the first treaty in the history of Nepal-India water relations which provides for equal investment and benefits. The Treaty stipulates the "desirability (of the two Governments) to a treaty on the basis of equal partnership to define their obligations and corresponding rights and duties thereto".[12]

The Mahakali Treaty consists of three parts. The first part relates to Sharada Barrage. This agreement gives Nepal the right to a minimum supply of 28.35 m3/s (1000 cusecs) and a maximum of 10,000 cusecs of water from the Sharada Canal and 70 million kw/hour of electricity annually (the total capacity is 448.4 million kw/hour) for giving its consent to use a piece of its land of about 577 metres to India for the construction of the eastern afflux bund. There is no mention about the share of India. Nepal was not satisfied with this arrangement, and kept trying to obtain an increase. However, it could not succeed in its efforts. Finally, the 1996-Mahakali Treaty replaced this treaty, and incorporated its arrangements without making any changes.

The second part relates to Tanakpur Barrage. Nepal and India had reached a Memorandum of Understanding on Tanakpur Barrage in

[11] The name of the treaty is Treaty between His Majesty" s Government of Nepal and the Government of India.

[12] Preamble to Mahakali treaty of 1996.

1991. The agreement provided for the construction of the left afflux bund in Nepalese territory. Nepal agreed to provide 2.9 hectares of land to build the bund and a 120-megawatt power station. In exchange, Nepal would get 150 cusecs of water from the head regulator and 10 megawatts of electricity. This agreement was strongly criticized in Nepal. Questions were raised about the territorial sovereignty of Nepal (for giving the land to India) and benefits from the project.

The third part of the Mahakali Treaty is related to Pancheshwar Multipurpose Project (PMP). The project requires the construction of a 315- metre high dam (Pancheshwar Dam) with a capacity of generating 3,480 megawatts of electricity. The dam project will be implemented in accordance with the Detailed Project Report (DPR) to be jointly agreed upon between the two sides.[13]

The Treaty specifies that both Nepal and India are entitled to equal utilization of water, without prejudice to their respective consumptive use. It also provides that future projects in the border area would be designed and implemented by agreement between the two countries using the principles established by the Treaty. The Treaty entails Nepal and India "not to use, obstruct, or divert the waters of the Mahakali River, so as to adversely affect the natural flow and level of the river"[14]

1.4 ANALYSIS

The analysis of the water issues in South Asia shows some striking features. The first of such features is the unilateral behaviour of India. India constructed the Farakka Barrage against the protest of Bangladesh. Similar trends were visible with regard to Nepal as well. The Kosi and the Gandak Agreements were concluded without detailed discussions with Nepal, though they were implemented with the consent of the Nepal Government. But a clear example of India's high handedness and unilateralism can be seen in the case of Tanakpur Barrage.

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[13] http://www.ipripak.org/wp-content/uploads/2014/10/3-article-s14.pdf Pg no. 55-57 (Visited at 11.15 a.m on 12/MARCH/2018 Monday)

[14] Mahakali Treaty, Article 7.

The second feature is the asymmetric power relation between states that has resulted in unequal treaties or one-sided behaviour on the part of the more powerful State. The Koshi Agreement of 1954 between Nepal and India demonstrated India's plan to get unreasonable and undue benefits from Nepal. The same is the case with Bangladesh. However, such treatment is absent in relations between India and Pakistan. The main reasons for equal treatment can be assigned to the political strength of Pakistan, its awareness of its rights and obligations, its expertise in the area of water resources, and its capacity to mobilize financial resources necessary to implement projects.

The third feature relates to the involvement of a third party in the development and management of water resources. The World Bank's involvement was crucial and decisive in the negotiation of the Indus Water Treaty between India and Pakistan. As we have seen above, no third party was involved in cases of Bangladesh and Nepal. It can be argued that involvement of a neutral and influential third party could have resulted in better and more equal and equitable treaties between Bangladesh and India and between Nepal and India as well.

The fourth feature is the absence of an over-arching treaty between Bangladesh and India and Nepal and India. The Indus Water Treaty has provided an overarching framework for water relations between India and Pakistan, but no such frameworks exist between other countries. It can be assumed that had there been a framework agreement between those countries, their water relations could have been more cooperative and mutually beneficial.

2. TO STUDY THE WATER ISSUES IN SOUTH ASIAN COUNTRIES.

In this chapter authors discussed the water issues between different SAARC countries & remedial measures on the same.

The latest United Nations World Water Development Report, released just ahead of World Water Day on March 22, warns that, by 2030, only 60 percent of the world's demand for water will be met by existing resources at the current rate of use. That will leave 40 percent of the population without access to the water it needs. Signs of this impending crisis are already there for all of us to see.

In South Asia, home to nearly 1.6 billion people, cities are increasingly feeling the pressure of population growth and urbanization. It is estimated that many Indian cities face daily water shortages. In Nepal's capital, Kathmandu, many local residents have grown accustomed to waiting in queues for hours to obtain drinking water from the city's ancient, stone waterspouts. In Karachi, Pakistan, electricity and water shortages have led to protests and citywide unrest.
"Water, water, everywhere, nor any drop to drink" aptly describes the problem of water in South Asia – a problem of scarcity amid abundance. Transboundary rivers such as the Ganges, Indus, and Brahmaputra have defined the geography, history, and culture of South Asia for centuries and are critical to economic growth, food and energy security, and sustainable development within the region. But over the last few decades, these rivers have come under considerable pressure from industrial development, urbanization, population growth, and environmental pollution. This situation has been compounded by poor domestic management of water resources and increasing variability in rainfall and climate patterns that have made South Asia highly susceptible to floods, droughts, and natural disasters.[15]

The following are the issues which lead to the scarcity of water in south Asian countries:

2.1 WATER MISMANAGEMENT:

Most Indian cities are perpetually water starved. According to official reckoning, 22 of the country's 32 major cities are beset with acute water

[15] https://asiafoundation.org/2015/03/25/south-asias-water-crisis-a-problem-of-scarcity-amid-abundance/ (Visited at 09.12 a.m on 13/MARCH/2018 Tuesday)

shortage. Apart from megacities such as Delhi, Mumbai, Kolkata and Chennai, many fast-growing small and medium cities such as Jamshedpur, Kanpur, Asansol, Dhanbad, Meerut, Faridabad, Visakhapatnam, Madurai and Hyderabad also figure in this list. A study sponsored by the World Bank has ranked Chennai and Delhi at the top of the 27 most vulnerable Asian cities in terms of low per-day water availability. Mumbai and Kolkata follow close. The demand-supply gap in most of these cities ranges from 30 per cent to as much as 70 per cent. The effective deficit may, actually, be far higher given the huge distribution losses. For instance, in Delhi, these losses are pegged at 40 per cent.[16]

In Pakistan, the disastrous consequences of poor management of water resources were felt during the devastating floods in 2010. Experts believe that the unprecedented flooding of Indus was caused, among other reasons, by over-exploitation of river channels, leaving a smaller area for the rainwater to be absorbed by the earth. Wetlands which once absorbed the excess water in the river have long been converted to farmland. The primary reason for Pakistan's inability to tackle the problem of water losses is inadequate water storage capacity. Pakistan's per capita storage capacity is merely 150 cubic metres in comparison to 5000 cubic metres in the US and Australia and 2200 in China.[17]

In Nepal Some of the key challenges that categorize irrigation development are old infrastructure and poor performances of the existing irrigation systems; poor system efficiency and under–utilization of canal water; weak participation of Water Users Associations (WUAs), weak institutional capacity; weak linkages between agriculture and irrigation; continuation of subsistence agriculture practices in command area etc. Additionally, due to riparian issues, in Nepal, it has not been possible to tap the major river systems for irrigation development, which discharge substantial amount of water

[16] https://www.google.co.in/amp/wap.business-standard.com/article-amp/opinion/mismanagement-of-water-117101801065_1.html (Visited at 09.50 a.m on 13/MARCH/2018 Tuesday)

[17] http://cf.orfonline.org/wp-content/uploads/2011/02/water-security.pdf (Visited at 10.06 a.m on 13/MARCH/2018 Tuesday).

even during the dry season. Most of the irrigation systems are thus fed by medium or small rivers, which almost entirely depend on the rain. Moreover, water use efficiency and agricultural productivity remain low in both the traditional farmer-managed schemes and the large public irrigation systems. Major impediments in increasing agricultural productivity in Nepal include:

i) The lack of irrigation
ii) Unavailability of inputs such as quality seeds and fertilizers,
iii) Pest complex, and
iv) Lack of access to advisory services and marketing.[18]

Remedial measures:

1. Education
2. Recycle Water
3. Advance Technology Related to Water Conservation
4. Improve Practices Related to Farming
5. Improve Sewage Systems
6. Support Clean Water Initiatives[19]

2.2 WATER SALINITY AND POLLUTION:

Pollution and salinity of water sources are common in many parts of South Asia. In India, regular groundwater quality monitoring carried out by the Ministry of Water Resources has shown high incidence of arsenic, fluoride and iron in certain inland and coastal areas. The problem of salinity has been increasingly noticed in the coastal areas of Tamil Nadu, Gujarat, Orissa and Pondicherry. The inland presence of salinity has been detected consistently in Maharashtra, Punjab, Rajasthan, Haryana, Gujarat, Karnataka, Uttar Pradesh, Delhi, Orissa

[18] http://www.worldbank.org/en/results/2014/04/11/nepal-irrigation-and-water-resource-management (Visited at 08.18 a.m on 15/MARCH/2018 Thursday).
[19] https://www.conserve-energy-future.com/causes-effects-solutions-of-water-scarcity.php (Visited at 07.31 p.m on 15/MARCH/2018 Thursday).

and Bihar. The high levels of salinity are caused by excessive exploitation of ground water and surface water.

In Pakistan, it is estimated that 36 per cent of the population of Sindh and Punjab was exposed to high (five times the safe limit) arsenic levels in water. Surveys have also revealed that drinking water in most urban areas of Pakistan is laced with biological and chemical pollutants mainly because 99 per cent of industrial effluent and 92 per cent of urban wastewater are discharged into rivers without treatment. A national water quality study carried out by the Pakistan Council for Research in Water Resources (PCRWR) in 2001, covering 21 cities, revealed bacteriological contamination and presence of arsenic above the WHO safe limit in water.[20]

In Nepal Pollution of water is the most serious public health issue. Many people drink water from spring, streams, canals, ponds, wells, rives, etc. Many studies indicates that the public water supply is far from satisfactory in almost all localities in term of bacterial contamination.

The major sources of water pollution in Nepal are grouped as follow:

i. Industrial source – Inorganic & organic effluents, poisons, etc
ii. Domestic source – Sewage, detergents, etc.
iii. Agricultural source – Pesticides, Insecticides, fungicides, etc.
iv. Oil – from automobiles and tankers
v. Physical pollutants – Radioactive substances, thermal and nuclear power plants.[21]

Nepal's capital city Kathmandu has ranked 5th in Pollution Index 2017 mid-year as published by the Numbeo.com recently. Kathmandu slumps two spots down to 5th with 96.57 pollution index.[22].

[20] http://cf.orfonline.org/wp-content/uploads/2011/02/water-security.pdf (Visited at 11.36 a.m on 13/MARCH/2018 Tuesday).
[21] http://www.imnepal.com/water-pollution-in-nepal/ (Visited at 06.10 p.m on 15/MARCH/2018 Thursday).

REMEDIAL MEASURES:

1. Recycling of waste products – Different types of wastes and pollutants may be recycled. These recycling facilities should be formulated and implemented by all industries.
2. Cleaning and treatment of waste water.
3. Primary treatment-This treatment involves sedimentation, flotation, screening, etc. The waste may be removed by throwing the settled suspend or gravel.
4. Secondary treatment –This method involves the allowing of water to pass through a thick layer of stone or gravel.
5. Control of irruption at distribution of industries.
6. Provide all cities with proper drainage. Efficient sewage collection and waste water treatment facilities should be properly managed.
7. The use of pesticides should be minimized.[23]

2.3 CONFIDENTIALITY OF WATER RESOURCE DATA:

Transparency and the sharing of water resource data will be essential in developing a basin-wide approach to transboundary water resource management and preventing conflict and the need to migrate. This remains a challenge due to the history of tensions and disputes between co-riparian states in South Asia which has led to hydrological information relating to transboundary rivers including the Indus, Ganges and Brahmaputra becoming securitised and classified on the grounds of national security. Institutional arrangements for river basin-level co-operation is absent in the majority of the transboundary basins. In India, Bangladesh and Pakistan, water information is collected in a fragmented manner making water resources difficult to assess at a basin-wide level. The lack of data on these transboundary resources makes it difficult to develop treaties on the use of shared water resources, which further

[22] https://thehimalayantimes.com/nepal/nepals-kathmandu-ranks-5th-in-pollution-index-2017/ (Visited at 06.49 p.m on 15/MARCH/2018 Thursday).
[23] https://tunza.eco-generation.org/ambassadorReportView.jsp?viewID=42755 (Visited at 07.52 p.m on 15/MARCH/2018 Thursday).

increases the risk of conflict in the future and forced migration due to unresolved water scarcity issues.[24]

2.4 CLIMATE CHANGE AND ENVIRONMENTAL DEGRADATION:

Because of climate change and environmental degradation South Asia is vulnerable to a range of natural disasters, such as floods, glacial lake outburst floods, storm surges, droughts, cyclones and heavy precipitation. Thousands of people are displaced and forced to migrate each year by extreme weather events and environmental degradation. As per the global climate risk index (CRI) report of 2016 India is sixth most vulnerable country in the world in terms of facing extreme weather events with Haiti, Zimbabwe, Fiji, Sri lanka and Vietnam taking top five positions in in the fresh list of nations facing climate risk.[25]

The Intergovernmental Panel on Climate Change (IPCC) predicts these extreme weather events will increase in both severity and frequency, threatening lives and livelihoods across the region. Climate change and extreme weather events are expected to create millions of "environmental migrants" by 2050, the majority of which will be from Bangladesh where a third of the country could be inundated due to climate change-induced sea level rise.

Reasons why people will chose to migrate will vary, with a large portion expected to be linked to water scarcity. It is expected that farm-related income could decline by as much as 25 per cent in South Asia due to diminishing crop yields, driven in part by diminished or contaminated water resources. This will force many to move to urban areas to seek employment.

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[24] http://www.futuredirections.org.au/publication/water-scarcity-migration-regional-security-south-asia/ (Visited at 04.43 p.m on 13/MARCH/2018 Tuesday).

[25] https://timesofindia.indiatimes.com/home/environment/global-warming/india-sixth-most-vulnerable-country-facing-extreme-weather-events-report/articleshow/61581900.cms?from=mdr (Visited at 03.05 p.m on 13/MARCH/2018 Tuesday).

Migration due to environmental degradation will be an inevitable result of climate change, particularly sea level rise. In this case migration will be a form of adaptation to climate change and will need to be supported by local and international institutions. In the past decade, however, fear of terrorism has led to the securitisation of migration, potentially reducing the options for "environmental migrants" to move to safe location.[26]

3 CONFLICT BETWEEN INDIA AND PAKISTAN ON WATER

South Asia's water coverage is large. However, the distribution of water resources throughout India, Pakistan, Nepal and Bangladesh has constantly been a politically-charged issue, with the tensions mounting over the control of water supplies emanating from scarcity, ill faith and bad governance.

The increase in demand continues to be a catalyst for conflict. Also, the divisions of the river basin waters due to political changes and the outcome of decolonization have created deep friction among the countries, as well as among their States. As such, South Asian countries have had to deal with both intra-State and inter-State conflicts over the sharing of river water in both downstream and upstream regions, and notably in connection with the Indus and the Ganges systems.

3.1 THE DISPUTE:

The Indus dispute, essentially, resulted from the partition of India and the creation of Pakistan, a partition that largely ignored the topography, ecology and the then existing irrigation infrastructure on the Indus

[26] http://www.futuredirections.org.au/publication/water-scarcity-migration-regional-security-south-asia/ (Visited at 05.25 p.m on 13/MARCH/2018 Tuesday).

Basin. A situation-summary by a reputed magazine depicted a clear picture at that time in the following words:

This 1800-mile long river rises in the Himalayas of Tibet, is fed by six tributaries, and now forms a sort of unwieldy international fire hose with India, at the headwaters, controlling the spigot, and Pakistan, down-country, at the unpredictable nozzle. Further complicating this, the canals and barrages built under British rule to serve a unified area were, under partition, left pretty much on the Pakistani side of the border. The canal system of irrigating lands, originally built by the British, was divided into two to meet a political compromise. As a result, 80% of the land irrigated by the Indus River and its tributaries became part of Pakistan. But the headwaters of the entire river system remained in India. Not surprisingly, the Indus River was a source of tension between the two nations within weeks after Pakistan was established. Partition literally divided one set of canals between the West Punjab in Pakistan and the East Punjab in India, with India receiving control of upstream rivers that supplies both West and East Punjab.[27]

As a result of the boundary delineation between Pakistan and India, Punjab was separated into East and West regions. A Punjab Partition Committee was established to resolve disputes regarding division of assets between the divided provinces. Both East and West Punjab agreed, in 1947, that the position existing at the time of partition shall not be disturbed and waters shall be divided equally (commonly referred to as the Standstill Agreement).

However, in 1948, India, claiming absolute sovereignty, unilaterally closed canals in its territory on the Ravi and the Sutlej, cutting off Pakistan's supply of water. India agreed to re-open the canals as part of an Inter-Dominion Agreement of 1948, but asserted its right to control the entire water supply of the Ravi, Sutlej and Beas rivers. The Inter-Dominion Agreement required India to release, on a temporary basis, sufficient waters to Pakistani regions in return for annual payments. In

[27] (India and Pakistan, An Atlantic Report, 1960)

fact, that same year, East Punjab stopped the flow of water to West Punjab stating absolute sovereignty, and resumed the flows only after Pakistan made a payment to India.

In the midst of such vagaries of bilateral relations over water, after close to ten years of negotiation, India and Pakistan in 1960 signed the Indus Waters Treaty, along with the World Bank, which also became a signatory for certain limited purposes. The Treaty involves the two countries, which occupy 86% of the basin. The two other riparian nations, China and Afghanistan, were not invited to participate in the negotiations and are not party to the Treaty.[28]

3.2 TREATY REGIME (INDUS WATER TREATY 1960):

The salient features of the Indus Treaty include:

(i) Three Eastern Rivers (Ravi, Sutlej and Beas) allocated to India;
(ii) Three Western Rivers (Indus, Jhelum and Chenab) allocated to Pakistan;
(iii) Pakistan to meet its Eastern Rivers needs from the Western Rivers by constructing replacement works;
(iv) Safeguards incorporated in the Treaty to ensure unrestricted flow of waters in the Western Rivers, subject to some uses by India;
(v) Both parties to regularly exchange flow-data of rivers, canals and streams; and
(vi) A Permanent Indus Commission constituted to oversee implementation of the treaty

The World Bank and a number of donors provided Pakistan with close to one billion US dollars, which enabled Pakistan to build the Tarbela Dam on the Indus River, and the Mangla Dam on the Jhelum River. These dams created sufficient storage to replace two-thirds of the water lost to Pakistan when India obtained control of the three Eastern Rivers.

[28] (India and Pakistan, An Atlantic Report, 1960)

3.3 GOVERNANCE AND TREATY IMPLEMENTATION:

The Treaty sets out the procedures for settlement of differences and disputes, including through a Court of Arbitration. It provides for a two-member Permanent Indus Commission, with one commissioner from India and one from Pakistan, vested with the authority to resolve disputes arising out of the Treaty. Thus, if either of the countries has a question regarding Treaty interpretation, the matter can be referred to the Permanent Indus Commission. If the Commission is unable to resolve the question, then the question becomes a "difference" and can be referred to a "Neutral Expert", to be appointed by the two parties, or by a third party agreed by them. Failing that, the appointment would be carried out by the World Bank. The Neutral Expert's determination is final.

From an implementation standpoint, the Indus Treaty remains a success story, as confirmed by the fact that it has survived continued regional hostility, including two wars between India and Pakistan.[29]

3.4 THE WULLAR BARRAGE ISSUE:

Despite detailed rights, obligations, protections and permissions spelled out under the Indus Treaty, a dispute emerged in 1985, when Pakistan learnt through a tender notice in the press about the development of a barrage by India, under the name Tulbul Navigation Project (Pakistan referred to it as the Wullar Barrage). The barrage was to be constructed on the River Jhelum, below Lake Wullar located near Sopore, 25 km north of Srinagar, where the River Jhelum flows into the Lake in the south and flows out of it from the west. For Pakistan, the geo-strategic importance of the site lay in the fact that its possession and control provided India with the means to control water flow to Pakistan. It claimed that a dam on that site had the potential to adversely affect the entire system of the triple canal project within Pakistan, namely: the upper Jhelum Canal, upper Chenab Canal and the lower Bari Doab Canal.

[29] Wheeler, W. 2009. "The water's edge". In *GOOD Magazine* 13 July 2009

According to the Indian Government, however, the purpose of the Wullar Barrage was to construct a control structure, with a view to improving the navigation in the River Jhelum during winters, in order to connect Srinagar with Baramula for transportation of fruits and timber. It viewed the barrage not as an effort to divert water flowing into Pakistan, but to ensure the navigability of the river during summer.[30] India claimed that 90% of the Tulbul project would be beneficial to Pakistan, as it would regulate the supply to Mangla Dam. This would further increase Pakistan's capacity to generate power at Mangla, as well as the irrigation network in the Pakistani Punjab through the triple canal system. It would also be especially effective in reducing the flow of water during the flood season. India even suggested that Pakistan should actually bear a share of constructing the Barrage.

But Pakistan argued that India had violated Article I(11) of the Indus Treaty, which prohibits both parties from undertaking any "man-made obstruction" that may cause "change in the volume of the daily flow of waters". Pakistan further argued that Article III(4) specifically barred India from "storing any water of, or constructing any storage works on, the Western Rivers". According to sub-paragraph 8(h) of the Indus Treaty, India is entitled to construct an "incidental storage work" on Western Rivers on its side: (1) only after the design has been approved by Pakistan; and (2) only if its storage capacity does not exceed 10 000 acre feet (12 334 818.4 m^3). Pakistan further alleged that the Wullar Barrage's capacity is 300 000 acre feet (370 044 551 m^3), which is 30 times the permitted capacity. Moreover, regarding the building of a hydro-electric plant, Pakistan alleged that, according to the Treaty, India is only allowed to construct a small runoff water plant with a maximum discharge of 300 cusecs (8.495 054 m^3/s) through the turbines, which is insufficient to generate 960 MW of electricity as planned by India (under the Wullar Project).

From Pakistan's angle, the control of the River Jhelum by India through storage work would also mean a serious threat to Pakistan if India were

[30] Dellapenna, J. and Gupta, J. 2008. Toward global law on water. *Global Governance*, 14: 437–454.

to decide to withhold the water over an extended period, especially during the dry season, in addition to magnifying the risks of floods and droughts in Pakistan. The Mangla Dam on the River Jhelum, which is a source of irrigation and electricity for Punjab, would be adversely affected. It would further provide India a strategic edge, during a military confrontation, enabling it to control the mobility and retreat of Pakistani troops and enhancing the manoeuvrability of Indian troops. Closing the Barrage gates would render the Pakistani canal system dry and easy to cross. It may be recalled, in this connection, that during the 1965 war, the Indian Army had failed to cross the Bambanwala Ravi Bedian Link Canal, due to its full flow, and that India is already in control of the Chenab River through the Salal Dam constructed in 1976, which many Pakistanis continue to criticize.

Pakistan referred the Wullar Barrage case to the Indus Commission in 1986, but the Commission failed to resolve it. Pakistan then decided to take the case to a Court of Arbitration under the Treaty, but India suspended the construction work. To date, eight rounds of talks have been held. In 1989, Pakistan agreed to the construction of the Barrage conditional to Pakistani inspection, which India rejected. The two sides almost reached an agreement in October 1991, whereby India would keep 6.2 m of the Barrage ungated with a crest level of 5167 ft (1574.90 m), and would forego the storage capacity of 300 000 acre feet (370 044 551 m^3), allowing, in return, the water level in the Barrage to attain the full operational level of 5177.90 ft (1578.22 m). However, in February 1992, Pakistan introduced another condition that India should not construct the Kishanganga (390 MW) hydropower-generating unit on the Neelum River, which would affect the Neelum-Jhelum power-generation project, located in its Punjab province, as discussed later in this paper.

3.5 THE BAGLIHAR DIFFERENCE AND THE ROLE OF THE NEUTRAL EXPERT:

Another controversy involving a Hydropower Project (Baglihar Dam Project). India planned to construct a dam 60 miles (96 km) upstream from the Pakistani border, on the Chenab River, one of the Western

Rivers allocated under the Treaty to Pakistan, claiming India's right to build upstream non-storage facilities under the Indus Treaty. In protest, Pakistan invoked the Indus Treaty's dispute-resolution mechanism, as in its view, the water storing capacity of the Baglihar Dam was at a level prohibited by the Treaty, and the design of the hydropower plant violated a number of conditions spelled out therein. Pakistan was further concerned that the Dam would allow India to obstruct and control the flow of the Chenab River. India, on the other hand, disagreeing with the claim of Pakistan, stated that the Baglihar Dam was merely planned to generate power through run-of-the-river without storage, and was thus in conformity with the Treaty specifications. Following failure to resolve the question through the Permanent Indus Commission, Pakistan, on 15 January 2005, approached the World Bank requesting it to appoint, as per the Indus Waters Treaty, a Neutral Expert to resolve the difference over Baglihar.[31] With a number of iterations and reiterations on the consultation and selection processes, five months after the original request, the Neutral Expert was appointed

3.6 THE RULING:

The Executive Summary makes two interesting legal points. First, that the rights and obligations of the parties, under the Indus Treaty, had to be read in the light of new technical norms and standards, and interpreted so as to permit the fulfilment of the purpose of the Treaty in "a spirit of goodwill and friendship" taking into account the best and latest practices in the field of construction and operation of hydro-electric plants. And second, that the interpretation of the Treaty was guided by the principles of integration and effectiveness to find effect in its whole and to ensure that each of its objects is given the fullest weight and effect when interpreting the rights and obligations there under. Those purposes include attaining the most complete and satisfactory utilization of the waters of the Indus River System, and fixing and delimiting the rights and obligations of each party in relation to the

[31] Salman, S. M. A. 2008. The Baglihar difference and its resolution process – a triumph for the Indus Waters Treaty?. *Water Policy*, 10: 105–117

other. The ruling of the Neutral Expert dealt with the contested issues under the four criteria discussed above, under six headings.

The first heading concerned the design flood related to the calculation of the maximum amount of water that can reach the dam. In view of the many uncertainties in flood analysis, the Neutral Expert retained the value of 16 500 m^3/s proposed by India, as opposed to 14 900 m^3/s proposed by Pakistan, for the peak discharge of the design flood, and further stated that the possibility of increased flooding due to climate change encouraged such a prudent approach.

The second heading concerned the need for a gated or an ungated spillway. Pakistan considered that a gated spillway was unnecessary, for it would allow India to control the flow of the river, but the Neutral Expert determined that the hydrology, sediment yield, topography, geology and seismicity of the site warranted a gated spillway. The Expert further added that the analysis of 13 000 existing spillways in the world demonstrated that gates on large spillways were common practice, that an ungated spillway could increase the risk of flooding the upstream shores, and that an elevation of the dam crest, which would prevent such a risk, would be too costly.

The third heading concerned the level of the spillway gates. Pakistan was of the view that even if a gated spillway was deemed necessary, the orifice spillway proposed by India had to be located at the highest level consistent with the Treaty. The Indian position, in contrast, was that the design of the chute, sluice and auxiliary spillways was necessary to ensure safe passing of the design flood. The Neutral Expert, agreeing with India, determined that the gated chute spillway on the left wing planned by India is at the highest level consistent with sound and economical design and, therefore, satisfactory. However, the Expert considered that the outlets that form the sluice spillway, planned by India, should be of the minimum size and located at the highest level consistent with a sound and economical design. The Neutral Expert also proposed that the outlets be located 8 m lower to ensure protection against upstream flooding. On this issue, the Neutral Expert deemed that the Indus Treaty lacked detail on the issue of sedimentation,

understandably because it reflected the status of technology on reservoir sedimentation of the 1950s, and affirmed that, consequently, the provision of the Treaty, explicitly referring to sedimentation, acquired a special significance.

The fourth heading concerned the artificial raising of the water level. On this issue, the Neutral Expert concurred with Pakistan's position that the dam crest elevation proposed by India was exaggerated and could be lower. The Expert further determined that the crest elevation submitted by India at 844.5 m above sea level (a.s.l.), resulting from a freeboard above the full pondage level of 4.50 m was not at the lowest elevation, and that the freeboard should be 3.0 m above the pondage level, leading to a dam crest elevation of 843.0 m a.s.l

The volume of the maximum pondage was the fifth heading. Pakistan had argued that the value proposed by India exceeded twice the pondage required for firm power. The Neutral Expert, in contrast, determined that the values for maximum pondage stipulated by both India and Pakistan were not in conformity with the criteria laid down in the Treaty and, therefore, fixed a lower value.

Finally, the sixth heading concerned the level of the power intake. Pakistan had argued that it was not located at the highest level as required by the Treaty. The Neutral Expert agreed with this view and determined that the intake level should be raised by 3 m and fixed it at an elevation of 821 m a.s.l.

No doubt, the Baglihar Difference posed major challenges to the governance of the Indus Treaty. However, the reactions over its resolution were positive, and both India and Pakistan accepted the decision and claimed victory, emphasizing the areas of the verdict which they believed responded positively to their specific claims. The outcome also underscored the positive role of the World Bank in the resolution of the difference.

3.7 THE KISHANGANGA ISSUE:

Another controversy, which has been brewing in the context of the Indus Treaty, is related to the Kishanganga Project. This is a hydropower plant in India, which diverts water to the Jhelum River from the Kishanganga River (called Neelum in Pakistan), a tributary of the Jhelum, before entering Pakistan. Another hydropower plant 140 km downstream in Pakistan (called the Neelum-Jhelum Project) is also in the planning stage and this too diverts water to the Jhelum River from the same tributary (the Neelum) after it enters Pakistan.

Pakistan raised technical and legal objections to Kishanganga and claimed that it is a violation of the Indus Waters Treaty. It claimed that the diverted water would reduce downstream flows and hydropower generation capacity in Neelum-Jhelum, with significant environmental impacts, including on a National Park.

India, on the other hand, claimed that the diversion will not reduce the total flows into Pakistan, and would have no impact because Neelum-Jhelum is not an existing project. India further claimed that the design features are in conformity with the Indus Treaty.

Actually, neither project is completed yet. Each party appears to be building its respective project to claim "prior appropriation" and "existing use" to the water of the tributary. Also noteworthy is that both Annexures F and D of the Indus Treaty include provisions relevant to the Kishanganga Project, but different interpretations have already surfaced. The dispute has intensified in recent months. Reports from Pakistan and India indicate that the two parties may actually be heading towards treating Kishanganga as a dispute under the Indus Waters Treaty, and thus have it handled by a Court of Arbitration under Annexure G of the Treaty. Indeed, this approach was formally adopted and a Court of Arbitration was established at the beginning of this year. Thus, Kishanganga has become the first case to invoke Annexure G of the treaty, just as Baglihar was the first difference to invoke Annexure F (on the Neutral Expert). This is certainly a welcome approach, as it will contribute tremendously to the process of peaceful settlement of international disputes.

3.8 INTER-PROVINCE CONFLICT MANAGEMENT:

The allocations of the Indus waters have also proved problematic within Pakistan. Between 1971 and 1991, there was no formal allocation system within the country that specified which province received how much water from the Indus River. Although, as per the Indus Treaty, Pakistan had already built, by the end of 1970, storage reservoirs at Chashma on the Indus and Mangla on the Jhelum, and six new head works and seven large inter-river link channels, and had completed the Tarbela Dam on the Indus in 1976, the federal government distributed the available water between provinces on an ad hoc basis for each crop season. But, since this arrangement disallowed extension of the irrigation network to new areas and construction of new projects, a Water Apportionment Accord was signed in 1991, among the four provinces.[32]

3.9 CONCLUSION:

As can be concluded from the above given information that, implementing the Indus regime has been a difficult exercise for both parties. However, due largely to the Treaty's in-built mechanisms to address questions, differences and disputes, the parties have been able to manage conflicts and, in spite of the frequent upheavals in bilateral relations between them, the Treaty, so far, has had a relatively smooth sailing.

SOLUTION:

State practice and juristic work prior to the coming into existence of the Convention on the Law of the Non-Navigational Uses of International Watercourses, 1997 (the Watercourses Convention), show at least four principles of international river water-sharing. Of these, the Absolute Territorial Sovereignty principle allows a state to use the waters of a river in its territorial limits without any regard for harm it causes to other riparian states. Opposed to this is the Absolute Territorial Integrity

[32] https://www.tandfonline.com/doi/full/10.1080/02626667.2011.576252 (Visited at 08.23 a.m on 14/MARCH/2018 Wednesday)

Principle which allows the lower riparian state to require the upper riparian state to allow for the natural flow of an international river. The Third is the Equitable and Reasonable Utilization principle which combines the earlier two principles and is the most acceptable principle today. And, finally, there is the principle of Community of Co-Riparian States. This principle requires substitution of individual rights of riparian states with that of their collective right ignoring the territorial aspects of individual riparian states.

Commentators believe that the Convention subordinates the obligation not to cause significant harm to the principle of equitable and reasonable utilization. The reasons for the reluctance of states to ratify or accede to the Convention considerable ambiguity as to which of the two principles prevails. However, one of the basic obligations under the Convention is the obligation to cooperate. The Convention does not necessarily require abrogation of the existing arrangements but allows future arrangements in accordance with the equitable and reasonable utilization principle. The Convention‘s approach underscores the considerations of genuine human needs and protection against pollution. Its implementation mechanism, is flexible and not rigid to allow for a balancing of interests.

4 TO MAKE RECOMMENDATIONS:

- The absence of an over-arching treaty between Bangladesh and India and Nepal and India. The Indus Water Treaty has provided an overarching framework for water relations between India and Pakistan, but no such frameworks exist between other countries. It can be assumed that had there been a framework agreement between those countries, their water relations could have been more cooperative and mutually beneficial.
- The unilateral behaviour and high-handedness of India has greatly contributed to creating, developing and perpetuating sensitivity, cautiousness and concerns among the peoples of Bangladesh, Nepal and Pakistan. However, it is also true that undue cautiousness and mistrust have affected the effective and realistic utilisation of projects. India can be expected to

show flexibility and magnanimity commensurate with its size and strength, and, at the same time, smaller countries should be more practical and realistic, and should refrain from being too nationalistic and sensitive while taking up developmental projects.

- All riparian states need to be consulted while harnessing an international watercourse. As we know many rivers in South Asia originate from Tibet, a part of the People's Republic of China. Again, the Kabul River, a tributary of the Indus River originates from Afghanistan. Therefore, a comprehensive agreement among Afghanistan, Bangladesh, Bhutan, China, India, Nepal and Pakistan needs to be worked out. Such an agreement will ensure compliance with international law, and, at the same time, make cooperation among the parties smooth, reasonable and equitable.
- To educate people.
- To Recycle Water.
- To use Advance Technology Related to Water Conservation.
- To Improve Practices Related to Farming.
- To Improve Sewage Systems.
- To Support Clean Water Initiatives.
- To provide Primary treatment: This treatment involves sedimentation, flotation, screening, etc. The waste may be removed by throwing the settled suspend or gravel.
- To provide Secondary treatment: This method involves the allowing of water to pass through a thick layer of stone or gravel.
- To Control of irruption at distribution of industries.
- To Provide all cities with proper drainage. Efficient sewage collection and waste water treatment facilities should be properly managed.
- To reduce use of pesticides.
- Access to all the hydrological data and information between all SAARC countries. So that there will be co-operation and dissemination of information.
- To abide by the UN Water course convention.

4.1 CONCLUSION:

Implementing the Indus regime has been a difficult exercise for both parties. However, due largely to the Treaty's in-built mechanisms to address questions, differences and disputes, the parties have been able to manage conflicts and, in spite of the frequent upheavals in bilateral relations between them, the Treaty, so far, has had a relatively smooth sailing.

No doubt, if allocation has been a major problem for South Asian countries, regime management has been a serious challenge, especially due to sovereignty concerns, competing demands and deeply-rooted mistrust. This has caused these countries to continuously adopt a defensive posture which, instead of facilitating cooperative development, has a tendency to impede development, even on, otherwise, non-controversial areas. Therefore, the time is ripe for the countries of the region to consider new techniques to develop, design and strengthen their legal regimes regarding the shared water resources on the basis of principles established by customary law, the codified law and prevailing international practices.

Urbanisation, climate change and a rapidly increasing population have placed significant pressure on water resources in South Asia, a region already experiencing acute water scarcity. Climate change and extreme weather events are expected to create millions of “environmental migrants” by 2050. In areas such as Bangladesh where sea level rise is expected to inundate large areas of land, mass migration is inevitable. In other areas, water scarcity alone will not trigger migration. Other factors, including political stability, water sharing agreements, domestic and transboundary water management and socio-economic position, will determine whether people choose to migrate. Basin-wide and domestic water management is therefore vital in easing political tensions and ensuring water resources are managed and distributed fairly

Thus, if the states of South Asia can be more forthcoming and cooperative; if they can leave their historical baggage behind and move forward with a sense of trust and understanding; and if they try to harness the water resources under a regional mechanism, the peoples of South Asia could hope to enjoy a better and peaceful future.

TRANS-BOUNDARY WATER DISPUTES IN SOUTH ASIA : THE INDIAN STAKES INVOLVED

Dr. Satabdi Das[1]

ABSTRACT

Rivers, that is a crucial source of water resources and which connects the upstream and downstream users are often responsible for igniting serious discontent in many regions of the world. As much of the water resources are trans-boundary in nature, international political fractions and tensions have arisen over the control of and access to this scarce resource. The South Asian region is not an exception in this regard. Here also the struggle for water has escalated political tensions, conflicts, 'social disharmony' and even violence as 'territorial boundaries of this region rarely coincide with the borders of watersheds'. The intensity of global climate change has amplified this risk of conflict over shared fresh water resources in the region as several political entities and actors involved, have mininmised the scope of sustainable management of water resources in a changing climate. Against this backdrop, the main objective of the study is to highlight how the high dependence on cross border river inflows of India and her neighbours has increased the likelihood of water conflicts in the region and how climate change, shared water resources and regional politics collide which has a significant impact on India's security architecture.

Keywords: Trans boundary rivers, Water disputes, India, Climate Change, Water Conflicts, Riparian relations.

INTRODUCTION:

Water is a significant environmental resource that affects numerous aspects of human, natural and economic life. However, the availability of fresh water to human population is immensely disproportionate due to rising population growth, unscrupulous urbanisation and climate change. With this scarcity, the water sector of different countries face the challenge of bridging the gap between demand and supply for this

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life sustaining resource. In such a situation, rivers, that is a crucial source of water resources and which connects the upstream and downstream users are often responsible for igniting serious discontent. As much of the water resources are trans-boundary in nature, international political fractions and tensions have arisen over the control of and access to this scarce resource. In other words, the crucial nexus between water and food production as well as water and hydro power generation have turned the shared river basins into a battleground for competing claims over 'reasonable share of water'. Along with this, the initiation of a dam building race by the upstream parties ultimately makes water a significant medium of power projection and fostering competition within and between sovereign states.

There are many of instances of such discontents over shared water resources across the World. Competition over the access to scarce water resource is evident in Nile River basin between Egypt which depends on the Nile for 95 per cent of its drinking and industrial water and the upper riparians namely Sudan and Ethiopia. Water sharing problem is also acute in the Jordan river basin. Here water presents an environmental source of conflict, as reduced water supply due to primary effects of climate change on temperature and precipitation creates clash of interests among the countries like Israel, Jordan, Lebanan, Syria and Palestine[2]. Having a trans-boundary nature the rivers Tigris- Euphrates also creates conflictual situation between the riparian states like Turkey, Syria and Iraq. The dispute between Turkey and its downstream neighbours has been erupted by a series of irrigation and dam building projects on the Euphrates by the former. It was claimed that these would have significant negative implications over Iraq's water supplies. However the problem was further aggravated by territorial battles between Turkey and Syria and any move by Turkey to cut off the flow of the Euphrates in Syria ultimately will result in Environmental degradation. In Central Asia, the Aral sea basin in which Amu Dariya and Syr Dariya rivers situated, also witnessed great political tensions over the sharing and utilization of water by downstream countries like Uzbekistan, Kazakhstan and Turkmenistan

2.Norman Myres, "Environment And Security", No.74, *FP,* 28-29(Spring, 1989).

and upstream states like Kyrgtzstan and Tazikistan. The differences in the usage of water between them have spurred conflict affecting both the environmental and national security interests of the riparian countries[3]. Common river problems are also evident between the USA and Canada and the USA and Mexico. The Indian subcontinent is not an exception in this regard. Here also the struggle for water has escalated political tensions, conflicts, 'social disharmony' and even violence as 'territorial boundaries of this region rarely coincide with the borders of watersheds'. The intensity of global climate change has amplified this risk of conflict over shared fresh water resources in the region as several political entities and actors involved, have mininmised the scope of sustainable management of water resources in a changing climate.

CLIMATE CHANGE AND SHARED WATER RESOURCES:

Environmental change has a tremendous effect on glaciers. The acceleration of melting of glaciers is likely to cause increase in river flows that initially results in higher incidence of flooding and landslides. But later as the volume of ice available for melting decreases, the glacial run-off and river flows are expected to get diminished[4]. The Himalayan eco system which is greatly susceptible to global warming is a matter of great concern here. It has not only colossal water resources but also is in the frontline of global warming. The greater Himalayas that have been called the earth's Third Pole as they store the third largest volume of fresh water (the 15,000 Himalayan glaciers cover 30,000 square kelometres or 17 per cent of the mountain area and hold 12,000 cubic kelometres of fresh water), comprising the Hindu Kush, the Himalayan range and the Tibetan plateau, are warming at a rate that is two or four times higher than the global average, and estimated at 2 degree-

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3.Gabriela Kutting (ed), *Global Environmental Politics: Concepts, Theories and Case Studies* 65 (Routledge,London, 2011).

4. Vandana Shiva and Vinod Kumar Bhatt (eds.), *Climate Change at the Third Pole: The impact of Climate Instability on Himalayan Ecosystems and Himalayan Communities* 13 (Navdanya/ Research Foundation for Science, Technology and Ecology, New Delhi, 2009).

2.4 degree Centegrade[5]. As a result and because of the specific effect of black carbon, Himalayan glaciers are melting at unprecedented rates, the snow season is shortening and the snow-line is moving to higher elevation. According to UNEP Report, June, 2007, the Himalayan Glaciers are shrinking at an average of 10 to 60 metre annually, with some retreating at a rate of 5.5 per cent in the last three decades[6] having detrimental effects on the perennial river systems. These have dire consequences for seven of Asia's greatest rivers ,the Ganga, Indus, Brahmaputra, Salween, Mekong, Yangtze and Huang He as they ensure water supply to millions of people residing in the Indian Subcontinent and China. Along with glacial shrinkage and retreat, climate change has largely impacted the amount, intensity and distribution of precipitation over time and space that have a direct effect on total and peak river run off, potentially moving it away from agricultural and dry season demands and toward monsoon flash floods[7]. Such climate change induced dwindling glacier water flows not only affects the irrigation and household activities of people of this region but also undermine the energy potential of all the hydroelectric power projects on the Himalayan Rivers.

INDIA- THE CASE IN POINT:

The main rivers of the Indian subcontinent are the Indus, the Ganga and the Brahmaputra. Both the Indus and the Brahmaputra have originated from Tibetan Himalaya. Tibet's vast glaciers and high altitude have endowed it with the world's greatest river systems and it is the largest repository of fresh water. However, the Tibetan Plateau is also experiencing faster glacial melt and other ecological change as well as global warming induced shrinkage of its permafrost that ultimately depletes the water resources- 'a lifeline for the peoples of several

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5. Praful Bidwai, *The Politics of Climate Change and the Global Crises : Mortgaging Our Future* 56-57 (Orient Blackswan, New Delhi, 2012).
6. *Supra n*ote 3 at 6.
7. The changing Himalayas :Impact of climate change on water resources and livelihoods in the Greater Himalayas",ICIMOD, available at : www.worldwatercouncil.org/...water.../climate_change/PersPap.01._The …(Visited on June 25, 2013).

densely populated Asian Countries'[8]. The legendary Ganga that originates from Gangotri in Himalaya and enters the the Indo Gangetic plains lying northeast of Delhi is also one of the rivers most threatened by climate change. The scientists have observed that the Gangotri glacier, which provides upto 70 per cent of the water to the Ganga during the dry summer months, is shrinking at a rate of 40 yards per year, nearly twice as fast as it was twenty years ago[9].

THE GEO-POLITICAL FAULT-LINES:

The climate change induced such diminishing perennial river water flows and river diversion and dam building by any of the riparian states are and will be a key driver of bilateral relations between India and Pakistan, India and Bangladesh, India and Nepal and India and China. The subcontinent has often witnessed that the trans boundary rivers of this region have strained the riparian relations between India and her neighbours as they differ in their claims to a 'reasonable share of water'. Geography has an important role to play here. Seventy-five percent of water used annually in India comes from international rivers, primarily the Indus and Ganges-Brahmaputra basins that India shares with Pakistan, Bangladesh and Nepal. The partition of India divided the Ganges, Indus and Brahmaputra river basins, with the Indus entering West Pakistan from the Indian side and the Ganges and the Brahmaputra flowing into East Pakistan, which later seceded and become Bangladesh in 1971[10]. Thus the river sytems were cut across by the line of partition converting them transboundary systems that requires 'inter country understandings'. That is why India is facing the challenges of over sharing of rivers flowing into India from Tibetan and Indian Himalaya. The average annual precipitation by way of rain and snow over India's landmass is 4.000 km^3 but the available water resources of the country measured by the National Commission on Integrated Water Resources Development (NCIWRD) in terms of the annual flows in the river systems is 1,953km^3. In the words of Ramaswami. R. Iyer, “Some of the

8. Brahma Chellaney and Heela Najibullah, *On the Frontline of Climate Change: International security Implications* 37 (KAS Publication Series No.17,New Delhi.2007).
9. *Supra n*ote 3 at 14.
10. *Supra n*ote 7 at 45.

water resources of the country flow into it from beyond our borders- say from Nepal or Tibet- and some cross our borders and go into other countries (Pakistan, Bangladesh). We have expectations of flows from the 'upper countries' and obligation to the 'lower countries'"[11].As a result, India has witnessed shared water related problems with her neighbours for ages.

Geographical location wise, India is both an upstream and downstream country. In relation to shared water resources in the Ganga Brahmaputra Meghna basin, Ramaswamy R. Iyer, has classified Nepal as upper riparian, India middle riparian (Lower riparian to Nepal, Bhutan and Upper riparian to Bangladesh), and Bangladesh as lowest riparian deltaic country[12]. Against such a geographical scenario often efforts for required augmentation of both inter and intra state river water in the lean seasons through diversion of surplus of other rivers as well as dam building over rivers which leads to forced resettlement of population as well as extreme climate varibility may act as drivers of conflict escalations in the subcontinent. There are three fundamental treaties- The Indus Treaty of September 1960 (India-Pakistan), The Ganga Treaty of December 1996 (India-Bangladesh), and the Mahakali Treaty of February 1996 (India-Nepal) which have tried to resolve the discord and blamgame over dam building and impounding of shared river water. Although these treaties have gained international recognition as successful instruments of conflict resolution but the signatories have still witnessed crisis over the entitlement of shared water resources.

INDIA- PAKISTAN ISSUE:

The Indus water treaty of 1960 is working reasonably in spite of the existing political animosity between India and Pakistan. By this treaty three western rivers – the Jhelum, the

Chenub and the Indus itself were allocated to Pakistan while the three eastern rivers- the Ravi, The Beas and the Sutlej were allocated to India. Being an upper riparian India had faced certain restrictions regarding

11. Ramaswamy.R. Iyer, *Water: Perspectives, Issues, Concerns* 259 (Sage Publications:New Delhi, 2003).
12. Ibid.

building storages on the rivers allocated to Pakistan and extending irrigation development in India[13]. The provisions of the treaty astonishingly was not abrogated even during the periods of war between these two countries. However, disputes festers over Indus several times that have brought the sustainability of the Indus Water Treaty under serious scrutiny.

Tensions and violence over water use rights have already erupted between India and Pakistan over Baglihar Dam issue where Pakistan claimed that it would seek damages from India for the loss of 0.2 million acre feet of waters due to alleged blocking of the Chenab river flow to fill the Baglihar dam and the matter was referred to World Bank by Pakistan. However the neutral expert's findingings went in favour of India and the project per se stood vindicated[14]. The Tulbul navigation is another bone of contention between India and Pakistan where India proposed to build the barrage in 1984 on the river Jhelum, at the mouth of Wullar Lake. But, Pakistan protested, claiming it was a violation of 1960 Indus Water treaty. Although India claimed the barrage would head up the waters temporarily and would make the river navigable in summer, Pakistan suspected that it could be used by India to control the flow of the river and could be used as a geo strategic weapon[15]against her. India has also faced Pakistan's protest against 330 Megawatt power generating Kishanganga hydel project in Jammu & Kashmiraiming at disrupting Indian plans to divert water from the Kishanganga into the Bona Madmati Nallah. Here, Pakistan had objected to the drawdown flushing, apprehending that it will affect flows at its downstream Neelam project and had dragged India to the international arena charging New Delhi with violation of the Indus Water Treaty. Although, the International Court of Arbitration has allowed India to go ahead with the construction of the Rs. 3600 crore Kishanganga hydro-electric project in North Kashmir, rejecting Pakistan's plea that this was a violation of the 1960 Indus Waters Treaty, however, the court restrained India from adopting the drawdown

13. Ibid.
14. Ramaswamy.R. Iyer,"Baglihar:Resolving the Differences", *The Hindu,* March 1, 2007.
15. *Supra n*ote 10 at 221.

flushing technique for clearing sedimentation in the run-off-the river project[16]. The Nimbo Bazgo hydropower project, having generation capacity of forty five Megawatts, on the river Indus in Leh District of Ladakh in Jammu and Kashmir, is perhaps the latest in a chain of disputes between the two countries. India was awarded carbon credit for the project by the United Nations Framework Convention on Climate Change (UNFCCC) on August 11, 2008 against which Pakistan has registered its resentment. The charge is that the project would substantially reduce water flows in Indus River, as the design of the gated spillways and depth of the dam clearly breaches the Indus Water Treaty[17].

INDO-BANGLADESH ISSUE:

The shared water of the river Ganges and Teesta by Bangladesh and India is also not an exception. Bangladesh considers itself as water insecured, considering the fact that there are 54 rivers crossing the Indo-Bangladsh border and the 94 per cent of its water originate beyond its boundary[18]. The Ganga water dispute was a contentious area in the Indo- Bangladesh relation for two decades and the discontent over the issue has not yet been disappeared. The Indian decision of constructing the Farakka barrage on the Ganges created an inter state dispute that lingered until 1996, when Bangladesh and India reached a 30 year agreement. Under the agreement, Bangladesh will receive a 50 per cent share of the Ganges water when the water flow at Farakka is less than 70,000 cusecs. If the flow rises beyond that level, Bangladesh is guaranteed 35,000 Cusecs; if it passes the 75,000 cusec mark, India is guaranteed 40,000 cusecs. The treaty also stipulated that the countries would conclude long term sharing agreements with regard to other cross border rivers, of which the sharing issue of the Teesta was prioritised. However, Bangladesh has blamed several times the Indian Government

16. Gargi Parsai, "India can go ahead with Kishanganga", *The Hindu,* February 19, 2013.
17. Another Water Battle Looming, Beizing, available at : http://www.chinadialogue.net/article/show/single/en/4825-Another-water-battle-looming, (Visited on November 08, 2013).
18. *Supra n*ote 10 at 214.

for the unilateral diversion of Ganga at Farakka to the detriment of her causing severe droughts and floods[19].

In case of Teesta water sharing, an agreement is also required as both India and Bangladesh have barrages on the river. Several proposals have already been mooted but a crisis situation has erupted when the Chief Minister of West Bengal Mamata Banerjee denied the equal allocation of the river fearing that the loss of higher volume of water to the lower riparian would cause problems in the northern regions of the state, especially during drier weather. Such decision strains the relation between the countries. But Teesta is not the sole issue. Sharing of waters onother rivers, particularly Feni as well as Manu, Muhuri, Khowai, Gumti, Dharla and Dudhkumar, all got stalled as a result of India's delay in signing the Teesta accord. However, dispute over shared water is only one dimension of the problem. Dam building is another bone of contention. Bangladesh registered a protest against dams on the Subansiri river which is built in India's Northeast. The project is facing stiff protests both in India and Bangladesh as it may affect the downstream riverine environment and could have an devastating effect in case of a major earthquake in the region. India's Tipaimukh hydroelectric dam project near the confluence of the Barak and Tuivai river in Manipur has also attracted opposition from Bangladesh. The original consideration for the dam was to contain the flood water in the Cachar plains of Assam but later the emphasis of the dam shifted to hydroelectric power generation. Bangladesh's opposition to the project is based on numerous reasons ranging from environmental degradation, hydrological drought, and unpredictable outcome from possible seismic changes, loss of agricultural production to the massive displacement of people in the country[20]. Furthermore, India's river linking project aimed at intra basin and inter basin water transfer through out the country has raised serious concern in Bangladesh as it involves massive withdrawal of waters at upstream. Bangladesh has shown its reservation against the project as diversion of water from

19. A K M Nazrul Islam,"Water Security Conundrum in Bangladesh"Vol.33,No.1 *BIISJ 55* (January, 2012).
20. Imtiaz Ahmed, "Teesta, Tipaimukh and River Linking :Danger to Bangladesh-India Relations" Vol XLVIL No. 16 *EPW* 51-52 (April 21, 2012).

common rivers through construction of barrages on the tributaries and distributaries of the Brahmaputra River would have detrimental implications for the availability of fresh water. Experts estimated that diverting just 10 to 20 per cent of water of the Brahmaputra River in India could cause hundred of Bangladeshi rivers to dry[21](.

INDO-NEPAL ISSUES:

India is a lower riparian to Nepal. She needs the latter not only to meet some of its growing energy needs but more crucially for flood management and navigational uses. The water dispute between them has been over the Mahakali River which defines Nepal's border with India in the West. 'Political passions were kindled in Nepal over India's 1998 construction of Tanakpur Barrage on the Mahakali under the terms of an agreement signed in 1991 and renegotiated
in 1996'[22]. Nepal's mistrust, has been reinforced by what it perceives to be unequal treaties starting from the Sharada Dam construction (1927), Kosi Agreement (1954), Gandak Agreement ((1959), Tanakpur Agreement (1991) and finally the Mahakali Treaty (1996). Nepal, like Bangladesh, is also concerned over India's river inter-linking proposal. India has identified 30-link schemes. Five of the 14 river links of the Himalaya are directly related to Nepal's 28 storage schemes. These are Kosi-Mechi; Kosi- Gandak; Gandak-Ganga; Sarada-Yamuna and Ghagra-Yamuna. These concerns will feature predominantly in any water discussion and cooperation with Nepal[23].

Given the bountiful water resources of Nepal while both the countries are aware about the potential and necessity of hydro-power, there is a lack of effort, cooperation and political will to transform these benefits into reality. Both sides have their own opinions. India claims that Nepal's water release creates regional flooding and projects may harm parts of northern India, while there is a strong perception in Nepal that India by prioritising its national interest has often overlooked Nepal's interest and that the benefits have been one-sided rather than

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21.*Supra n*ote 18 at 56.
22.*Supra n*ote 7 at 63.
23.Institute for Defence Studies, Task Force Report on Water Security for India: The External Dynamics (2010).

mutual. Climate change has a critical role to play here. Water crisis is mounting in this land locked country. Some of the adaptation measures require close cooperation with India in terms of building dams, reservoirs and hydroelectricity projects. 'Basin scale adaptive measures on the rivers Karnali, Narayani and Kosi' is also an urgent necessity. However, Many of the joint projects with India relating to flood control, irrigation and hydroelectricity have been myopic and mismanaged[24]. The problem gets worsened due to fluctuating political relations between them that have hampered water resources development.

INDO-BHUTAN ISSUES:

India's water relation with Bhutan is not that problematic. 'India aids and assists the construction of hydro projects in Bhutan and then buys the power'. The hydropower cooperation between Bhutan and India started with the signing of the Jaldhaka agreement in 1961. Both countries started production of hydropower on a much larger scale with the Chukha Hydel Project, which also marked the starting point for a mutually beneficial relationship between the two countries[25].However, climate change has become a matter of fundamental concern for both the countries as it has induced reduction in the average flow of 'snow fed rivers' along with a rise in peak flows and sediment yield as well as glacial lake out bursts that would not only have major impacts on hydropower generation but lead to changes in the quantity of river water and loss of biodiversity and perturbations in human lives downstream.

INDO-CHINA ISSUES:

The above analysis of the riparian relations between India and her immediate neighbours makes it amply clear that the increased likelihood of water conflicts in Asia, to a large extent is attributed to higher dependency on cross border river inflows. However, China, being an upper riparian country and having control over the aqua rich Tibetan plateau- the source of most major rivers of Asia, in contrast to them is in an advantageous position as minimum percentage of its water resources

24.Ibid.
25.Ibid.

comes from across its border. Given her over-utilisation of water resources by industries, its huge population and mismanagement of resources, she has to augment the volume of the water resources. China is therefore accused and suspected of pursuing major inter-basin and inter-river water transfer projects on the Tibetan plateau which threaten to diminish international river flows into India and other co-riparian states[26].

Three water diversion Channels to the north of China are planned from Yangtze river to the Yellow river. After completion of them by 2050, a total of 44.8 billion cubic metres of water will be transferred by this manmade river[27]. Actually the diversion of the Brahmaputra's water to the parched Yellow River is an idea that China does not discuss in public because the project implies environmental devastation of India's northeastern plains andeastern Bangladesh and would thus be tantamount to a proclamation of water war against India and Bangladesh[28].Specifically diversion of the Yarlung Tsangpo branch of the Brahmaputra around the famous U-Bend before the river enters India is a matter of concern for the country. India also blamed China for initiating a hydropower project at Zangmu in Tibet, along the Yarlung-Tsangpo having adverse effects to downstream which was denied by China on the ground that it does not involve substantial diversion of a river's waters thereby not significantly impacting areas in India downstream[29].

Being the lowest riparian state of the Brahmaputra, the threat to Bangladesh is even greater. Bangladesh is very much concerned over water diversion of the Brahmaputra by China as well as on the building of dams by China and India on the Brahmaputra. Such upstream activities by these two countries would drastically reduce the amount of water reaching Bangladesh thereby creating havoc to agricultural production and would aggravate environmental problems. In fact,

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26.David Michel and Amit Pandya(eds.), *Indian Climate Policy: Choices And Challenges* 26 (The Henry L. Stimson Center, New York, November, 2009).
27. Punarmita Dasgupta, IDSA Working Group Report on Security Implications of Climate Change for India, IDSA Academic Foundation: New Delhi (2009).
28. *Supra* note 2009.
29. Ananth Krishnan, "China reassures India on dam projects", The Hindu, November 6, 2009.

China, India, Pakistan are all dependent on shared water supplies originating in the Tibetan Plateau which is already threatened by global warming. Since the rising water requirements of these countries are coincided with the shrinkage of these resources due to the geo ecological fragility of the world's largest water repository, their efforts to tap them ultimately foster competition and interstate conflict in the region. Such discontent over dam building is not restricted to trans-border rivers only, within India irreconcilable water conflict has also erupted among states that disagree over ownership and distribution of water. For instance the Kaveri river dispute that has given birth to water war between Tamilnadu and Karnataka and both the countries have witnessed bloodshed and fall of governments over this issue.

There is no doubt that water is a medium through which climate change affects the humanity severely. When shared water resource is the case in point, access to it has been an instigating factor for conflict and cooperation. Changes in the 'physical or political setting' of international river basins by 'construction of a dam upstream, diversion for irrigation purposes, or realignment of political frontiers' are thus responsible for fostering competition in any shared river basin. In this context Ismail Serageldin's much quoted prediction is worth mentioning- " If the wars
of this century were fought over oil, the wars of the next century will be fought over water "[30]. Although there is no such instance of overt war fought simply over water but this life sustaining resource has been an underlying factor in several armed conflicts. Climate change has only exacerbated the problem by decreasing the flows of snow fed river waters and by altering the quantity of available water necessary for irrigation and household use as well as minimising the hydro power generation capacity of these rivers. India and her neighbourhood are not exceptions as climate change driven decreasing water table and gradual melting away of glaciers that has resulted in reduced water flows in the Himalayan rivers, have a bearing on her socio-economic and political stability on the one hand while it may lead to resource related conflicts among the states in the region.

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30. Vandana Shiva, *Water Wars: Privatization, Pollution and Profit* IX (Southend Press, Cambridge, MA, 2002).

There are numerous treaties to resolve the shared water disputes between India and her neighbours. However, they do not adequately respond to the environmental and political challenges posed by water conflicts. Specifically, climate change is rarely discussed in these transboundary water agreements. They are mostly unaware of the fact that future water supply and quality may be altered due to changing climate, hampering the reasonable sharing of water among the riparian states. Not only that, the sustainable management of shared water resources in a changing climate is also challenging as multiple political entities and actors involved may differ in their respective views. Often their attitude may be guided by the existing political fractions as well. There is no doubt that the spread of irrigated farming and water-intensive industries as well as the growing demand of rising middle class have made India a water stressed economy. In such a situation water courses that cut across Indian boundaries and India's geographical position as an upper, middle and lower riparian country have created lot of problems as rivers are important sources of water.

Water scarcity in India has severe security implications as competing claims over this dwindling resource may lead to tensions between two states of the country and between India and her neighbours. Climate change as a threat multiplier instigates this competition. The phenomenon is transnational in nature and therefore natural and human induced environmental change in one country in terms of river pollution, deforestation, dam building for river diversion may have serious devastating consequences in other countries. India is basically face the challenge at two levels. At the global level, in various intergovernmental bargaining over climate change related burden sharing, she has witnessed a clash between her national interest and global concern for climate change. By dismantling the fact that the developed North failed both to reduce emission and to keep promises on finance and technology transfer, rising powers like India ,China and others have argued that the burden of unfair environmental constraints should not be passed on to them. Therefore here the tension is between rich advanced countries and the poorer developing countries. Although there are different shades of shifting alliances in the climate regime nowadays. At the regional level the effects of climate change induced

natural resource scarcity in general and altered shared river flows in particular, are likely to be so high that they may amplify the intensity of the age-old political frictions in the region. This is a critical situation for India as regionally she is encountering resource scarcity generated political battle with her neighbours while at the same time, globally , she, along with them, has to raise her voice against the centrality of inequity in the sharing of climate change burden.

THE WAY FORWARD:

The water battle between India and her neighbours have contributed to a regional instability. Re-routing of river flows and dam building as well as climate change that is sometimes human induced and have exacerbated the situation. But, without new thinking, unavoidable climate change will lead to unavoidable conflicts over water. The following issues can help in this direction -

- New institutional arrangements should be put in place to reduce the risks that climate change poses to transboundary water resources ;
- Sole dependence on river water should be minimised and rain water harvesting may help in reducing the over reliance on it;
- There should be greater hydrological data-sharing between India and her neighbours, and they should reach a commitment for not redirecting the natural flow of any river or to diminish cross-border water flows;
- Expanding the scope and evaluating the existing treaties and agreements over shared water resources in order to assessing climate impact, vulnerability and opting measures for adaptation;
- The riparian countries should take initiative for monitoring the pace and state of the degradation of great Himalayan watersheds and should collaborate in joint scientific studies on glacial melting and its effect on river flows.

All these efforts can be materialised only if India and the other riparian countries of the Indus and Ganga-Brahmhaputra- Meghna systems agree that water disputes could generally be resolved diplomatically, and shared water resources if properly maintained are

more a source of cooperation and negotiation than a threat to the security architecture of individual country. Countries therefore must go beyond the narrow confines of self interested behaviour as climate change respects no border. Regional political turmoil should not impede the efforts to reach a consensual deal for addressing the nexus of climate change and shared water resources related problems. All these riparian neighbours should broaden their conventional understanding of security discourse and must acknowledge that national security is no longer about fighting forces and weaponry alone and it relates increasingly the efforts to protect watersheds, forests, soil cover, cropland and many more from adverse climate cataclysm which is human induced to a large extent. Military experts and political leaders of each of these countries should thus consider the non conventional threat posed by climate change and its effect on shared river water as equally crucial to the country's security as military prowess.

TRANSNATIONAL GOVERNANCE IN THE GANGES-BRAHMAPUTRA-MEGHNA BASIN : CONFLICT OF APPROACHES TO WATER IN SOUTH ASIA

Dr. Priti Rana[1]

ABSTRACT

The portion of the Ganges-Brahmaputra-Meghna mega-basin shared between Nepal, Bhutan, northern India, and Bangladesh is one of the poorest, most densely populated, ecologically vulnerable, and socially and politically unstable areas in the world. As such, reducing the potential for transboundary water conflict by increasing cooperation between riparian states has been of increasing interest to policy-makers. Addressing transboundary water issues is not a priority for the riparian states; there is significant distrust between them and resentment about India's hydro-hegemony; and bilateral, rather than multilateral, arrangements prevail. These factors make collective action both more urgent and more difficult. If they are to increase transboundary water cooperation, international actors should, among other things, resolve historical grievances; strengthen water-sharing institutions; build trust between riparian states; and work toward outcomes based on principles of water justice. This paper makes an attempt to understand and bring to the fore issues that plague trans-boundary water disputes in South Asia. It examines initiatives or lack of it with regard to water sharing and management from the perspective of peace building in South Asia. Finally it discusses alternative approaches, and the possible action points for future intervention.

Key Words: Trans- boundary water disputes, water governance, foreign aid and investment, World Bank, South Asia

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INTRODUCTION

Water is crucial to life and survival, and concerns of sharing and managing this finite element in South Asia has been generating a lot of heat. At one level, are issues that are directly linked to the fact that there is a 'water crisis' looming over the region. It is a reality that usage of water resources has reached or far exceeded the limits of sustainability in most of the countries in South Asia. Rapid growth of population, urbanisation and mega cities, industries, mining, intensive irrigation and agriculture has combined with inefficient use of water, to insure that water is fast becoming a scarce resource both in terms of quantity and quality. This has fuelled conflicts between different uses and users of water, between states within countries, and across countries. With the possibility of devastating impact of climate change, and the severe shortage of freshwater as projected by the Inter-governmental Panel on Climate Change, the situation is likely to take a catastrophic turn.[2]

At another level, water tensions can be seen embedded in South Asia's turbulent history. The region has witnessed wars, and is an area where protracted violent conflicts and border disputes abound. It is argued that many of these conflicts between South Asian countries are also taking environmental forms. Simultaneously, various environmental issues are getting regionalised and politicised. There is thus an 'environmentalisation' of certain conflicts and politicisation of the environment in this region.

SOUTH ASIAN WATER PROFILE

South Asia is a region of both water abundance and scarcity. The Hindu Kush-Himalayan region (HKH) is one of the largest storehouses of fresh water in the world, and its mountains are the source of major river systems. The three Himalayan rivers, the Indus, the Ganga and the Brahmaputra arise within 300 km from each other in the Himalayan

[2]Vaidya, R.A. and Sharma, E. (Eds). 2014. Research insights on climate and water in the Hindu Kush Himalayas. Kathmandu, Nepal: International Centre for Integrated Mountain Development.

glaciers.[3] While the Ganga originates inside the Himalayas, the Indus and the Brahmaputra originate beyond, in the Trans-Himalayan Tibetan region—the Indus taking a westward course towards the Arabian Sea, and the Ganga and Brahmaputa making the journey towards the Bay of Bengal in the East of the subcontinent.

Individually, each of these main rivers is among the largest rivers in the world, and together they constitute the "Himalayan river system." While the Indus and the Ganga are each principal rivers of two separate river systems, this difference is over-ridden by the overall contiguity of the Indo-Gangetic plains. Together, these three rivers are estimated to carry an average of 1,200 cubic kilometers of water every year. When combined with the Meghna (Barak), a non Himalayan river which has an average annual flow of 100 cubic kilometer, the Ganga-Brahmaputra-Meghna becomes the world's third largest river system.[4] These rivers not only provide water but are also a major focus of religious and cultural life in the region.

However, South Asia is inhabited by 1.4 billion people and home to 40 per cent of all those living in poverty worldwide. The IGB basin alone supports over half billion people (10 percent of the world's population), an area where poverty is endemic and agriculture forms the main basis of livelihood. Hence, though theoretically the availability of water is high, access to water remains one of the major challenges. In addition, water supply remains seasonal in nature. The IGBM river systems exhibit a remarkable variation in the temporal and spatial availability of water, and the hydrology of the rivers follows the rainfall pattern. About 80% of the total annual flow occurs between June to September, with the remaining 20% occurring during the rest of the months.[5] This results in an alternative cycle of excess and scarcity leading to conflicts over water-sharing. However, to a great extent the crisis is precipitated because of the decreasing water quality and the inefficient and

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[3] Bhim Subba, Himalayan Waters, (Kathmandu, Nepal: Panos South Asia), 2001, p. 49.
[4] *Ibid*. p.88
[5] "Water Sharing Conflict among Countries and Approaches to Resolving Them," WASSA Project Report, Vol. 3, p. 20

inequitable way the resource is governed and managed. This poses a threat both to water as an environmental resource as well as means of survival.

Ideally cooperation based on mutual trust, transparency and information sharing among riparian countries should ensure the best management and sharing of water. However, given the atmosphere of hostility, 'upstream- downstream' syndrome, 'unequal' partnerships, lack of definitive international laws, regional principles or enforceable global conventions, a number of conflicts has erupted in South Asia on trans-border water issues. To understand this, one must begin with a certain geographical reality. India shares contiguous borders with all these South Asian countries, is both an upper and lower riparian, and is a giant in terms of its size (and economy) when compared to Pakistan, Nepal, and Bangladesh. Not surprisingly (and due to a host of other reasons) tensions have arisen between India and most of these countries on cross-border water issues. The atmosphere of mistrust among some of these countries, together with the fact that India is perceived as a 'hegemon' by its neighbours has not helped the situation. Water has been a serious tension point between India (upper riparian) and Pakistan (lower riparian); between India (upper riparian) and Bangladesh (lower riparian); and between India (lower riparian) and Nepal (upper riparian).

Conflicts on trans-boundary water have been widespread all over the world, plagued by claims and counter claims by different users and states. Part of the conflict, stems from the very nature of water, such as water being divisible and amenable to sharing; it is a common pool resource; one unit of water used by one is a unit denied to others; it has multiple uses and users and involves resultant trade-offs; the way water is used and managed causes externalities.[6] Others like Ramaswamy Iyer point out that at the water conflict are about gross mismanagement of water, and of what he terms as "water-greed" where nobody seems to have enough and there is an unlimited and ever growing demand for

[6] Joy, Gujja, Paranjape, Gould and Vispute, in "Million Revolts in the Making," Economic and Political Weekly, Vol. XLI, No. 7, February 2006, p. 570

more and more water.[7] However, what makes the case particularly fragile in South Asia is not just the existence of these conflicts, but the lack of a democratic framework, or a regional mechanism that involves all the conflicting parties that is perceived to be fair and is rooted in an ecologically sustainable approach. The existing mode for trans-boundary water governance in South Asia is bi-lateral treaties, signed by Nepal, Bangladesh, Pakistan with India (which is an upper riparian in most cases, except with Nepal). Some of these treaties have worked, others have not, but each has been surrounded by controversy and misgivings at some point or other.

WATER INTERACTIONS BETWEEN INDIA, NEPAL, BHUTAN AND BANGLADESH ARE NOT POSITIVE

The competing transboundary water issues are also a source of tension between riparian states and contribute to the less than positive water interactions between them. Condon argues that Nepal's limited diversion or storage capacity is at the root of water disputes with India.[8] While for Nepal the issue of water storage is largely one of untapped potential, for Bangladesh it is a question of mitigating the negative effects of India's upstream projects. Bangladesh has a seeming abundance of water resources, but most of its annual flow comes in the form of monsoonal floods that quickly flush out to the Bay of Bengal; Bangladesh is a predominantly flat, deltaic country with limited water storage potential.[9] At the same time, Bangladesh has not benefited from water storage and diversion in upstream India.

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[7] Ramaswamy Iyer, "Trans-boundary Water Conflicts: A Review" In Joy, Gujja, Paranjape, Gould and Vispute, ed., Water Conflicts in India: A Million Revolts in the Making, (Routledge: New Delhi, 2008), p. 375.

[8] Condon, E.; Hillman, P.; King, J.; Lang, K. and Patz, A. 2009. Resource Disputes in south Asia: Water Scarcity and the Potential for Interstate Conflict, prepared for the Office of South Asia Analysis, US Central Intelligence Agency, Workshop in International Public Affairs, 1 June 2009, Robert M La Follette School of Public Affairs, University of Wisconsin-Madison.

[9] Wirsing, R.; Jasparro, C. and Stoll, D.C. 2013. International conflict over water resources in Himalayan Asia. New York, USA: Palgrave Macmillan.

In contrast, the water interactions between India and Bhutan is largely positive. The cooperative relationship between Bhutan and India over transboundary water resources can be attributed in large part to the kingdom's far-sightedness and political savvy in fostering the non-zero-sum-thinking that allows the interests of both Bhutan and India to be addressed through hydropower development. Bhutan's stance toward the hydro-hegemon can be said to be an instance of 'bandwaggoning', whereby weaker states in a regional system seek accommodation with the local hegemon in order to receive economic and military benefits.[10]

As Dinar notes, "the Ganges has tremendous joint development potential that has not yet been realised by its riparian states. Rather, the Ganges Basin is more popularly known for its rich history of disputes".[11] Problems in this 'rich history of disputes' include the lack of strong regional identity, the securitisation of water issues, the presence of a hydro-hegemon that struggles to be a regional leader, and the reliance on bilateral rather than multilateral approaches to transboundary water governance. Further faltering river diplomacy, and simmering separatist tensions and political turmoil adds up to these conflict-inducing problems.

These non-water issues also have a bearing on the governance of international rivers. Tiwary points out that considerations outside of the negotiation table affect the outcome of formal negotiations. He argues that states negotiate not only in reaction to other riparians, but also in reaction to domestic politics.[12] In the Ganges-Brahmaputra-Meghna Basin, domestic politics play a large role in the hydropolitics between the basin riparians. One illustration of this is that Nepal has been unable to negotiate effectively with India over shared water issues because of

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[10]Dash, K.C. 2008. Regionalism in South Asia: Negotiating cooperation, institutional structures. New York, USA: Routledge.

[11]Dinar, A.; Dinar, S.; McCaffrey, S. and McKinney, D. 2007. Bridges over water: Understanding transboundary water conflict, negotiation and cooperation. World Scientific Series on Energy and Resource Economics – vol. 3, Singapore, Singapore: World Scientific Publishing Co.

[12]Tiwary, R. 2006. Conflicts over international waters. Economic and Political Weekly 41(17): 1684-1692.

numerous domestic distractions (political upheaval, insurgency, etc). In contrast, Bhutan, with fewer domestic non-water-related considerations for the polity, has been able to reach more satisfactory negotiation outcomes with India.[13]

India's bureaucracy is another domestic, non-water related challenge to positive transboundary water interactions. The bureaucratic culture prevailing in India is paternalistic, coercive, favouring top-down planning, and lacking in support or feedback from locals. In other words, cultural factors also contribute to less than positive water interactions. [14] While some riparians claim to be in favour of cooperative, multinational approaches to water governance, "collective multilateral attention to the problems of transboundary waters has been rare. Historically, the region has lacked a collective strategy and bilateralism remains the focus".[15] Thus the "prevailing mutual distrust" between riparian states contributes to self-serving water management rather than positive-sum outcomes.

The trust deficit in the Ganges-Brahmaputra basin is extremely high. There are numerous and long-standing factors that contribute to the mutual distrust in South Asia, not all of them related to shared rivers. In regard to transboundary waters, however, India's hydro-hegemony is one contributing factor to lack of trust in the region. Another source of festering relations is the construction of hydro engineering projects, both existing and planned. For example, the Farakka Barrage is a sore

[13] Supra Note 9.
[14]Hill, D. 2008. The regional politics of water sharing: Contemporary issues in South Asia. In Lahiri-Dutt, K. and Wasson, R.J. (Eds), Water first: Issues and challenges for nations and communities in South Asia, pp. 59-80. New Delhi, India: Sage.
[15]Uprety, K 2014. A South Asian Perspective on the UN Watercourses Convention, International Water Law Project Blog, published online 14 July 2014, www.internationalwaterlaw.org/blog/2014/07/14/dr-kishor-uprety-a- south-asian-perspective-on-the-un-watercourses-convention/ (Accessed 13 March 2017).

point between Bangladesh and India, while Nepal feels aggrieved over India's construction of the Tanakpur Barrage.[16]

The distrust between riparian states has consequences for transboundary water cooperation. Water remains "securitised across borders due to a bitter past, mistrust and hatred that dominate the sociopolitical structure in these countries".[17] Without trust, the strategic approach of most of the countries is merely to theoretically engage in water-related initiatives, but practically advance only those serving their own specific interests. In other words, without trust between riparians, a zero-sum attitude to water sharing prevails. A zero-sum view of transboundary water resources presumes that the water can only be used once, and only by one party. Not surprisingly, it yields outcomes in which one side 'wins' and others 'lose'.[18]

TRANSBOUNDARY WATERS ARE NOT GOVERNED IN A COLLABORATIVE WAY

South Asia is one of the most poorly governed regions in the world, with inefficient and inequitable deployment of resources, crippling debt burden, social divisions along ethnic and sectarian lines, as well as rampant corruption and vulnerability of civil society organisations. South Asia is both strong and weak. On the one hand, a high degree of 'state- ness' is witnessed and on the other, the breakdown of state authority, as a result of social disorder makes political upheaval the norm.[19]

The weak solidarity and regional identity in South Asia also mean that the region lacks a security community. A security community means

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[16]Mirumachi, N. 2013. Securitising shared waters: An analysis of the hydropolitical context of the Tanakpur Barrage project between Nepal and India. The Geographical Journal 179(4): 309-319.

[17]Asthana, V. and Shukla, A.C. 2014. Water security in India; Hope, despair, and the challenges of human development. New York, USA: Bloomsbury Academic.

[18]Islam, S. and Susskind, L.E. 2013. Water diplomacy. A negotiated approach to managing complex water networks. New York, USA: RFF Press.

[19] Baqai, H. 2011. Non-traditional sources of conflict in South Asia 1971-2000. Saarbruecken, Germany: VDM Verlag.

that a group of states has "achieved such a level of cooperation, or even integration that they simply do not consider fighting each other as a realistic possibility to resolve disputes, and stop preparing to do so (although such states may well continue to prepare to fight others)".[20] There is also no sense of collective action for dealing with non-traditional security threats, such as water conflicts. Indeed, the non-traditional threats are also securitised across borders due to a bitter past, mistrust and hatred that dominate the sociopolitical structure in these countries. The securitisation of water – shifting water governance issues from the domain of normal politics and its procedures to one of emergency politics or panic politics continues to be a driver of negative water interactions in the Ganges-Brahmaputra basin. Of course, there are instances of positive interactions between riparian states too, for example meetings of joint river commissions and memoranda of understanding on specific issues such as river navigation. But overall the hydropolitics in the region remain tense.

India's hydro-hegemony is a further point of tension for Nepal, Bhutan and Bangladesh. India's relative political, military and economic strength allows it to mitigate the fact of geography that it does not control the headwaters of all the rivers that pass through its territory. India is thus able to influence its upstream neighbours to gain access to their water resources, and its downstream neighbours to overlook transboundary water arrangements that may adversely affect them. This influence, as that of any hydro-hegemony, can at times be constructive and at times coercive.

Hydro-hegemony is not inherently a destabilising factor; indeed, a hydro-hegemony could be a strong regional leader that promotes cooperation among riparians. India has failed to provide political advice and economic guidance to neighbours without appearing domineering. The perception of India as a sometimes bullying 'big brother' continues

[20]Jones, P. 2008. South Asia: Is a regional security community possible? South Asian Survey 15(2): 183-193.

to foment resentment, distrust, and political tension within Nepal, Bhutan and Bangladesh vis-à-vis the hydro- hegemony.

The geopolitics of the region is arguably defined by the dominance of India and issues surrounding whether transboundary disputes should be handled bilaterally or internationalised continue to provoke tensions and furthermore these tensions are likely to intensify as demand for water becomes more acute in the future. Even though all the rivers flowing through India are international and pass more than one country, all the treaties on these rivers are bilateral. India's persistence in establishing strictly bilateral arrangements and not involving the international community in matters of transboundary water governance in South Asia has, shaped the transboundary water interactions in the Ganges-Brahmaputra problemshed.

India's insistence on bilateral, rather than multilateral, treaties regarding the region's international rivers is a source of enmity. Nepal still feels cheated over the Kosi and Gandak agreements from the 1950s and 1960s,[21] and the legacy of these bilateral arrangements continues to weigh down cooperation with India.[22] More recently, the 1996 Mahakali Treaty has become a source of discontent and Nepalese resentment of India.

Bangladesh too feels aggrieved by bilateral arrangements with India. There is much criticism of the bilateral water-sharing arrangements between India and Bangladesh, which are, inequitable and symptomatic of the broader relationship between the two countries. The 1996 Ganges Treaty in particular is resented by Bangladesh and exemplifies the hydro-hegemon's prerogative to set a bilateral water governance agenda, through which it benefits more than the weaker riparian states. The Ganges Treaty neither takes a whole-of-basin approach to river

[21] Bhattarai, R. 2005. Geopolitics of Nepal and international responses to conflict transformation. Kathmandu: Friends for Peace, FFP Publications Series 006.
[22] Chellaney, B. 2014. Water, power, and competition in Asia. Asian Survey 54(4): 621-650.

management nor factors in the effects of India's consumptive water uses on the Ganges upstream of the Farakka Barrage.

Because India is able to set and benefit from bilateral arrangements, the likelihood of a basin-wide water governance framework emerging is low.[23] That poses a challenge for international actors working to increase transboundary water cooperation in the Ganges-Brahmaputra problemshed. India has been distrustful of the World Bank-led Abu Dhabi Dialogue that promoted regional cooperation on the Himalayan rivers (SAWI, 2015), and does not contribute financially to the South Asia Water Initiative.

India was also an unenthusiastic participant in the Ganges Strategic Basin Assessment, which was intended by SAWI as a knowledge base in support of creating basin-wide benefit-sharing arrangements. Nepal and Bangladesh also rejected the Ganges Strategic Basin Assessment, and were disgruntled with the way the World Bank led the study. This is another illustration of the low levels of commitment that the riparian states have towards transboundary water cooperation. There is certainly a lack of political will in the [Ganges-Brahmaputra] basin, particularly in India, to provide the space for multilateral river institutions to effectively emerge.

This lack of commitment hinders the effectiveness of international organisations working to increase transboundary water cooperation in the region. International water conflict resolution requires considerable political will on all the sides and sustained motivation to reach agreement. Desire for cooperation is important because, if there is a political will for peace, water will not be a hindrance. If you want reasons to fight, water will give you ample opportunities. India, Nepal and Bangladesh (but not Bhutan) do not place transboundary water governance at the top of their political priorities, and ongoing tensions over past failures at improving interactions continues to keep political

[23] Earle, A.; Cascão, A.E.; Hansson, S.; Jägerskog, A.; Swain, A. and Öjendal, J. 2015. Transboundary water management and the climate change debate. Earthscan Studies in Water Resource Management. Abingdon, UK: Routledge.

will low. This makes transboundary water cooperation both more difficult and more important.

THE CASE FOR TRANSBOUNDARY WATER COOPERATION

There is "very limited existing transboundary cooperation" in the Ganges-Brahmaputra basin, and that although "future risks are undoubtedly high" they could nonetheless potentially be mitigated through cooperation. Joint institutions for information sharing could help predict and monitor the basin's changing hydrology and underpin early warning systems, thus enhancing both agricultural productivity and disaster preparedness. Cooperative infrastructure development and/or operation could help regulate river flows to mitigate floods and droughts, generate power and irrigate fields. Cooperative environmental management could enhance water quality and ensure environmental flows for ecosystem health. And all of this cooperative engagement could improve regional relationships "beyond the river".[24]

The underlying assumption for increasing transboundary water cooperation is that these schemes require third-party support or facilitation. After all, if riparian states had the capacity and political will to mitigate future water security risks on their own, they would have done so. Cooperation between all of South Asia's states for the benefit of the region's citizens is essential if the multiple crisis of water are to be overcome to any significant degree but transboundary water cooperation in the foreseeable future "is less likely than continual division and enmity".[25]

The framing of water-security issues as a collective action problem (one that riparian states, especially in the developing world, is presumably ill-equipped to tackle themselves) is not a phenomenon unique to the Ganges-Brahmaputra basin but rather a part of a recent global trend.

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[24]Chellaney, B. 2014. Water, power, and competition in Asia. Asian Survey 54(4): 621-650.

[25]Hill, D. 2009. Boundaries, scale and power in South Asia. In Ghosh, D.; Goodall, H. and Hemelryk-Donald, S. (Eds), Water, sovereignty and borders in Asia and Oceania, pp. 87-103. New York: Routledge.

Since around the year 2000, the new 'sanctioned discourse' of water management has, centred on the ideas of the market, good governance, and sustainability. This discourse has been supported by a set of global organisations (notably the World Bank and several UN organisations), and actively propagated through international development funding agencies. Thus, the framing of the situation in the Ganges-Brahmaputra problemshed as a collective action problem is part of the emerging 'global politics of water', or the globalisation of regional water security issues through international organisations and aid donors.[26]

That is not to say that there is no desire for cooperation and collective action from within the basin. On the contrary, scholars from India, Nepal and Bangladesh have been arguing that only collaborative approaches can resolve the water-related disputes in the region. Iyer, one of the most prominent and well-respected authorities on water issues in South Asia, points out that the idea of regional cooperation is gaining currency in South Asia – but the question remains, cooperation at what level, between whom, and for what purposes.[27] The bilateral modes of collaboration that India prefers is only part of the solution and not a substitute for true regionalism.

A basin-scale approach would help manage the water resources better but that such an approach would require close coordination with all the countries sharing the Ganga, such as Nepal and Bangladesh, so that the interests of both upstream and downstream users are taken into consideration.[28] Various government and non-government agencies, the private sector, civil-society groups, and the public at large need "to be actively engaged in these efforts" for improving water governance in the Ganges Basin.

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[26]Mollinga, P. 2008. Water, politics and development: Framing a political sociology of water resources management. Water Alternatives 1(1): 7-23.

[27]Iyer, R.R. 2007. Towards water wisdom: Limits, justice, harmony. New Delhi, India: Sage.

[28]Sharma, B. 2014. Cleaning the Ganga, step by step. The Hindu, published online 12 July 2014, www.thehindu.com/opinion/op-ed/cleaning-the-ganga-step-by-step/article6105068.ece (Accessed 23 Feb 2017).

Current water resource development in South Asia is not sustainable. There needs to be a shift in emphasis on demand management practices and further incentives for conservation of water resources. South Asia needs to move forward with a cooperative and participatory approach on river basins and water sharing. There needs to be a regional awareness that rivers can be better harnessed through collective efforts and recognition that cooperation is essential to alleviate threats to water security. The suggested approach for fostering cooperation is that of inclusion and dialogue, ”Policy-making needs to be more inclusive of other voices in the formation process, engaging civil society, and moving beyond the top-down exclusionary approach". [29] Dialogue between state and non-state actors may be an appropriate approach for improving transboundary water interactions.

To conclude, what really emerges is there has been limited cooperation, in real terms, between these South Asian countries on their rivers. The little progress that has been made has been marred by controversy and simmering resentment. According to some, for instance, Ajaya Dixit and Deepak Gyawali, the problems that have arisen in the course of framing of troubled treaties like the Mahakali Treaty, can be lessons in future efforts to jointly govern South Asian water resources.[94] The challenge then is to frame what should be the framework for governance of South Asian trans-boundary water from the point of fairness, and environmental sustainability.

CONCLUSION

Good water governance is complex. It cannot be readily quantified, and it is not predictable. Transboundary water cooperation, for example, cannot be measured by the number of international treaties or agreements. With so much ambiguity in transboundary water interactions, cooperation is complex and unpredictable. Real peace is made as a result of a complex and interlocking web of factors. Given

[29] Asthana, V. and Shukla, A.C. 2014. Water security in India; Hope, despair, and the challenges of human development. New York, USA: Bloomsbury Academic.

the complex nature of governance systems, change can be expected to be a combination of purposeful collective action and emergent phenomena resulting from self-organising processes and the interactions among a range of actors. Long-term engagement is the only appropriate approach to successfully building trust in a system of transboundary water interactions. Thus there is an urgent need for a water governance framework in South Asia. This is important if there has to be a meaningful implementation of the SAARC social charter signed by all the South Asian countries, stating the need to "Fulfill the responsibility towards present and future generations by ensuring equity among generations, and protecting the integrity and sustainable use of the environment."

The process of water governance must shift from top-down water management to bottom-up water governance, and should be an open and transparent process. It should look to building decentralised partnerships with non state institutions. Governance implies open and equal interplay between state–market and civil society. As of now now, the civil society and local communities has been totally excluded from water management. This must change. Water security means people have secure rights to use water, including future generations. For poor people, this comes from fair and adequate representation in policy making process. Hence 'the bottom-up approach' must be integral to the process and the outcome. For instance, it should be designed through consultations with local communities which are affected, and build upon the strengths of customary laws that are often overlooked. There is a need to improve our understanding of the strengths of customary water arrangements.

There is also need to include marginal river ecologies that remain neglected, such as the case of smaller border rivers between India and Nepal. Similarly the India-Pakistan conflict has cast a 'security' shadow over the Indus basin. While there are a number of studies from varied perspectives on the Ganga basin, most studies on the Indus basin tend to be more from a strategic or nation state perspective. There is an urgent need to bring forth these varied voices, visions of people and

communities of the Indus basin, across borders, to inform the debate on water governance.

In different parts of the world, joint Agreements on shared water resources are being put in place. The South African Development Commission (SADC) has been able to successfully organise several river basins under the "Protocol of Shared Water Courses"—a joint document stating that the 14 SADC countries will collaborate together in managing their shared rivers. The Nile Basin Initiative provides another example of 10 countries (some of them with tense relations) forming a joint dialogue platform. In South East Asia, the Mekong River Commission is yet another example of basin wide regional collaboration. It is high time that South Asian countries begin a collaborative effort for joint governance of the trans- boundary rivers.

DAMS, BARRAGES, DIVERSIONS AS SITES OF CONFLICT IN SOUTH ASIA[1]

ABSTRACT

Water access, demand, usage and management become complex due to the crossing of multiple boundaries: political, social and jurisdictional, as well as physical, ecological and biogeochemical. This paper focuses on a particular class of complex water problems: the allocation of transboundary water among competing riparians with conflicting needs. The complexity in allocation lies in the dynamic consequences of competition that arise from the interconnections and feedbacks among actors, processes and institutions operating in the knowledge and political communities. Consequently, many transboundary water allocation issues become contingent upon the dynamic changes that occur within the knowledge and political communities as well as the interactions and feedback occurring between these two communities. In addition to understanding and addressing the contingent contextual factors that span the knowledge and political communities, resolving complex TBW problems also needs to be guided by contextual application of two global principles – equity and sustainability – as anchors to accommodate the values and interests of the stakeholders involved in a transboundary water problem. This paper examines the process that led to the relatively successful resolution of conflict over allocating the waters in the Indus basin between India and Pakistan. Using the Indus water treaty as an illustrative case, the paper identifies three enabling conditions that underlie the effectiveness of negotiating a treaty and its continuous efficacy in addressing TBW problems. The paper argues that effective resolution of complex transboundary water problems is rooted in the nature of the negotiation process, the provisions in the negotiated agreement and the establishment of

[1] Dr. Ishita Chatterjee, Principal, Indian Institute of Legal Studies, Siliguri.

institutional means to solve emergent problems that are related to the original agreement.

Keywords: contingency, Indus Treaty, joint commission, mutual benefits, negotiation, third party

The subject of mega projects and dams is one of the better publicized and documented issues in the region, and there is a lot of material existing on it. This is not surprising given the high financial, ecological and human costs these mega projects have entailed, and have been among the most intensely contested sites of conflict within each country and across borders between dam affected and drought/flood affected areas, between communities and states, between an approach which regard 'dams' as secular 'temples' of modernity, and the other which sees them as giant symbols of destructive development. These studies have highlighted the suffering of displaced marginal communities, the ills effects of mega projects on the ecology, the limitation of mega projects in addressing droughts or floods in South Asia.

However, “dam building” seems to have got a new lease of life in the region in the present decade. If in the late '80s/early '90 s various environmental movements in the region had cast doubts on the viability of big dams and barrages, in the present contexts, these projects have acquired a new legitimacy among certain sections of economic–political elite, and are on their way back in India, and in Pakistan and with every likelihood of returning 35 to the other countries too. Between India and Pakistan there is almost a scramble to dam the common rivers, which then has been fuelling discord. Take the case of the Kishenganga or the Neelam in Paksitan. India has started building (330-megawatt) on the river, which Pakistan fears would impact its hydro scheme, a 969-MWplant located downriver, directly across the Line of Control in the Neelam Valley. Other cases of tension arising from the daming of frontier or shared rivers are the Indian River Linking Project (IRLP), the Kosi High Dam and Barrage , the Tipaimukh Dam which are among the numerous projects planned or being constructed and which are taking on the form of conflict, not only between the state and communities of people opposed to or affected by them, but also between countries.

PRESENT REQUIREMENT OF DAMS:

The question that becomes relevant here is what is fuelling this 'dam-race' in South Asia at a time when dams are 36 being indicted[2] or decommissioned globally. Prof M. Maniruzzaman Miah feels this has to do with the fact that India is in a hurry for quick 'development' to compete in the world economy, has a huge energy requirement and does 37 not really care about its neighbours.[3] Others point out that in the last decade, across South Asia there has been a growing control of water resources by giant transnational water companies, and that mega projects and dams are paving the way for the 'merchandising' of water. It is notable that many of these projects today involve high spending, huge loans and involvement of funding consortiums. For instance, the Kishenganga Dam project (KHEP) is to Skanska International. Similarly the Baglihar project is estimated to cost $1 billion. In effect, the cost of electricity will go up substantially for people in the violent affected Kashmir valley who are unable even to pay the Rs. 2 being 38 charged currently be built at an estimated $500 million, mostly through international funding by the Swedish Consortium.

Mapping Large Dams/Projects and Conflict: Who controls flowing water?

Some of the most contested, old and new mega projects which have troubled hydro relation in South Asia are given below. This is by no means a comprehensive list, but a just few cases among many.

I. TROUBLE OVER DAMS AND BARRAGES: THE CASE OF INDIA AND BANGLADESH.

i) Farakka Barrage :

The Farakka Barrage and its impact remains a dominant metaphor of devastation/injustice and is synonymous with anti-India sentiment in all

[2] World Commission on Damps Report, 2000

[3] Interview with Prof. Maniruzzaman Miah, TWEDS, Chairman, 11.01.2007

the conversations in Bangladesh, cutting across academics, politicians, NGO persons, and activists. Built to divert water from the Ganga to its tributary Bhaghirathi–Hoogly and to the Calcutta port, it has some how come to embody all that is wrong in water relationship between Bangladesh and India. As people begin talking about the water problem with India, they start with Farakka, about how it totally disregarded Bangladesh's ecology, water needs and the survival of its people. The barrage is therefore seen as an unfair treatment meted out and the disregard shown to a smaller country by a "boro bhai" (big brother).

There exists a large body of work on the impact of the Farakka project on Eastern India, and on Bangladesh. Some like the SANDRP Report, point out that the interception of the Ganga in its high meandering belt has seriously affected the ecology, agriculture and people's livelihood in West Bengal and Bangladesh. Huge Siltation problem in upstream Malda and downstream Murshidabad has increased flood intensity, limited functioning of the barrage gates and has led to concentrated flow that has caused heavy erosion 40 in these areas[4]. As the river with lower depth meanders, erodes, deposits silt, border disputes have come to the fore, particularly where the river also formed the boundary line between the two counties. Such is the case of border rivers 41 like the Kushiara, Muhuri, Feni, Ichamati and Gumti[5]. In many of the Gangetic districts of West Bengal, water is affected by arsenic toxicity due to lowering of water table.

The Farakka Barrage, according to environmentalists in Bangladesh, has reduced river flows, and led to the problem of saline water intrusion, particularly during the dry months. This has been damaging the Sunderbans, the world's largest Mangrove forest shared by India and Bangladesh, and affected agricultural and fishery. The consequence has been large-scale migration of affected communities within India (from Murshidabad and Malda to places like Gujarat and Maharashtra) and from Bangladesh to India. Ashok Swain makes a link between the diversion of water at Farakka by India and forced migration of

[4] Tahimina Ahmad in Rivers of Life: Bangladesh Journalist take a critical look at the flood action plan.
[5] Narttam Gaan, Environment Degradation and Conflict, P. 71

Bangladeshi citizens to other parts of the region, including India. These trans-border human-inflicted environmental changes have resulted in the loss of sources of livelihood for a large population in the south-western part of Bangladesh. Absence of alternatives in the other parts of the country has left no other option for these displaced communities but to migrate to India. As his study determines, environmental destruction not only creates resource scarcity conflicts, but these forced migrations further lead to native–migrant 42 conflicts. This can be seen in the way migration from Bangladesh has become a flashpoint in the North East and other parts of India.

II) "FIFTY-FOUR RIVERS ENTER BANGLADESH FROM INDIA. SO WE HAVE FIFTY-FOUR PROBLEMS "

The above statement by Mohammad Hilal captures various small and big conflicts that are brewing on transboundary rivers. Though the barrage at Farakka has been the most visible site of conflict, a number of other "development" projects being built in India are also becoming new flashpoints. One such prominent case is the Indian River Linking Project (IRLP)—a massive development project consisting of networks of channels, reservoirs and dams to link all the major rivers in India. On the eastern side, it envisages large-scale transfer of water from the Brahmaputra and Ganga basin to western and southern rivers in India. The IRLPhas met with wide-scale criticism by environmentalists and protests not just within India, but also between India and Nepal, and India and Bangladesh. However, the project stands forestalled for the time being but a number of other water disputes persist. And such a simmering dispute is over the Tipaimukh Dam. "The Tipaimukh dam will be another Farakka for 44 Eastern Bangladesh," says Mohammad Hilal[6]. The Tipaimukh Dam is being built on the river Barak in the North Eastern state of Manipur, and has been yet another site for anti-dam movement within India. People in Manipur are up in arms against what they see as the destruction of their ecology, livelihoods and possible displacement. On 30/31st December,2005 an international conference on the Tipaimukh Dam and its fall-outs was organised in

[6] Hilal, 11 Jan, 2008

Dhaka with large number of participants from Manipur and Assam. However, sustained coordination between these groups has been difficult.

Explaining the way projects across the border impact people's lives, and in turn Indo-Bangladesh relations, Mohammad Matim, (General Secretary, Bangladesh Poribesh Andolan) stated:

*"Bangladesh is a riverine country and we say the river is the mother of this land. The river has created this deltaic region, and nourishes the land, the plants, the ecology including fish and livestock. In one sentence Bangladeshi people's total life depends on the river because agriculture is a major component. Fifty-four rivers come from India before they end at the Bay of Bengal. Unfortunately all the rivers have got one or more than one intervention project in India. India has put a dam, a barrage or diverted the water for irrigation purpose, or for power generation or for*making *a reservoir. All the fifty-four rivers are affected by the Indian government and these have harmed agriculture, livestock, greenery, fishes and ultimately the total lifestyle of the people of Bangladesh."*[7]

II. INDIA–PAKISTAN: THE CASE OF BAGHLIHAR

India–Pakistan relations have been the tensest in the subcontinent, marked by four wars. However, dispute on the rivers of the Indus has a longer history. Even prior to partition, every major intervention on the rivers of the Indus Basin had been a source of trouble. Under colonial rule, as the British expanded the gigantic irrigation system in this region, dispute broke out between the two provinces of Punjab and Sindh over the construction of canals on the river 47 Sutlej (1930s). Soon after partition, conflict emerged between West Punjab (Pakistan) and East Punjab (India) over 48 the Dipalpur and Upper Bari Doab Canal which further escalated to the extent of East Punjab arbitrarily shutting off water supply to the irrigation channels of West Punjab. This became the cause of a lot of damage to the predominantly agricultural

[7] In late 19th Century, the british undertook large scale engineering experimentation in the form of irrigation projects. Webpage: http//www.transboundarywater.orst.edu.

economy across the border. A number of squabbles, such as over Pakistan's diversion work on the Sutlej, or India's contraction work on the Bhakra-Nangal continued to mar India–Pakistan's already conflict ridden relationship. Finally in 1960, the Indus Water Treaty (IWT) was signed, and to some extent worked well till 1980. Thereafter, differences between the two countries on the question of water surfaced once again in the context of several projects, like the Wullar Barrage/Tulbul Navigation project on the Jhelum, Swalakote Hydroelectrical project(HEP), Dal husti HEP on the Chenab. More recently, controversy has emerged over the Baghlihar HEPon the Chenab and the Kishenganga HEPon the Kishenganga/Neelam river, a sort of hiccup in the cautious peace process the two countries have undertaken since 2004.

BAGLIHAR PROJECT (BHEP):

Located on the Chenab, the BHEP(with power capacity of 450 MW during phase I and 900 MW during phase II) 49 became a point of contention between India and Pakistan.[8] The issue is further complicated by the fact the BHEPis a venture of the state government of J&K—located in a state which is at one level a disputed territory between the two countries, and at another, a state which has vehemently opposed the IWTas violating its water rights.

PAKISTAN GOVERNMENT'S VIEW:

Pakistan has raised six objections relating to project configuration, free board, spillway, firm power, pond age, level of intake, inspection during plugging of low level intake, and whether the structure is meant to be low weir or a dam. Based on these objections, Pakistan asked India to stop all work until all issues were resolved and invoked the arbitration clause of the IWT. Subsequently, matters were taken to a Neutral Expert, Professor Raymond Lafitte of Switzerland.

[8] Rajesh Sinha, "Two Neighbour and a Treaty", Enconomics and Political Weekly, 18th Feb 2006

INDIAN GOVERNMENT'S VIEW:

India claims BHEP is a fully legal scheme. It involves no water storage, and therefore does not violate the IWT. India is allowed by the IWTto build power generation projects on any of the 50 three western rivers of the Indus river system, as long as they benefit the local people. India accused Pakistan of trying to prevent it from removing the grievances of people of J&K.

DOMINANT VIEW IN J&K:

BHEP is a project for/by Jammu and Kashmir, a state that had not been taken into account by the IWT, and is in dire need of power. They believe Pakistan wants to deny Jammu and Kashmir the right to use its own rivers, citing the situation in Pakistan occupied Kashmir where they believe people have no rights over Mangla Dam on the Jhelum, built to meet the power and water needs of Punjab and other parts of 51 Pakistan.

Finally on 12 February 2007 Professor Lafitte, the Neutral Expert, gave his 'determination', suggesting slight 52 changes in the design of the project but allowing the project to proceed. While a number of reports have focused on whether the project violates or does not violate the IWT treaty, a gap remains within the larger debate about the environmental aspects of the dam and its impact on people. On visiting the dam site in Baglihar, one soon discovered why. The dam site had been declared as a “security sensitive zone” and not open to visitors. As an officer at the BHEP (name withheld) told us, “This dam is being targeted by our enemy country and it is high security zone.” Any information was difficult to get. Talking to people in the nearby town of Chandrakot (Doda, J&K), we gathered that people/families living where the dam site is being constructed had been moved to Jammu, and about 150 families were still waiting to be rehabilitated. We were told by government officials who did not want to be named, that “more than 'adequate' compensation was given.” According to Arijimand Talib, “The Chenab river is known to be a heavy silt 53 laden river.” Heavy landslides in the region and the fact that there are already a number of projects existing/being 54 constructed on the same river (like the Salal,

Dulhasti and Swalkote) has made the silt situation worse. In addition, the region is in a high seismic zone. The Baglihar clearly leaves many questions unanswered.

III. INDIA–NEPAL: CONFLICT OVER EMBANKMENTS, BARRAGES AND DAMS

Nepal has three categories of rivers flowing into India: the first, are those originating from the Himalayas such as the Koshi, Gandaki, Karnali and Mahakali, which are perennial with a substantial water flow. Mega projects and dams on these rivers have often been at the centre of water tension between India and Nepal. The second set of rivers originates from the Mahabharat, and the third from the Chure range. These rivers have less or no flow in the dry season, but during the monsoons, particularly rivers from the Chure range can become turbulent, capable of bringing about massive destructions. Embankments on some of these rivers have been yet another point of dispute.

Barrages and Projects on the Himalayan rivers:

Large dams and projects on some of the Himalayan rivers have been the most visible and troublesome aspects IndoNepal water dispute. The case of Tanakpur Barrage on the Mahakali river is but one such example. Problems began at the outset when India began a technical survey for a 120 MWHEPon the Mahakali river near Tanakpur in Uttar Pradesh (now Uttaranchal), 18 Km upstream of the Sarada Barrage. Nepal raised objections on grounds that this would affect its Mahakali Irrigation Project. India agreed to redesign its project but continued with construction despite Nepalese discomfort. Indian position throughout was that the barrage was totally on Indian territory and not a matter of Nepal's concern. Problems came to the fore when the project was completed in 1988, but the left afflux bund required to be tied on the high ground on left bank of Mahakali, i.e., on Nepalese side of the river. India requested Nepal for 577m of Nepali land for this purpose, which in effect would also submerge 2.9 ha of land in Nepal. However, given India's unilateral approach earlier, together with the fact that Indo-Nepal relations in general had taken a turn for the worse in those years,

nothing materialised till 1991. Finally with a new (democratic) government in place, Nepal agreed to provide the land under an "understanding," that soon became a highly contentious issue in Nepal. The "understanding" was overtaken by the Mahakali Integrated Treaty—a treaty which (discussed in a later section) by itself came under a lot of suspicion and contention.

II) "CHOKING THE OUTLETS OF THE WATER ALONG THE BORDER ": EMBANKMENTS ON INDIA– NEPAL BORDER

According to Mr. Ishwar Raj Onta, while large dams and projects often catch media glare, what really escapes policy makers and public attention is a number of smaller barrages and embankments along the Uttar Pradesh and Bihar borders, and the Tarai region of Nepal, which have been causing havoc in the lives of people living there.

"Almost 236 rivers cross India-Nepal border. And in all major and medium rivers, India already has barrages, constructed without consulting Nepal. In addition, there are several barrages built by India along the border. Nepal has been losing a lot of land by way of inundation behind these barrages, especially in the monsoons. This has been a problem for the Tarai region of Nepal. At the same time in UPand Bihar, floods have also become a severe problem and very politicised. Much of this could be avoided if there is a proper dialogue. There needs to be a certain give and 56 take in the region."[9]

Explaining these further, Ajaya Dixit states that Tarai is an extension of the Gangetic plains and the region is criss- 57 crossed by several smaller rivers which originate in the southern slopes of the Churia hills and flow southwards into India. All rivers flowing from Nepal join the Ganga or its tributaries in Uttar Pradesh, Bihar and West Bengal. Many of these rivers in the Tarai region have low flow, or are dry during the winters, but with the commencement of the monsoons the flow increases or a dry river becomes active and acquires a trans-boundary character. The fact that the Churia hills receive some of the heaviest and

[9] Interview with Ms. Ishwar Raj Onta, Chairperson, Jal Vikas Shrot (JVS), Nepal, 29.09.2007

most intense rainfall in the country makes these rivers fearsome during the monsoons. This region is also densely populated and millions here depend on agriculture based livelihood which has led to the construction of a large number of irrigation canals, roads, railway lines, flood control embankments and urbanisaton—all of which have further constrained drainage and exacerbated the impact of flooding.

How exactly these border obstructions and embankments along the border have affected relations across border communities, there is little research to show. A study by Dinesh Kumar Mishra and Satendra Kumar on one such river, the Bhutahi Balan (tributary of the Kosi) points out that building of embankments on this river has led to conflicts among various hamlets of the same village because of their locations. This conflict was further deepened 58 as it got politicised by different political parties for votes. Another study by Ram Niwas Pandey provides some idea about the pressure felt by border communities in Nepal because of floods and large-scale migration of the people from the hill-districts, compelling the landless of the Tarai, particularly the Tharus, to leave their homes and to move 59 into Indian territory for survival. However, there is a gap in terms of research/inclusion of these communities in the larger discourse of people-ecology-border interface. This may have to do with the fact that unlike in the case of Bangladesh or Pakistan, Nepal and India share an open border. However, it is also a reality that there is growing 60 tendency within the Indian bureaucratic and power circles to "securitise" the India-Nepal border. Moreover, the question of these ephemeral trans-boundary rivers is often left out of the larger discourse of trans-boundary water governance between India and Nepal, and the plight of the communities is not too well documented. Among the 61 few studies that do exist is one by Ajaya Dixit and Madhukar Upadhaya which through the vantage point of floods highlight the vulnerability of some of these communities.

III) POLITICS OF FLOOD:

A familiar refrain while discussing hydro-politics between India and Nepal is that of floods. There is no doubt that the intensity of floods

have increased over the years. This year in Bihar alone, some for 4,822 villages, and 14 million people were affected (as per UN estimates) in one of the worst floods in the last 15 years. With the intensity of floods have emerged shrill political voices for 'daming' rivers in Nepal. According to Dinesh Mishra who has been working with communities living in these flood prone areas, every monsoon the Kosi High Dam becomes the flavour of the season among politicians in Bihar. As the flood water rises, so does the demand for the Kosi High Dam 62 at Barahkshetra in Nepal as the answer to floods. However, a survey of the flood affected areas of Bihar quickly reveals that the government has done little to put in place an effective flood policy despite recurrent flood. As per the official website of the Eastern Resource ministry, a National Flood Commission was set up in 1976 to draw up a "coordinated" and "scientific" approach to the problem, but adds that "though the report was submitted in 1980 and 63 accepted by government, not much progress has been made in the implementation of its recommendations." However, in absence of an effective policy and faced with the annual monsoon public outcry, the issue of dams in Nepal becomes a scape-goat.

The usual strategy of the state governments in both the states of Bihar and Uttar Pradesh has been to blame Nepal for releasing water, and to tell people that even as the state is aware of its obligation, it can do little since the final solution to the flood problem, the construction of dams in Nepal, is an international matter and in the hands of the central government. The central government on its part insists that water, including floods, is a state subject and the 64 sole responsibility of the state.

However, in Nepal floods in the Tarai are also taking centre stage. The issue of floods has become a sort of a blame game between Nepal and India (states of UPand Bihar). Many environment activists feel that there is a false image being created in people's mind in India by politicians and the media blaming Nepal for floods in Bihar. However, as Mr. Shanta Bahadur Pun points out, "A number of factors are responsible for flooding, and embankments are an important factor. For instance, the Kosi embankments have worsened the flood situation not

just for us in Nepal but for the people in Bihar who are caught within these 66 embankments." This is further supported by Mr. Dinesh Mishra who argues that one of the main causes for the present flooding and water logging in North Bihar is the inability of this water to enter the main river and drain away because of the embankments. A number of studies have highlighted this and have documented the plight of the people caught in between the Kosi embankments. However, the politics of flood remains shrill as ever and continue to sour Indo-Nepal relations.

FRAMEWORK FOR WATER GOVERNANCE AS A SPACE OF INCLUSION

- There is an urgent need for a water governance framework in South Asia. This is important if there has to be a meaningful implementation of the SAARC social charter signed by all the South Asian countries, stating the need to "Fulfill the responsibility towards present and future generations by ensuring equity among generations, and protecting the integrity and sustainable use of the environment." This is also necessary if we have reach anywhere close to achieving the Millennium Development Goals or talk about peace, cooperation and well being of the region in a maximalist sense.
- Such a framework must emerge from the recognition that there are pluralities of stakeholders in the contested terrain of water, and among them the civil society is so far excluded when it comes to the issue of trans-boundary water.
- The process of water governance must shift from top-down water management to bottom-up water governance, and should be an open and transparent process. It should look to building decentralised partnerships with non state institutions. Governance implies open and equal interplay between state–market and civil society. As of now now, the civil society and local communities has been totally excluded from water management. This must change.

- Water security means people have secure rights to use water, including future generations. For poor people, this comes from fair and adequate representation in policy making process. Hence 'the bottom-up approach' must be integral to the process and the outcome. For instance, it should be designed through consultations with local communities which are affected, and build upon the strengths of customary laws that are often overlooked. There is a need to improve our understanding of the strengths of customary water arrangements (whilst recognising their weaknesses, such as gender/caste
- inequality).
- There is also need to include marginal river ecologies that remain neglected, such as the case of smaller border rivers between India and Nepal. Similarly the India-Pakistan conflict has cast a 'security' shadow over the Indus basin. While there are a number of studies from varied perspectives on the Ganga basin, most studies on the Indus basin tend to be more from a strategic or nation state perspective. There is an urgent need to bring forth these varied voices, visions of people and communities of the Indus basin, across borders, to inform the debate on water governance.
- Women play a crucial role in sustainable development, resource governance, and in peace building. As of now, both at the level of government, policy makers as well as civil society, women actors and gender perspective are both missing. Similarly, the question of discrimination and proactive efforts for 'inclusion' of the voices and visions of dalits and other discriminated communities must also be taken into account. There is also a need to develop joint information infrastructures and services for river basins, and thereby reducing asymmetric access information among the countries concerned.

GOVERNANCE OF TRANSBOUNDARY WATER DISPUTES IN SOUTH ASIA

Md. SahabuddinMondal* and Dip Mukuti*

ABSTRACT

Historically, the Promotion of collaboration between Bangladesh, India, Nepal and Pakistan with respect to the Indus and the Ganges-Brahmaputra-Meghna river basins, South Asia's leading transboundary rivers, has been a cause of tension, apprehension and ongoing controversy. This paper draws attention to the hydro-politics on transference and allocation, along with the diverging positions and unique concerns of the riparians on bilateral, multilateral, national as well as regional fronts. While researching the official water discourses and the development of different international legal instruments applicable to the governance of water relations among the riparians, the paper also sketches the emerging concerns in their relationships, as well as their efforts to cooperate and cooperate to avoid disputes and manage water sharing and governance in South Asia.

Keywords: Transboundary, Water dispute, South Asian Countries, Relationship, Agreement and Disagreement.

INTRODUCTION

The lack of regional governance for transboundary water dispute has been the major issue for the wars as well as devolution of the relations among the countries of South Asia which has led to the trailing onto the bilateral water sharing protocols. The Countries Bangladesh, Nepal, India and Pakistan form South Asia. Water issue has become the prime

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focus of the South Asian countries for their relationships with each other. The four major river basins of South Asia are Brahmaputra, Indus, Ganges and Meghna that have been providing livelihood to over more than millions of people. The disputes have mainly been revolving around the sharing of freshwater and saltwater but freshwater being a necessity has been a major reason for the arising conflicts. The vitality as well as the scarcity of fresh water in many parts of the world has been pointing out towards the possibility of disagreements between the countries for sharing the water resources. Having a very large water coverage, the distribution of water resources in India, Bangladesh, Nepal and Pakistan has been a very diplomatic issue arising out of scarcity, deficient governance and faith. The excess demand over supply continues to be the main factor for the conflicts.

HISTORY

INDIA-PAKISTAN

The independence and gaining of partition in 1947 of India and Pakistan made both the countries inexorable that their water management systems should be definite and distinct. Though the countries were of different view the partition divided the Punjab irrigation system that resulted in the headworks to be in India and the dependent canals to be in Pakistan. But the consequences of that were not so easy as the stoppage by East Punjab on Indias part resulted in the enforcement of the bilateral agreement with Pakistan that India will not restrain water until and unless other alternative resources were developed in Pakistan but Pakistan still remained dissatisfied.[1] The highest fund authority I.e. The World Bank was unable to provide either country with funds for development separately during the time of such conflicts and so, concluded to conciliate. The major principle of involvement of World Bank was that Indus basin encompassed enough water for both the

[1]ManavBhatnagar, Reconsidering Indus Waters Treaty, Volume 22

countries to use it simultaneously and to treat it as one unit including all the rivers in the Indus system.

In 1954, the World Bank presented a proposal before India and Pakistan which enumerated the exclusive use of the eastern rivers[2] I.e. Sutlej, Ravi and Beas by India and the non-exclusive use of the western rivers[3] I.e. Indus, Jhelum and Chenab by Pakistan. The agreement provided India with access to twenty percent of the system and remaining eighty percent was gained by Pakistan. The agreement was espoused by India but was objected by Pakistan being justified by the reason of not having any storage facilities and lacking equipment's and resources for developing a unilateral alternative for such facilities. In 1956, World Bank proposed Aide Memoire which added to the 1954 plan which helped Pakistan with the storage facilities along with western rivers. The drafting process of the agreement took two years and was signed and approved by both the parties on September 19th, 1960.

There have been many waters disputes amongst the states since independence and following are some of the issues

(1) Excess withdrawals by a State

(2) Dispute settlements regarding the interpretation of agreement

(3) Allocation of waters amongst different states

(4) Compensation to the states affected by the implementation of the projects of other states.

These are some of the issues which have created conflicts between states and has delayed the agreements over water which has resulted in non-effective investments in dams, agriculture and industry.

[2]ManavBhatnagar, Reconsidering Indus Water Treaty, note 54, at 276
[3]ManavBhatnagar, Reconsidering Indus Water Treaty, note 54, at 276

INDIA-BANGLADESH

India and Bangladesh have been sharing a relationship with each other having 54 rivers in common. The three major rivers that serve Bangladesh as natural surface water are the Ganges, the Brahmaputra and the Meghna in the Himalayan system. Though the season being the major reason for the water conflicts still the population has been growing constantly and even economic activities have contributed towards the stress on water resources. The main problem that Bangladesh has been facing is too much water in monsoon and drought at the time of dry season. Not just this much but differences between Dhaka and New Delhi have created a chaos over the division of the Ganges, the Brahmaputra and eight others rivers including Feni, Manu, Muhuri, Kowai, Gumti etc., which has resulted in enforcing conflict between India and Bangladesh. The Ganges is shared by India with Nepal, Bangladesh and China but the main concern is the sharing of the Ganges water during the inclination period. The year of 1951brought a turning point into the water conflicts which was India being manifest and firm decided the construction of barrage for diverting the water by the Bhagirathi system which was beneficial for port of Calcutta and even though Bangladesh objected for the same but India started and completed the constructions by 1974. After the diversion of the water, Bangladesh presented the particular matter before the UN assembly where India had to sign an agreement for 5 years on Ganges water sharing. The ratio given to India and Bangladesh were 60:40

INDIA-NEPAL

The major conflicting issue between India and Nepal is the political distrust which has been boosting up the conflicts between the countries. The main rivers falling out of Nepal in to the Ganges are Mahakali and Karnali. The Nepal has a power of generation of 83000 MW hydropower in total and also the main rivers flowing out of Nepal contribute in the percent of 71 per cent of the dry season and 41 per cent for the other annual flows. India and Nepal have never been good in

relations because of the objection on the part of Nepal for the plan proposed by India. Nepal's mistrust has been supported fully by the unequal treaties starting from Sharda dam to tanakpur agreement and Mahakali treaty.

GOVERNANCE

INDIA-PAKISTAN (INDUS WATERS TREATY, 1960)

The treaty governs over both the countries and allowed India to use the eastern rivers without any restrictions and also allowed the unrestricted use of western rivers to Pakistan[4]. Both the countries agreed upon using the same sources simultaneously but no non-consumptive use will be made which results in the change of the flow of the water in the interest of the other party[5]. The parties also agreed upon the rules to maintain the natural channels of the flow of the river covered under the treaty and also were restricted to obstruct the flow which could anyhow cause damage to the other party[6]. This wasn't enough for both the countries so it was decided to set up a scheme of cooperation to the treaty. The cooperation scheme included the financial cooperation, sharing of data etc. Pakistan being helpless needed support so that they can develop their own headworks or sources for water for its canals rather than depending upon the eastern rivers so treaty bounded India to pay a fixed amount towards the development of Pakistan[7]. The treaty further mentioned about the sharing of data including the flow of river and its utilization[8] after which the Permanent Indus Commission was enforced for the promotion of cooperation with one high ranking engineer authorized by each party[9]. The authorized people were commanded to

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[4] Article III- Provisions Regarding Western Rivers, Indus Water Treaty, 1960
[5] Article IV (2)- Provisions Regarding Eastern Rivers and Western Rivers of Indus Water Treaty, 1960
[6] Article IV (6) - Provisions Regarding Eastern Rivers and Western Rivers, Indus Water Treaty, 1960
[7] Article V- Financial Provisions, Indus Waters Treaty, 1960
[8] Article VI- Exchange of Data, Indus Water Treaty, 1960
[9] Article VIII- Permanent Indus Commission, Indus Waters Treaty, 1960

endeavor timely inspections of the rivers, investigate regarding the development of the rivers and settle the conflicts and the questions arising about it. A final addendum was made which contained the settlement of disputes[10] and mechanisms for encouraging cooperation containing joint affirmation by both the countries stating their understanding of their common interests in provided rivers[11].

INDIA-BANGLADESH (THE INDIRA-MUJIB TREATY1972)

The Indira-Mujib treaty was passed and signed on 19th March, 1972 which was basically enforced for the friendship, cooperation and harmony between India and Bangladesh which is valid for 25 years and will be renewed by mutual agreement of both the parties. The name of the agreement was given after the signatures of the Prime Minister of India Indira Gandhi and Prime Minister of Bangladesh Sheikh Mujibur Rahman. There have been many aspects that have been uniting India and Bangladesh some of which are civilization, culture and economy. The Bangladesh Liberation War was held in 1971 which was a war between East Pakistan and West Pakistan which led to the establishment of Bangladesh. India supported East Pakistan with support of army and defenses which resulted in the establishment as well as established bilateral relations between both the countries. Some of the provisions provided by the Indira Murib Treaty are as follows:

(1) The contracting parties shall maintain regular contact and should interact each other regarding the conflicts and disputes.

(2) The contracting parties agree to take joint field for the flood control, river basin development and hydro power and irrigation.

(3) Both the parties should promote relations in field of art, literature, education, culture, sports and health[12].

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[10] Article VII – Future Cooperation, Indus Waters Treaty 1960 and Article IX- Settlement of Differences and disputes

[11] Article VII- Future Cooperation, Indus Waters Treaty, 1960

[12] Banglapedia

India also signed 22 agreements with Bangladesh which also included the agreements for water sharing.

INDIA-NEPAL (INDO NEPAL TREATY 1950)

The Indo-Nepal treaty also known as the Treaty of Peace and Friendship Between the Government of India and Government of Nepal is a bilateral agreement between India and Nepal. The treaty came into existence on 31st July,1950 after the signatures of Prime Minister of Nepal Mohan Shamsher Jung BahadurRana and Indian Ambassador of Nepal Chandreshwar Narayan Singh. The treaty was passed with a view to make closer and friendlier relationship with neighboring countries so that peace and harmony can be obtained with in the country as well as other countries. Some of the provisions of the Indo-Nepal Treaty are as follows:

(1) Permission for residence same as in own country

(2) Permission for commerce and trade

(3) Move freely as in own country.

Article 2 of the Treaty states that government of each party has a duty to inform the other one about any misunderstand.

Article 3 of the Treaty states to establish and maintain the relations between both the countries and no chaos is made and so on till Article 10.

Present Scenario

INDIA-PAKISTAN

The Indus Waters Treaty has been acclaimed as a paradigm of cooperative water governance which has been the main issue before the politics. Since the time of partition till now India and Pakistan have never gained harmony and even the days of peace have remained an

obscure strain over the countries. Even though the treaty has been commenced which includes the joint limitation of territorial sovereignty notwithstanding the tension and imbalance that favors India as it is the upstream state and has sturdier military but both the countries now own nuclear weapons[13]. The cooperation has been a huge contribution and success on the part of PIC which fulfilled the needs and requirements by carrying on the inspections and other related work even during the time of wars between India and Pakistan[14] and also Dispute Resolution Mechanism has contributed towards the success of the treaty as the mechanism required third party mediation in which PIC was not allowed to interfere and decide upon the disagreements between the states[15]. Through such mechanism and management, the treaty has been able to cope up a good number of disputes. Pakistan has also presented the resolution for more water supply towards Pakistan and wants this to be added in treaty as well.

INDIA-BANGLADESH

In Bangladesh and India 4156Km long international border is shared which is the longest border shared by India with its any neighboring countries. This border passes through five states that are Assam, Tripura, Mizoram, Meghalaya and West Bengal. The first 8.3Km has been declared as the free crime zone are by the India and Border Guard Bangladesh (BGB). The border guarding forces and the civil administrations of both the parties work together in such a way that no crime takes place in the provided free crime zone stretches. Even after manifesting of agreement and treaties between both the countries yet some issues or disputes are left to be resolved. A need is felt for more cooperation and peace and also the sharing of the data and future interpretations regarding the same interests of the country. In 2011 again an agreement was signed between India and Bangladesh which

[13] Nuclear weapons: who has what at a glance, Arms Control ASS'N
[14] Sarfraz, note 77, at 211
[15] Zawahri, note 15, at 9

was put forth to end the four decade old boundary disputes. This agreement was named as the "teen bigha corridor" which allowed 24 hours access to the Bangladeshi citizens and Indian citizens in corridor and also the agreement included the exchange of the enclaves with 51,000 people proliferating over 111 Indian enclaves in Bangladesh and over 51 Bangladesh enclaves in India. In 2011 both the countries also joined together for the Sampriti-II which was a fourteen day long joint military exercise. In 2012 the Oil and Natural Gas Corporation of India was allowed to convey heavy machines and turbines through the Ashuganj passage for the Palatana Power Project in southern. After that since October 2013 India started providing 500 MW electricity to Bangladesh and in continuance of the year in November 2013 a ceremony alike the Wagah Border ceremony has been organized at the Benapole which includes parades, march past and also the lowering of national flags. In 2014 the Foreign Minister of India SushmaSwaraj visited Bangladesh and concluded that some of the treaties were to be held well. Some of the agreements are as follows:

1) To provide multiple visa entries for 5 years of the minors below 13 years.
2) Special economic zone proposal in Bangladesh.
3) To agree to return the escapee accused of murderer to India.
4) To provide with an additional 100 MW power from Tripura.

These were sommelier of the agreements over the time that have been evolving and have come into existence and have strengthened the relationship between India and Bangladesh. India supported Bangladesh to get freedom from Pakistan and India till now has a soft corner for Bangladesh and India has passed and signed various agreements that are beneficial for Bangladesh as well as India.

INDIA-NEPAL

India and Nepal share a very unique bond as eight memorandums of understanding have been signed by both the countries relating to various fields including housing grant, prevention of drugs, post-earthquake

reconstruction packages in health and education sectors. Just like the Bangladeshi fourteen day long joint military exercise India has been participating in such exercises with Nepal. These exercises have been believed to be the promotions of the relations between the countries and also a way of seeking help from neighbor countries. There have been many military exercises of which 11th edition was held in Pithoragarh area of Uttarakhand in March 2017 and the 12th edition of India and Nepal joint military exercise named Surya Kiran XII was held at Nepal Army Battle School in Saljhandi. The troops of Kumaon Scouts represented India whereas on behalf of Nepal the participation was done by the Narayan Dal Battalion. The main focus of both troops was basically on the counter insurgency operations, humanitarian assistance and disaster relief and also, the environmental conservation. In addition to all the efforts there was an inauguration of KatariyaKusaha and RaxaulParwanipur cross border transmission lines which was done by the Prime Minister of India and the representative of Nepal SherBahadurDeuba. India and Nepal signed total eight memorandum of understanding some of which are as follows:

1) Modalities for utilization of housing grant component to support reconstruction of 50,000 houses.

2) Implementation of the grant component of India's post-earthquake reconstruction package in the Education sector in Nepal.

3) Implementation of the grant component of India's post-earthquake reconstruction package in Cultural Heritage sector in Nepal.

4) Implementation of the grant component of India's post-earthquake reconstruction package in Health sector in Nepal.

5) Implementation arrangement on cost sharing, schedules and safeguard issues for construction of Mechi bridge under ADB's, SASEC road connectivity programmes funded by Government of India.

6) Drug demand reduction and prevention of Illicit Trafficking in Narcotic drugs, psychotropic substances and precursor chemical and related matters.

7) Cooperation in the field of standardization and conformity assessment.

8) Understanding between Chartered accountants of India and Chartered accountants of Nepal[16].

SUGGESTIONS

There are some suggestions and solutions for the disputes that have been arising since old times and have been a never-ending issue. As well said a problem never comes with a solution, just like that these disputes also have solution like the treaties that have been passed and memorandums of understanding that have been signed yet there has been some or the other way that destroys harmony. So, following are some of the recommendations through which these disputes may come to a verge of end:

1) Efficacious Regulations: Each country should have effective policies, rules and regulations regarding every dispute that may arise and these policies should be with the mutual consent of the countries so that peace can be obtained For eg: if any dam needs to be built it should be made with the consent of both the countries and both of them get equal benefit and without destruction to any other country.

2) Communication: Communication is the best way to get out of the conflicts or the disputes. Dialog is better than aggression and creating violence. If there is any dispute than the countries should be able to manage by communicating with other according to the particular needs and wants of each other and also to control the key point rather than creating unnecessary violence or havoc.

3) Burgeoning Treaties or Agreements: All the treaties or the agreements between the countries should be updated or be newly published with the latest editions rather than just containing disputes of post-independence period. The treaties that have already been made in

[16]pmindia.gov.in

the old time should remain as it is and some new treaties should be established so that the present needs and wants can be understood and hence the relations can be strengthened.

These were some of the recommendations that could help to resolve disputes to a very high percentile.

CONCLUSION

India has been the hydro dominion of the semblance of the neighboring countries like Pakistan, Nepal and Bangladesh. It is believed that India has the supremacy as it has been signing the treaties with every country forming South Asia. India doesn't only provide with the understanding and funds but India has gained a respect by being a friendly nation to every country. The arising water disputes should be settled down by the government of all the South Asian countries by spreading awareness regarding the water conflicts or disputes in South Asia. The Governments of should be well versed with the allocation of the resources and also the minimum and maximum usage of the resources so that it doesn't anyhow create a problem for other countries. And also, the human and technical resources should be very well allocated for the best results and verge of water disputes in South Asian countries.

MEDIATION: THE WAY FORWARD FOR INTER-STATE WATER DISPUTES

Apurva Thakur[1]

ABSTRACT

Settlement of Trans-boundary water disputes is a long winded and tedious process. In spite of having mechanisms already in place in form of the Tribunals established under the Inter-State Water Disputes Act, 1956, there has been little movement. River water and valleys are highly contentious, involving much more than a mere legal framework. This paper suggests that any effective dispute resolution in conflicts of trans-boundary water would require a cultural, social, economic and emotional approach. Mediation may be the solution to this. Mediation is essentially, a dialogue, more formal than negotiation and less rigid than arbitration. It allows for a space wherein all stakeholders may air their concerns and hence, reach a solution that is agreeable to all, and therefore, more likely to be implementable.

Keywords: ISWD, Mediation, Stakeholders, Transformative mediation, Mediation

INTRODUCTION

Trans-boundary water disputes have been present since the day civilization dawned on mankind. With de-limitation of land and re-structuring of often-conflicted boundaries, rivers have been the fulcrum of boundary disputes.

Rivers are entities that are clothed in various contexts: religious, racial, social, political, and legal. They are the life-blood of any economy and culture. Due to their high stature in society, they are also subject to various laws, policies and disputes arising therefrom. Although rivers

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have been elevated to the status of Goddesses and have also recently been bestowed with the legal status as a person[2], they still are exploited as far as equitable apportionment of river water is concerned.

Trans-boundary water disputes are under the exclusive jurisdiction of the Union Parliament provided under Article 262[3] of the Constitution of India[4]. The Article provides for Parliamentary legislation of the adjudication of inter-state water disputes and for barring the jurisdiction of the courts, including the Apex Court in such cases. The Inter-State Water Disputes Act 1956 ("**ISWD"**) was enacted to bring this provision into effect.

THE CURRENT SCENARIO FOR INTER STATE DISPUTE SETTLEMENT

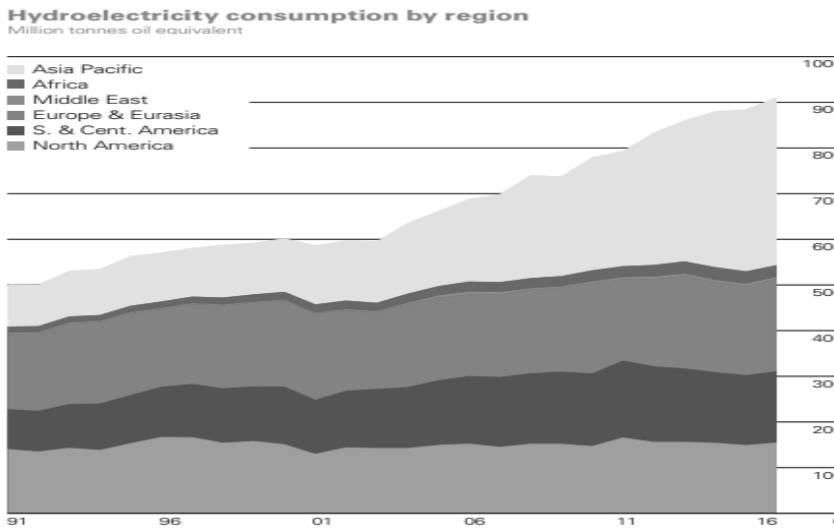
The Inter-State Water Disputes Act, 1956 was passed in pursuance of Article 262(1)[5] of the Constitution of India. Rivers and river waters are tricky subjects to legislate upon as the majority control of it vests with the State(s) through which the river passes, even though the Centre alone has the power to legislate in case of inter-state river water and river valley disagreements. Thus, the primary control of the river and river waters vests with the state under the Quasi Federal scheme of the Indian Constitution which means that States have autonomy within its boundaries, subject to restrictions mentioned in the Constitution.

It is therefore, quite plain that in case of Inter-state River disputes, no state can effectively legislate as its legislative power extinguishes with the extent of its territorial boundaries. From the standpoint of equitable apportionment of water resources added, it becomes more-so evident that states are not the appropriate forum for adjudicating or legislating on river-disputes.

Water, water resources and river valleys have assumed great relevance in the 21st century, propelled by Climate Change. Water has emerged as

[2] Mohd Salim v. State of Uttarakhand and Ors, W.P (PIL) No. 126 of 2014
[3] Adjudication of Disputes relating to waters of inter-state rivers or river valleys
[4] Constitution of India, 1949
[5] Parliament may by law provide for the adjudication of any dispute or complaint with respect to the use, distribution or control of the waters of, or in, any inter-State river, or river valley

the primary victim of climate change. As global temperatures rise, Rivers change courses, water bodies dry up and fertile river valleys become arid. Resultantly, farmers are adversely affected, as they neither have fertile land nor water for irrigation. Apart from climate change, the rapid industrialization has amplified the demand for electricity. The energy demand for Asia-Pacific has increased exponentially in the last ten years.



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Hydel-electricity is one of the leading sources of renewable energy in addition to wind and solar power.[7] The South-Asian region depends on hydroelectricity to provide In India, 15.28% of the energy comes from Hydel-power[8]. In order to meet the demand of increased energy requirement as well as to reduce carbon emissions, Various Hydro-electricity projects have been undertaken, the most contentious being

[6] BP Statistical Review of World Energy June 2017https://www.bp.com/content/dam/bp/en/corporate/pdf/energy-economics/statistical-review-2017/bp-statistical-review-of-world-energy-2017-hydroelectricity.pdf

[7] Hydroelectric power generation rose by 2.8% in 2016, https://www.bp.com/content/dam/bp/en/corporate/pdf/energy-economics/statistical-review-2017/bp-statistical-review-of-world-energy-2017-full-report.pdf

[8] M.M Madan, Hydro Power Development in India- Challenges & Way Forward https://www.linkedin.com/pulse/hydro-power-development-india-challenges-way-forward-m-m-madan/

the Sardar-Sarovar Project to be constructed over River Narmada. The Narmada water dispute took nearly ten years to conclude. The Cauvery Water Dispute took twenty. Both these issues were referred under the Inter-State Water Disputes Act, 1956[9], hereafter mentioned as the ISWD. The ISWD appoints a tribunal[10] for every water dispute called that furthers the dispute settlement process. So far, three tribunals[11], Krishna. Narmada, Godavari have been established and all three have run into troubled waters. The three cases have taken about ten years for making the awards from their respective institutions. In addition, these Tribunals have no control over enforcement of the award, and cannot expedite the same. As a result of this, an already long drawn process takes even longer. Understandably, there is also a lot of acrimony between the states which leads to poor and often stalled implementation.

It appears that there have been minimal modifications and amendments made to the ISWD since it still largely follows the Provisions given under 130-134[12] of the Government of India Act, 1935. In recent times after the Sarkaria Commission's Report[13], certain recommendations have been made to limit the time taken by the Tribunal to pass the award within a year. There was an amendment made in 2002[14] and a proposed amendment bill in 2017[15], but the situation on ground has hardly shifted, riddled with delays and non-compliances.

When rationalized, the disputes for sharing of water is going to rise. Quite recently, Mahanadi has joined the list of disputed[16]. The Chhattisgarh and the Odisha Government have run into a wall with

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[9] Act 33 of 1956
[10] Section 3, Inter-State Water Disputes Act, 1956
[11] LEGAL Instruments on Rivers in India, Volume 2, 1997 http://cwc.gov.in/main/downloads/legal_instruments_2.pdf
[12] Interference with Water Disputes, Government of India Act, 1935, [26 GEo. 5. CH. 2], http://www.legislation.gov.uk/ukpga/1935/2/pdfs/ukpga_19350002_en.pdf
[13] Chapter XVII : INTER-State River Water Disputes available at http://interstatecouncil.nic.in/report-of-the-sarkaria-commission/
[14] The Inter- State Water Disputes (Amendment) Act, 2002 (Act 14 of 2002)
[15] the inter-state river water disputes (amendment) bill, 2017 (Bill No. 46 of 2017) available at http://www.prsindia.org/uploads/media/Inter-state%20river%20water%20dispute/Inter-State%20River%20Water%20Disputes%20(A)%20Bill,%202017.pdf
[16] In Odisha vs Chhattisgarh Mahanadi water wards, issues of dams, politics. Sowmiya Ashok, Indian Express, March 19, 2018.

regards sharing of the Mahanadi river water. The demand for a Joint Control Board, made by the Chhattisgarh government has been pending for thirty five years, already revealing an indication of a long drawn process ahead.

WATER-DISPUTES: IS MEDIATION IS THE WAY?

Negotiation is the most touted and unfortunately, the most neglected mode of dispute settlement today. Mediation, resultantly, has been written off as an ideal system because when courts have failed to resolve disputes how can negotiations succeed, is the common perception.

A tribunal, by its nature is quasi-judicial, leaving little scope for party autonomy and preferences. Mediation incorporates both these positives, while facilitating an amicable solution. Resultantly, States should be more likely to implement and follow-through their promises. However, Mediation is overlooked as a possible solution by most state governments and parties, despite allowing for party autonomy.

Negotiations have been successful in the past for solving cross-boundary disputes. In fact, the basic tenet of international law and relations is comity of nations which is based on the spirit of compromise and reasonability. There is no reason why mediation cannot be used as an effective tool for settling important, cross-sectional issues like rivers and riparian zones. However, in order for mediation to be successful the following factors have to be taken into consideration:

1. THE CULTURAL ASPECTS OF RIVER USE:

One of the earliest definitions of culture is that "Culture consists of patterns, explicit and implicit, of and for behavior acquired and transmitted by symbols, constituting the distinctive achievements of human groups, including their embodiments in artifacts; the essential core of culture consists of traditional (i.e., historically derived and selected) ideas and especially their attached values.[17]"

[17] Kroeber, A.L. and Kluckhohn, C. (1952) Culture: A Critical Review of Concepts and Definitions. Peabody Museum, Cambridge, MA, 181

Culture is an umbrella term which has within its ambit various sub-cultures. For example, India has a somewhat identifiable culture, but societies within India can have a completely distinct sub-culture. When it comes to distribution of river resources, it is essential to bring on board all those societies and communities that are culturally dependent on the river and its river basin. Cultural aspects are beyond religious prayers and rituals and include water use and distribution.

In order to have an effective mediation and subsequent settlement, it is essential that the existing culture of water use be extensively studied and adequately represented in a mediation setting.

2. PUBLIC PARTICIPATION:

The corollary to cultural use is Public Participation. Public participation may be defined as the involvement of individuals and groups that are positively or negatively affected by or are interested in a proposed intervention, e.g., a project, program, plan, or policy that is subject to a decision-making process. Public participation is both a prerequisite and an element of good governance and the sustainable management of natural resources.[18] Since inter-state water disputes are rarely solely judicial in nature and often encompass major political lobbying and policy making, public participation is indispensable towards resolving river disputes effectively. In a river water mediation, a referendum could be taken by the community on innovative methods of settlement for consideration before the mediator for consideration.

3. THE INVOLVEMENT OF ALL STAKEHOLDERS:

South Asia is still predominantly rural. Over 70% of its population live in rural areas, the majority of whom make their living by depending on the natural resources that surround them — land, freshwater, coastal fisheries.[19].

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[18] Ecology and Society 12(2): 24 http://www.ecologyandsociety.org/vol12/iss2/art24/

[19] Defining Role of Agriculture in South Asia , March 2014 Draft for Consultation http://www.cansouthasia.net/pdf_files/Defining%20Role%20of%20Agriculture%20in%20South%20Asia.pdf

For any successful mediation to take place, especially in SAARC[20] nations, where the population is largely dependent on agriculture, irrigated by rivers; it is essential that they be made party to the mediation process. The procedure for their inputs could be similar to a referendum. Alternatively, the representative of the community must be made party to the mediation process.

4. TRANSFORMATIVE MEDIATION:

Transformative Mediation, first articulated by Robert A. Baruch Bush and Joseph P. Folger in *The Promise of Mediation*, is an approach to conflict intervention that places the principles of empowerment and recognition at the core of helping people in conflict change how they interact with each other.[21] Simply put, it facilitates the process of mediation by putting all parties on an equal footing. One of the issues of mediation being unsuccessful is that one party is often in a stronger, more advantageous position than the other. This happens when one of the parties is un-empowered and unaware about its rights. Inter-state water disputes revolve around displacement as well as water sharing. In such situations, the most adversely affected are the farmers or the committees which are directly dependent on the river for their living. These communities must be empowered in order to conduct a mediation settlement as a long term solution.

5. SETTLEMENT IN THE NATURE OF A DECREE:

If there is an option, to make the settlement of water disputes in the nature of a decree, it may evoke more confidence in the mediation process. At present, the Supreme Court of India is the final authority on water disputes, because the Constitution of India mandates it to be.[22] In order to induce faith in the mediation system, it is important that the tribunal's mandate be legalized and its award be made equal to a decree

[20] Afghanistan. Bangladesh. Bhutan. India. Maldives. Nepal. Pakistan. Sri Lanka.

[21] https://www.transformative-mediation.com/

[22] Article 141

and enforceable as such. In fact, this is one of the primary reasons why Arbitration has turned into the most successful method of alternate dispute resolution.

6. IMPLEMENTATION IS KEY:

Without effective implementation, mediation is an exercise in futility. Even though the ISWD is sanctioned to pass an award, it has no control over its implementation. Since implementation is key to measure the effectiveness of any strategy, it is important that mediation be given teeth through expedited and honest implementation. This would involve greater participation from the Executives as well as the Ministry of Water Resources.

7. SPECIALIZED MEDIATION CENTRE:

Exploring the possibility of incorporation a mediation centre that specializes in inter-state water disputes will enhance the expertise as well as the repute will create a much needed system of water dispute settlement. At present, the ISWD creates tribunals for specific inter-state disputes such as the Narmada Tribunal as well as the Cauvery Tribunal. Even though it is a central legislation, it works on an ad-hoc basis whenever an Inter-State Dispute arises. This could be remedied by having a Permanent Body of Mediation which could deal exclusively with Inter-State Water Disputes. The empanelled mediators must be those who have substantial expertise in the science and sociology of water in addition to eminent jurists, lawyers and on-ground workers. This Mediation Centre could be made along the lines of the Permanent Court of Arbitration that deals with certain disputes arising under the United Nations Convention on the Law of Seas.

8. TRAINING AND ASSESSMENT OF MEDIATORS.

Any good facility requires practice and training. In order to ensure quality outcomes, it is essential to have quality training. Training ensures a standardized level of readiness and expertise that the mediator

possesses in order to conduct a successful mediation. Christopher Honeyman, developed an assessment model based on mapping skills such as information gathering, empathy, stress alleviation, problem solving, expression, persuasion, managing the process toward agreement formation, managing party interaction, and so on. The mapping has served numerous processes in mediator training and assessment, and spurred the growth of additional models, resulting in the broadening of basic categories and inclusion of additional standards.[23] Any training Programme that is developed must inculcate values of ethics, professionalism and empathy. Since mediation is, primarily, an amicable and empowering process, it is essential that mediators are trained to behave, not as judges, but as facilitators. Simple as that may sound, it requires intensive training to achieve. In case of an inter-state water dispute, a mediator must also have working knowledge of the ethics of the community, their prejudices as well as their cultural inclinations. Without developing a tailor made training Programme for mediators, any attempted mediation is bound to fail at worst or be a waste of time, at best.

Suitable training is undeniably vital, however, competent assessment procedures are prerequisite to hold mediators to acceptable performance standards. Hence, even if an exceptional course module is put in place, in the absence of effective evaluation parameters, it will be lopsided and ineffectual. For instance, if the mediator carries out the steps prescribed perfectly, but is unable to empower one of the stakeholders to make an informed decision, he would fail as a mediator. Similarly a mediator who brings about an outcome that they feel is desirable, but conducts the mediation in an unethical or un-empathetic manner, that mediator, too, defeats the purpose of mediation.

[23] Beyond Basic Training: A Model for Developing Mediator Competence ETTY LIEBERMAN, YAEL FOUX-LEVY, PERETZ SEGAL, University of Nottingham https://www.nottingham.ac.uk/research/groups/ctccs/projects/translating-cultures/documents/journals/beyond-basic-training-a-model-for-developing-mediator-competence.pdf

CONCLUSION

Mediation is the way forward. It allows space for numerous stake-holders, and facilitates creative problem solving. It gives a platform to the parties to air their differences and brainstorm on a commonly acceptable solution. Since this result is a mutually acceptable one, there is a higher likelihood if it being realized. Mediation has all the benefits of party autonomy, creative problem solving, flexibility of procedure and an expedited process. The one thing that it lacks is perhaps the binding value that a decree or an award has. Even though decree and award are still fettered by belated execution, they still inspire confidence in the parties due to their nature. It is important that a process be envisaged wherein the mediation settlement be made binding on the parties and a dedicated implementation system be put in place to inspire confidence in the parties to a mediation.

In situations where there is a lot at stake, socially, culturally, economically and politically, there must be a shift of perspective towards creative problem solving. Our courts and court systems are steeped in legal jargons and procedural abysses. Mediation will be a step in the right direction, intended to solve the problem rather than prolong it. Focused mediation may yield better results in both settlement as well as implementation while maintaining good-relations between states.

In the end, we must always bear in mind that idea of justice includes within its ambit the ideas just, fair and reasonable. Justice must not only be done, but must be seen to be done and in the case of river-disputes, the best remedy is one that makes all stakeholders happy.

RIVER TEESTA: A CONNECTION BEYOND BOUNDARIESs

Akshay Bohra[1]

ABSTRACT

The work around river Teesta and international affairs in connection with river link is of high importance in the context of political relation of countries. Teesta is one of the main connecting river between India and Bangladesh. The river is flowing from Sikkim, west Bengal before eventually falling into Bay of Bengal. This river has many contributory tributaries originated in India and Bangladesh. This paper is arguing about various points such as politics and diplomacy around the river in both the countries. Also it covers the situations and covering factors which affect the growth of the area. Inter connecting policy, self-interest of states and political parties plays their game in this area. There are certain biographical, circumstantial and institutional etc. factors which affects the situation. In various national river policies, the idea of formation and other river link related issues are widely discussed in this paper. Mamta government's alternative solution to teesta gives a new idea to resolve the dispute but the complex problem has many more to discuss over the issue.

Keywords:- teesta, politics, river dispute, Bangladesh pact.

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INTRODUCTION-

The famous Teesta river dispute makes headlines every time there is a bilateral talk between the two countries India and Bangladesh. The dispute is regarding to the water river sharing of River Teesta. Bangladesh disputing with an intention to get a higher share than now. River Teesta is 414km long river flowing through the West Bengal, Sikkim before falling to the Bay of Bengal through Bangladesh. It is the 4th largest transboundary river basin shared between India and Bangladesh after Ganges, Brahmaputra, and Meghna river systems. According to the report of Asian Foundation comes in 2013, its flood plain covers round about 14% of the total cropped area of Bangladesh and provides livelihood opportunities to approximately 73% of its population. As per the contention from Bangladesh. Another side Teesta is called as the lifeline of North Bengal and almost half a dozen of districts of West Bengal are dependent on the waters of Teesta. The federal angle of the Teesta River Issue goes as Article 253 of Indian Constitution describe power to the Union Government to enter into any transboundary river water related treaty with a riparian state. The aspectual centre cannot do it arbitrarily without taking into consideration around the political, social and eco-impact of such a treaty in the catchment area. In 2011, as per the West Bengal government commissioned a study on the Teesta river issue under the hydrologist Kalyan Rudra. This is not acceptable to Bangladesh, where the water is required mainly during certain months December – April period which is considered to be the leanest time. The two neighbouring country India and Bangladesh have a good relation between them and also share 54 rivers that fall within the known Ganges-Brahmaputra Meghna basins. The major mechanism of water dispute resolution is the Joint River Commission (JRC). The JRC was initiated in 1972 with the mandate to understand and maintain the link between the two nations to assure that healthy joint efforts are taken between them to increase benefits from shared river systems. The JRC highly relies on India supplying Bangladesh with flood forecasting data for large rivers connecting them such as the Teesta, Ganges, Brahmaputra and Barak during the main monsoon season and from December to April during lean time. Under

the backings of JRC, two major agreements were made on connecting rivers between the two countries, namely the Ganges Water Treaty (1996-2026) and the Teesta agreement (1983-85).

The Ganges Water Sharing Treaty of 1996 under which the water sharing at the Farakka barrage in India. A provisional agreement was previously signed between them in 1975, followed by the very first Ganges Agreement in 1977 with was an initial duration of five years. Several Memorandum of Understandings on water allocation were signed to come up to an agreement following the expiration of the first agreement, before the current Ganges Treaty was signed in 1996 with a validity of 30 years. This said treaty is for the Ganges only, and does not cover the Meghna and Brahmaputra river basins or their tributaries. Currently the JRC does not have a treaty that extends to all the 54 transboundary rivers which are shared by the two countries, nor is there any sign of openly available management strategy for them.

The only agreement between India and Bangladesh that relates explicitly to the Brahmaputra basin concerns one of its tributaries:

the Tista/Teesta River Agreement that was signed in 1983. The Tista/Teesta River majorly flows from Sikkim through the Darjeeling and Jalpaiguri districts in West Bengal to Bangladesh before joining the Jamuna River (Brahmaputra is called in the Bangladesh). The agreement of 1983 was an ad hoc agreement which allocated 75 per cent of the waters, from which 39 per cent went to India and 36 per cent to Bangladesh, with the remaining 25 per cent to be allocated later. The existing agreement cease in 1985 and a new agreement has yet to be signed. In the matter of Tista/Teesta, it is still unfamiliar to what extent India's construction of the Gazaldoba Barrage in West Bengal decrease the Tista/Teesta flow into Bangladesh, and into the Dalia barrage in particular[2]. Major issues around irrigation have intensified in recent

[2] The Dalia barrage was built to supply irrigation water to drought prone northern parts of the country. In 1996, the dry season withdrawal increased from the Indian side of the barrage that is upstream to the Dalia barrage, which at the time was already in full operation for irrigation, rendering the Dalia Barrage useless. Moreover, sudden release of excessive water through the Gazoldoba Barrage in the rainy season caused floods

years due to the vast expansion of the boro season in West Bengal that depends highly on groundwater. But groundwater consumption is now becoming unhealthy, especially as some groundwater is also polluted by an arsenic contamination. As such, the utilisation of surface water has assumed of much significance in Bengal in recent years and, along with it, issues relating to the sharing of water on Indo-Bangladesh transboundary rivers. At the same situation, this has become contentious between West Bengal and Bangladesh, there has been lesser attention given to the large projects planned or built in the state of Sikkim. A Joint Committee of Experts was formed in 1997 with an effort to solve the conflict over Teesta water allocation. The task of this committee was to check and examine the sharing of waters among the nations. Later in the year of 2004, a JTG was organized to conduct a joint scientific assessment as a precursor to a joint agreement among the two nations on lean season flows. In the year 2005, after its fourth meeting the JTG put on record its incapability to come up with a solution. Since 2010, there have been several efforts at political agreements, most notably a proposal by the Indian PM Manmohan Singh, but the chief minister of West Bengal, Mamata Bannerjee, rejected the proposal at the time, and there has been a political stalemate ever since.[3]

A modified document of the Tista/Teesta River Agreement has not yet been agreed, with clear differences of opinion within and in between the nations as to what would be an appropriate division of the water under this prospective agreement. This is highly due to the allocation of the Teesta having its effect for the livelihoods of millions of people in West Bengal and Bangladesh, by making the issue politically contentious. From the side of Bangladesh, an appropriate allocation would be water sharing on a 50:50 equal basis, as was the case with the Ganges Water Sharing Treaty of 1996. According to a report by the Asia Foundation, this status is maintained on the basis that extra water for irrigation is important for agriculture. There are defiantly some stakeholders in India

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and bank erosion, leading to serious suffering of the people in the Bangladesh area of the basin. See Islam (2016).

[3] Zeitoun, M., & Mirumachi, N. Transboundary water interaction I: Reconsidering conflict and cooperation. International Environmental Agreements: Politics, Law and Economics, 8(4), pg no. 297–316. (2008).

who are willing to agree to such allocation. However, the state govt of West Bengal has opposed the signing of this new agreement. The rationality of the West Bengal government behind this is that an equal share basis would deprive the state's northern region of water, especially in the drier months November to February when water is a very crucial need for the boro crop. The sharing of the water of the river Teesta is therefore an issue with native and bilateral political implications in both nations. An effort to sign an agreement during the visit of the Indian PM Dr. Manmohan Singh to Bangladesh in 2011, did not move forward, with the hard opposition of the state government of West Bengal often seen as the big obstacle.[4]

However, by that time, India and Bangladesh did sign a broad framework agreement on bilateral cooperation between the two countries emphasizing, among other factors, the requirement to explore the possibility of common river basin management of common river. The all over perceptions of Indian people regarding this cooperation are highly mixed. The recently drafted National Water Policy of India 2012, there was a shift away from the infrastructure-in-the-state approach towards a more multi-layered political one that tries to look at the basin-wide cooperation. This is further corroborated by recent developments in Bangladesh, Bhutan, India, Nepal (BBIN) cooperation with working groups on Water Resources Management and Hydropower. Despite these affirmative signs of enhanced cooperation between India and Bangladesh, there always remains a general feeling of dissatisfaction among various Bangladeshi people. Critics comes ahead and argue that while the JRC was supposed to work as a joint institution, it is divided between the two nations at this point, without any settled offices to house both parties, and thus does not function according to best exercise indicated that in the year 1960s, Bangladesh proposed to jointly manage the Farraka barrage, constructing one barrage to serve two countries what is hindering this type of cooperation with neighbour is the lack of political will. Data sharing among nations on water has been a contentious issue within South Asia region. While all nations in the

[4] Nayak, P., & Panda, B. Brahmaputra and the Socio-Economic Life of People of Assam. Assam (2016).

region are protective of their data, information regarding water flows in the Ganges-Brahmaputra-Meghna (GBM) basin in India is officially 'classified' and is not readily available. Expectedly then, many expressed the hidden frustration that India does not provide all the data that Bangladesh requires, particularly data on dry season flow. This highly affects the perception of the country towards its upstream neighbour. Another important area of cooperation between the two countries Bangladesh and India is on inland navigation. Inland navigation offers substantial opportunities to move cargo and people across major rivers and their tributaries in energy- and cost-efficient ways, i.e. in terms of transport costs and emissions per tonne-kilometre. There are currently four protocol routes for Inland Water Transport and Trade, which are identified by India and Bangladesh under Article VIII of their Trade Agreement of June 2015. Under the same agreement, the two governments agreed to the use of their waterways for commerce and the passage of goods India-Bangladesh Trade Agreement, 2015. In their case study on Assam's socio-economic livelihood and life, analysed the significance of the fisheries sector linked to the Brahmaputra and how it is related to the overall socio-economic conditions of people in the state of Assam. This notion is also true for the Bangladeshi communities of the Brahmaputra River, as they share the same overall culture.[5]

POLITICS AND DISPUTES: -

The efforts to resolve the issue is going on since a long time. Attempt of negotiations were also put there that how to share the water between the countries have been going on since 1972. In the year 1972 a new institution Joint River Commission (JRC) was established by India and Bangladesh in pursuance of he Indo-Bangla Treaty of Friendship. Later during 1983 an Agreement constituted on Ad-Hoc sharing of Teesta water. According to the same agreement Ad-Hoc sharing is valid until 1985 end. According to the agreement India will have 39% share 36% is

[5] Prasai, S., & Surie, M. D. (2013). Political Economy Analysis of the Teesta River Basin. New Delhi.

given to Bangladesh and rest 25% kept unallocated. According to 1984 JRC, Bangladesh's river share increased based on the hydrological data. According to this agreement India gets 42.5% share Bangladesh allocated 37.5% water share rest 20% left unallocated. In the year 1998 Bangladesh started a new project known as "Teesta Barrage" irrigation project which was targeting 3 cropping seasons per year. Later in 2011 an Interim deal for the same that was supposed to last for 15 years gave India 42.5% and Bangladesh 37.5% of water Teesta. Even after this efforts and agreement west Bengal continue to objecting the deal the major issues coming up are as with the connection to global warming various glaciers on the Teesta river basin have retreated, as per a strategic foresight group, a Mumbai think tank. According to them estimates recommended that Teesta River has a mean average flow of around 60 billion cubic meters, of which significant amount flows during the month of June and September and October to April is considered to be a lean season. Any treaty will dry out northern region of West Bengal and will hurt farmers. In 1998, Bangladesh's Teesta barrage initiated, and the peasants of Bangladesh enjoyed 3 cropping seasons per year and don't deserve any more water as per the contention of India. Main Project in West Bengal target at irrigating 9,22,000 hectares of land in North Bengal and provides 67.60 MW of hydropower. And on same consequence any water sharing treaty with Bangladesh will eventually hamper the project.[6]

Meanwhile the talks west Bengal proposed certain alternative ways and solution. Mamta Banerjee offered sharing of rivers like the Torsa, which are even more closer to the border of Sikkim and Bangladesh. The Torsa river, in fact, has connectivity with Bangladesh's river Padma. Banerjee proposed that the two countries set up a commission to ascertain the level of water flowing over the Torsa and the quantum of water that can be shared.

[6] PTI Assam to start dredging of Brahmaputra to combat flood, erosion. The Economic Times (2016, August 23).. Retrieved from http://economictimes.indiatimes.com/news/politics-and-nation/assam-to-startdredging-of-brahmaputra-to-combat-flooderosion/articleshow/53832810.cms (Accessed 3 February 2017)

Bangladesh's point on teesta water conflict is that as India already enjoys a share of 55% of the river water. Bangladesh claims equal 50% of the water between December and May every year because that is the time when the water flow to the country drops drastically. More than 1 lakh hectares of land in Rangpur area which is known as rice bowl cannot be cultivated for winter crops due to extreme withdrawal of water by India. Thus Bangladesh demands a fair share of river waters during the dry season[7].

Politics around the whole conflict is on another party based. The previous government party which was Bangladesh Nationalist Party (BNP) govt. headed by Begum Khaleda Zia was not very amenable towards India's concern. The BNP, during its ruling tenure in power between 1991-1996 and again from 2001 to 2006, delivered shelter to leaders and cadres from various North-East based terror outfits. But Sheikh Hasina's Bangladesh Awami League(BAL) party monitored India-friendly policies and also adopted a zero tolerance policy against anti-Indian terror outfits and ultimately ULFA was banned from the country. The cooperation between the two nations smoothed the finalisation of land boundary agreement. The Teesta River water deal as estimated will help Delhi get more political leverage which it thinks is necessary to.

FACTORS AFFECTING THE COOPERATION

CIRCUMSTANTIAL FACTORS-

Bangladesh is a coastal country known by a delta landscape. The Brahmaputra River mix with the Ganges and the Meghna River in Bangladesh before falling into the Bay of Bengal. The river's total area within the boundaries of Bangladesh is 1.72 million km², summing up 7 per cent of total basin area. As its being a delta country it's livelihoods highly dependent on and impacted by water management of

[7] Prasad, E. Situation analysis on floods in East and Northeast India. In E. Prasad & N. Mukherjee (Eds.), Ecosystems for Life: A Bangladeah-lndia Initiative. Situation Analysis on Floods and Flood Management. Bangkok, Dhaka, New Delhi: IUCN(2014).

transboundary rivers is a critical issue for Bangladesh. The Brahmaputra River plays particularly an important role for Bangladesh as the river provides 70-75 per cent of its dry season flow. There are more than 400 tributaries rivers in Bangladesh, including 54 transboundary water shared with India, and three shared with Myanmar. Proper Management of trans boundary rivers, particularly in context with India, is therefore a critical issue of critical importance for Bangladesh. The key feature concerns for Bangladesh related to the Brahmaputra include the major water dispute use by floods, salinity, agriculture, and riverbank erosion. Bangladesh watching a situation where there is "too much and too little" water. Floods are a seasonal occurrence in Bangladesh and plays an important part of the ecosystem as it replenishes the soil in the delta, necessary for agriculture. However, severe flood also causes problems. In addition to the floods occurring due to continuous monsoon rains, climate change can also cause flooding.

Factually, agriculture part in Bangladesh was tremendously rain-fed, confined mostly to the seasons based, and thus highly reliant upon monsoon rains. Therefore, the non-monsoon season river flow was not an issue until 1972. It did, however, become more important factor from the mid-1980s onwards as highly intensifying agricultural based activity became more prevalent in eastern South Asia. The scenario of Green Revolution allowed farmers to cultivate dry season crops, through which making it possible to harvest two to three times in a year, providing some basic security to farmers who were no longer dependent on their monsoon-season harvest when crops might be devastated by floods. At the same time, it is seen as, however, dry season agriculture crops also increased water demand during the prevalent dry season, resulting in withdrawal of groundwater which put farmers in some parts of Bengal at risk of saltwater incursion, and the lowering of the groundwater table. Potential sea level rise because of climate changing factor can also see as a cause of accelerate saltwater intrusion in many parts of the delta.

According to, it is not technically very difficult to gain flood season data from satellite information. The difficulty mostly lies in obtaining

the dry season data, as this needs to be measured on the ground and is not available from satellite data.

BIOPHYSICAL AND MATERIAL CONDITIONS-

There are various biophysical and material conditions that affects the cooperation over international waters issues between Bangladesh and India. One of the major challenge is the river widening process, particularly in the lower riparian states such as Assam and in Bangladesh. According to data under this widening process, an area of approximately 0.5 million hectares 4860 km² of land was lost and ruptured due to soil erosion and annual flood in the Assam stretch, and that the loss of land was estimated at more than INR 680 million in 2015. Data reveals that that 4,000 villages were destroyed in a particular year of 2015. In light of this, the Brahmaputra basin known as one of the most disrupted rivers in the region. While flood is a very natural part of the Brahmaputra's yearly water cycle.[8]

The impact of the river widening process as portrayed by a report which was published by National Disaster Management Authority of India in 2012, which defines that it adversely affect the aids anticipated while implementing the anti-erosion and flood control works. The issue arises as high floods generally cause large scale breaches in the existing embankments of the river bringing vast field areas under flood inundation. There is a sense of how difficult complex and challenging it is to technically understand the Brahmaputra River, and therefore take appropriate actions against the ever changing behaviour of the river Brahmaputra. The Brahmaputra cover a maximum altitude of 5,000 m above the sea level before entering into Assam state in India where rainfall is so great that large amounts of water cause floods in the Assam Valley and carries a very vast quantities of sediment to lower riparian Bangladesh.

[8] Ministry of Water Resources (n.d.). Indo-Bangladesh Cooperation. Retrieved from http://wrmin.nic.in/forms/list.aspx?lid=348 (Accessed 10 March 2017).

When we look at the situation from an ecological angle, however, the catchment shows a very rare finding transition of ecological classes which is classified from alpine to tropical-evergreen. Also this change of landscape and vegetation unique to the Brahmaputra basin and due to the climatic changing conditions, making the river 80 per cent rain-fed and 20 per cent fed by snowfall in its regular flow. The basin, particularly from the south of Tibet, is characterized by high levels of rainfall leading to a high flow velocity and sediment carrying capacity at the Great Bend. According to the Water Resources Information Systems of India, the Indian sub basin terrain of the Brahmaputra is fit for hydropower. the greatest threat faced by agriculture sector in this region are floods in the basin as they cause large-scale erosion of the riverbank soil, breaching embankments and other river protection structures in this area. This suggests that, whether they are designed to tackle drought or flood situation or climatic variability as a whole, infrastructures built on the river are continuously interfering with the river's natural capacities and such impacts are result into large-scale costs for the state economies of India as well as of Bangladesh, on which, once these structures are functional, little can be done to undo all these impacts. The foreseen conflicts within India and with neighbouring nations lower riparian Bangladesh have a significant impact on the water cooperation between the two nations.[9]

The Teesta River, covers with a total length of about 414 km, traverses Sikkim for 151 km, stretches along the border of West-Bengal and Sikkim and then inside West Bengal region for 142 km before reaching Bangladesh for the final 121 km. The Teesta river flows through a very diverse ecosystem, in the lower part as from West Bengal onwards – through dense tropical woods and through the floodplains in Bangladesh. In the nation Bangladesh, the river provides water for the livelihood to almost nearly 2.1 million people engaged in agriculture and fisheries, and is the major navigation route for remote villages and riverine islands. The annual flow of water through the Teesta varies dramatically between wet and dry seasons, as summarize, with one

[9] Mahanta, C., Zaman, A. M., Shah-Newaz, S. M., Mahbubur Rahman, S. M., Mazumdar, T. K., Choudhury, R.,.Saikia, L. Physical Assessment of the Brahmaputra River , Ecosystems for Life: A Bangladesh-India Initiative Dhaka. (2014).

estimate being that the Teesta supplies a flow rate of nearly 4,494 cumec15 of water in summer, while the minimum is only eight cumec measured at Dalia, Nilphamari. This case study also notes that the reduction of dry season flow of the Teesta has some very significant consequences on its ecosystem and thereby the services that it provides. This is attributed to the dry flow of the river being highly controlled for various power and irrigation projects in India and Bangladesh. For Bangladesh, the significance of the river and related concerns are more focused on agricultural and residential lands in the north of the country. In contrast of this scenario, the Indian state Sikkim is comparatively lightly populated. Cultural and spiritual values which are attached to the Teesta are more significant in this region. Many of the citizens are to be affected by the construction of hydropower projects in Sikkim belongs from tribal communities. In the more densely populated West Bengal and Bangladesh, there is greater emphasis on agriculture and inland fisheries works and the shared culture of open fish resources e.g., the Ruhi, Hilsa, Katla fishes. The sections above have demonstrated the tremendous effect of demographic and biophysical complexity of the basin, with a significant change in livelihoods and priorities as the river traverses through different parts of the basin. The complexity undoubtedly impacts the potential for cooperation, since unification the different priorities between and within nations is tremendously difficult.

FORMAL INSTITUTIONS

The institution of JRC was established by a formal agreement between India and Bangladesh, the Statute of the Indo-Bangladesh JRC, in 1972 is mostly focused on the institutional aspect of the JRC, including the provision of rules related to the membership of the JRC which is defined under Article 1 and various procedures related to the JRC explained under Article 6 of the same. Functional norms are discussed in Article 4 of this act and focus more on areas 1) joint efforts to maximise the benefit from the shared river systems Article 4.i.a, and 2) formulating procedures associated with flood control and warnings Article 4.i.b-e. The Statute does not include any particular principles related to equitable and reasonable utilization of the rivers resources,

one of the key principles of international water law. Some factor indicated that since India is not a signatory to international law, so they don't agree with certain clause in there. The very fact that the upstream country is inevitable to have some obligations, they don't agree. The lack of an ERU principle clause in the Statute is reflected in the current status of cooperation where Bangladeshi expressed their dissatisfaction that relationships were one sided and unequal. India is one among the four riparian nations in the Brahmaputra basin and has considered all water related disputes to be a case of national water security. Article 14 of the NWP 2012 indicates that all hydrological data, apart from those classified on national security consideration, should be in public domain as per the guideline of Ministry of Water Resources, 2012. In general, India's approach toward this should be to deal with water issues in the overall political and security context of this region. This approach is not specific to the certain context of the Brahmaputra alone, but could be one of the defining reasons as to why water-related cooperation in India has only been bilateral with all neighbouring riparian nations. It is also possible that this can contributes to India's lack of enthusiasm to share data.[10]

INTER-STATE DISPUTES WITHIN INDIA

The idea of water sharing among the different states is emphasized in India's NWP of 2002. However, in the Clause 20.1 the Water Policy it states that water distribution amongst the states should be guided by a national perspective with due regards to water resources availability and needed within the river basin. The exact mechanisms that has been followed by which trade-offs are established between states taking a national viewpoint are thus not explicitly mentioned anywhere within this document. It suggests the need for a basin-wide approach among Indian states, but the exact and complete implementation in each instance is left open for discussion. Similarly, it is significant to note that the Draft National Water Framework Bill of 2016 suggests

[10] Treaty between the Government of the People's Republic of Bangladesh and the Government of the Republic of India on sharing of the Ganga/Ganges water at Farakka, (1996).

integrated basin management, and establishment of river basin authority for inter-state river basin. It is general practice for decisions related to water distribution to be taken by state governments that have the authority to take their own decisions and negotiate on their own terms with other states. This might be a way to empower the respective state governments within India, though conflicts which persist from the powers granted to them. This practice is also causing blockages at the institutional level in the cooperation for ecosystem-based management and administration of internationally shared rivers with Bangladesh. This notion can be later validated by the West Bengal's government's unwillingness to develop a 50-50 equal share treaty with the Bangladesh government on the Tista/Teesta River.

THE BANGLADESH DELTA PLAN 2100-

The emerging Bangladesh Delta Plan (BDP) 2100 was developed by taking inspiration from the delta planning process which was prior used in the Netherlands as both the nations face similar challenges on water safety issues. According to the website of the BDP 2100, the key elements of the planning process contain of conducting of baseline studies, outlining of a delta vision and scenarios, the creation of a delta framework for delta governance, the selection of delta strategies, the formulation of a wholesome investment plan, and a programme for capacity building. The plan aims to identify immediate applicability through a set of short-term no-regrets measures that have been worked out as contribution to the Bangladesh's 7th Five-Year Plan from 2016-2020. Out of the seven intended outcomes of the BDP, one of them states that The Delta Plan provides a means for firming international cooperation, with development partners and neighbouring nations e.g. on trans-boundary river issues. This, along with the rest of the key points, shows a successful creation of another channel for future cooperation that will be intensively researched with Track II and Track I.5 on board from the very beginning. In November 2015, the PM of Bangladesh, Sheikh Hasina, visited the Netherlands where she states that utilising the experience of the Netherlands, the Bangladesh government is considering forming a Delta Commission and a Delta

Fund to mobilise the resources required for the same to implement the Bangladesh Delta Plan of 2100. [11]

Various Customary Institution Sentiment towards other riparian states seems to play a pivotal role in the cooperation between India and Bangladesh. Many people from Bangladesh expressed frustration over Indian's counterparts. Referring to India's water diversion through Farakka barrage, expressed that India is diverting water at Farakka barrage. What can you do? They are powerful and a powerful person doesn't obey the norm and rule and regulation. On the overall relationship with India, indicated that "It is always better to make good relation with your neighbours, and if your neighbour is rich and stronger then you don't have any other choice but to function together.[12]

ACTORS & AGENTS

The Ministry of Water Resources, River Development and Ganges Rejuvenation (MoWR) is the highest authority to administer policy decisions related to water resources in India. The CWC is India's premier technical organization, and is currently attached to the MoWR. The CWC is responsible for the coordination with the state-level governments on the use and distribution of water resources, including irrigation, navigation, flood control, drinking water supply and water power development. The Ministry of External Affairs (MoEA) of the GoI leads negotiations with riparian nations. Negotiations relate to water among other issues, and include MoEA representatives and members of relevant technical committees. Other actors relevant to the Brahmaputra basin include other government ministries and agencies, such as the Department of Fisheries, the Department of Agriculture and the Inland Water Authorities of India, and individual states such as Assam. The most significant group of actors with regards to transboundary water management are existing bureaucrats who were

[11] protocol on Inland Water Transit and Trade within the India-Bangladesh Trade Agreement, (2015).
[12] Ray, A, India, Bangladesh: Water Disputes and Teesta River Diplomacy. Global Voices.(2012, June 8) Retrieved from https://globalvoices.org/2012/06/08/india-bangladeshwater-disputes-and-teesta-river-diplomacy/ (Accessed 16 march 2018).

said to often take decisions based on politics rather than available scientific evidence. Such sentiments have clear characters with a recent World Bank Strategy Report on the northeast of India, which argues that the principal obstacle to the region using its water resources effectively is not disagreement between states, or indeed diversions in Tibet. According to the Word Bank, the major obstacle is the bureaucratic culture which is prevailing in India, which it suggests is characterised by the paternalism of central-level bureaucrats, coercive top-down planning, and little support or feedback from local residents. Bangladesh existing power relationship between India and Bangladesh is reflected in the relations within the JRC. Many decisions are taken just to maintain good relations with the Indian side. India's domestic politics, with differing relationships between states as well as between states and the central government, is another important factor that affects the internal cooperation with Bangladesh. existing international treaties are signed by the central government, but as per the rules relevant state governments have to provide their consent, as water is subject of a state matter. Referring to the signing of the 1996 Ganges Water Treaty, it argues that the central government referred the state of West Bengal in the negotiation process, but not the state of Bihar, which is another riparian state to the river. This was later justified by India's United Front government that negotiated the treaty, as Calcutta port, located within West Bengal, would be directly impacted. However, the state of Bihar was also affected by the regulated water flow resulting in a state-owned power plant having to shut down which affected the power supply to the state of Bihar.[13]

CONCLUSION

In the case of the bilateral cooperation between the two countries over the Brahmaputra River between Bangladesh and India, there are a number of aspects that comes up as important areas of concern. In addition, India faces significant challenges within its own boundaries

[13] World Bank, Natural Resources, Water and the Environment Nexus for Development and Growth in Northeast India. Washington DC. (2006)

including, but not just limited to, inter-state power relations and agendas, and increasing climatic stress in the form of droughts, even in heavy rain regions of the northeast, resulting in food insecurity and mass migration. All these factors gradually influence the two nations in ways that render existing formal institutional set-ups is not enough to achieve their stated cooperation objectives. Even the data sharing of dry season river flow records by India is instrumental for the lower riparian nation to forecast low flow events, and thereby improve preparedness for agricultural and drought prone areas. Bangladesh is a momentous neighbourhood country for India with a shared relative culture, history, religion and many more common elements. For Bangladesh, this issue is still considered to be a prolonged suffering inflicted by India. The cooperation of Bangladesh is important to India and without such liberal regimes in neighbouring countries, India cannot become terror free instantly. Bangladesh is an essential element for India to get connected with North East. Seeing the tactical significance of Bangladesh and as a responsible upper riparian state, India requires to take practical steps for early conclusion of Teesta agreement within the country.

Science-policy linkages are another one of the issues Bangladeshi stressed is the lack of understanding between scientists and decision-makers in Bangladesh. While this is an issue that may require efforts by both sides, facilitating multi-stakeholder dialogues that involve scientists and decision-makers who can support such collaboration. Bangladesh has the possibility to gain knowledge learn from India's approach of science-policy linkages that could also support joint capacity building structure.[14]

[14] Wouters, P., Vinogradov, S., Allan, A., Jones, P., & Rieu-Clarke, A Sharing Transboundary Waters: An Integrated Assessment of Equitable Entitlement: The Legal Assessment Model. Paris. . (2005).

TRANSBOUNDARY WATER MANAGEMENT; ISSUE OF GOVERNANCE LEADING TO A STALEMATE

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&

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Abstract: In an era of globalization with regional states in Asia growing up to compete against the developed nations, regional powers trying to assert its regional influence over one another is raking up the old issues of control of water. These issues of controls over water had arises from its need to fulfil the growing demand of power shortages and its ambition of supply on upstream and downstream. This paper aims to study the reasons behind the re-emergence of this water dispute which had previously had been put through cooperation or arbitration for sharing. Also it will analyze the problem of managing the river transboundary in the South Asia.

Keywords: Transboundary, Water Management, Re-emergence, Problems, Issue, Dispute, Risk, Governance, Co-operation, Overcome.

INTRODUCTION

River water management is not an easy task as it passes over many territories and the issue of the allocation of the flow of water arises when it passes from one region to another which is controlled by the state authorities. States control over the river water is important as it is a source of various purposes ranging from the basic needs of drinking to generating hydro electricity etc. Water has been an important source of development of any civilization and in this present era with huge number of population and the growing powers of the states especially in the south Asian region it has become an issue of discontent.

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There has been disagreement over the water sharing issue and many times the government of the various transboundary states has come to terms under a treaty. But it proves to be a failure and the discontentment had continued since many decades. The problems seems to be never ending so there is a need to look into the problem of transboundary water management as it is clear that this is not just a problem of dispute over the issue of sharing of river water as these regions is turning from a phase of slumber to an active player among the developing states. Also in this region the geopolitical situations is hot heated so it must look into the political aspects which is a major cause of problem in the governance which is a major challenge in managing the objectives of the transboundary water treaties.

This paper will analyse the reasons behind the re-emergence of water dispute in the south Asian region and its failure in making any permanent solution. It will also analyse the problems and needs for overcoming the risks and cooperation for a permanent solution and how to tackle the problem of transboundary river water disputes.

RE EMERGENCE OF WATER DISPUTE IN SOUTH ASIA

The presence of water has been an important element in the development of any civilization. The practice of transporting and managing ground water has led to the development of agrarian lifestyle making a shift from itinerant lifestyle of hunting and gathering. In fact it let to the development of invention of hydraulic engineering leading to a huge number of urban settlements in the Harrapan civilization[3]. There has been evidence of water harvesting and management since the ancient times in this region. But there has been a serious decline in the advance in the culture in this region in later period.

During the British rule it brought over a more serious challenge, the introduction of supply of water through pipelines has led to a better

[3]Harappans had knowledge of hydraulic engineering, Dholavira reveals, India Science Wire, Published on March 5th 2018,
https://www.thehindubusinessline.com/news/science/harappans-had-knowledge-of-hydraulic-engineering-dholavira-reveals/article22934861.ece

distribution of water but this led to the ignorance among the people about its importance of conservation. This led to the use of water without realizing about the need for sustainable use water without polluting the ecology of the region. It is also because of the easy access of water supply which has led to the pollution of primary water sources like Ganga, Yamuna and Brahmaputra and so much so has it been polluted that it becomes like a waste carrying drainage[4].

To understand the reasons behind the re emergence of water dispute in this region there is a need to look into the geopolitical issue by the time the British has left the sub continent, because that is when the bifurcation of the territory had actually began forming it into an independent territory of newly formed states and the need for the division or sharing of water has actually arise.

The conflict of water sharing between India and Pakistan since its formation as a new state can be seen with the failure of the two standstill agreement signed between Chief engineer of East Punjab (India) and West Punjab (Pakistan). This agreement was to be expired on 31st March 1948 and after which India started asserting its rights over the water flown over its territory and stopped the supply of water to the various canals irrigated about 1.6 million acres of land in the Pakistan region.[5]The Indian authorities' argument was that since India was no longer obliged to supply the water as the agreement signed has not been extended. But one must not forget to look into the geopolitical issues of the region during this period. India and Pakistan was already in a conflict due to the partition and the latter aggression into the Kashmir region generated into enmity between the two states[6].

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[4]SUTHERLAND, HEATHER. "Geography as Destiny?: The Role of Water in Southeast Asian History." *A World of Water: Rain, Rivers and Seas in Southeast Asian Histories*, edited by PETER BOOMGAARD, Brill, 2007, pp. 27–70. *JSTOR*, www.jstor.org/stable/10.1163/j.ctt1w76vd0.5.

[5]Salman M. A. Salman, Kishor Uprety, Conflict and Cooperation on South Asia's International Rivers: A Legal perspective, Page 42-43

[6]Salman M. A. Salman, Kishor Uprety, Conflict and Cooperation on South Asia's International Rivers: A Legal perspective, Page 43-45

The Inter-Dominion Accord of May 4th, 1948 was signed between the two Independent states of India and Pakistan for the sharing of the river water[7]. In this accord there has been an agreement to release enough water to Pakistan which was flowing through India for a annual return which was to be paid by the latter, but soon there became a need to look for an alternative solution which led to the signing of the Indus water treaty of 1960 with the intervention of the world bank[8].The failure of the 1948 agreement can be seen not only as a result of the dispute regarding the payment but also as a political ploy over the Kashmir issue between the two states. Pakistan's stand for referring the Issue to the International Court of Justice was firmly objected by India[9].

Although the main conflicts regarding the treaty was the barring of the construction of storage system on the western rivers within the Indian Territory, it was also because of the western rivers lies in the disputed region of Jammu and Kashmir which has always been the main geopolitical issue between the two countries. The two countries had already been in conflicts over a number of projects over these rivers which include the Salal hydroelectricity project on the Chenab, the Tulbul project, the Kishenganga and Ratle hydroelectric plants.[10]

The construction Baglihar Hydroelectric Project on the Chenab River has led another concern where a neutral expert had to be called to resolve the issue. In 2007 the neutral expert asked India to lower the dam height by 1.5 metres and reduce the storage capacity by 37.5 million cubic metres to 32.58 cubic metres. This has not fully resolved the problem as Pakistan claimed thst India has had reduced the flow in the Chenab by 20,000 cusecs. Also the report of the expert has been

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[7]Inter Dominion Agreement on Punjab canal waters, Accessed: http://mea.gov.in/bilateral-documents.htm?dtl/5198/InterDominion+Agreement+on+Punjab+Canal+Waters on 20/03/2018

[8]Indus water treaty 1960,Accessed: https://siteresources.worldbank.org/INTSOUTHASIA/Resources/223497-1105737253588/IndusWatersTreaty1960.pdf on 20/03/2018

[9]A. Misra, India-Pakistan: Coming to terms, Page: 58-59

[10]Waseem Hayat, An Insight of Indus Water Treaty and KIshanganga Dam, Page: 2-4

criticized by water experts that were based on techno-economic efficiency as is indifferent towards the treaties of the Indus water[11].

The present conflict is over the Kishenganga project and the Ratle hydroelectric project which was initiated in 2007 and was to be completed by 2016. The matter which was taken to the court of Arbitration by Pakistan allowed India to go ahead with the construction on the ground that 9 cubic metres per second of the flow of water to Pakistan is maintained by the Indian Authorities[12].

These water disputes arising again and again since the signing of the treaties shows that it has failed to actually create a permanent solution. It is not just a matter of water dispute but the geographical location in which these river passes through which has been a matter of discontent between the two states. It is because of the geopolitical issues that any discussions regarding the sharing of water becomes a stalemate.

PROBLEMS OF TRANSBOUNDARY WATER MANAGEMENT

The development in treaty signed between India and Pakistan on sharing the river water was not without any obstacle. The role of the World Bank in facilitating the agreement was much appreciated, also the leaders of the country had high esteem for solving these issues quickly as the economic conditions of the states was also developing in its initial stage. Back then India was not a regional power and was much more focused in solving the internal issues than focused on disputes with its neighbours. Furthermore, Eugene Black, the then World Bank President, was willing to take the risk of possible failure in the negotiations, in contrast to the mostly risk-averse Presidents who have followed him[13].

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[11] Wirsing, Robert G. "The Kashmir Territorial Dispute: The Indus Runs Through It." *The Brown Journal of World Affairs*, vol. 15, no. 1, 2008, pp. 225–240. *JSTOR*, JSTOR, www.jstor.org/stable/24590962.

[12] Waseem Hayat, An Insight of Indus Water Treaty and KIshanganga Dam, Page: 2-4

[13] Asit K. Biswas (2011) Cooperation or conflict in transboundary water management: case study of South Asia, Hydrological Sciences Journal, 56:4, 662-670, DOI: 10.1080/02626667.2011.572886

In the current scenario there has been a serious discontent between the two states and on top of that the India government has also been taking more aggressive steps against its neighbours. Following the Uri attack in September 2016, India decided to not hold a meeting of the Permanent Indus Commission so long as Pakistan does not stop funding terrorist activities[14]. is high, and the importance and respect of the World Bank in Pakistan and especially India, is significantly lower than in the 1950s, it is highly unlikely that such a feat could now be duplicated.

Political factors can be seen as one of the major problem in managing the transboundary water problem. The rising nationalism has added to the deep-rooted mistrust among the various states in these regions which is also keeping the water related problems at bay. In the case of Bhutan and India where both the country have better positive relations, it's not surprising that both the countries were able to agree in terms of hydro electric agreement. Although India does try to maintain its hegemony over its counterpart it was easier to sign an agreement as Bhutan government is headed by a Monarch. Bhutan at present has a hydropower generation of 7,780 GWh (2015) but it has a potential to generate around 30,000 MW of hydro-power.[15] While these agreements are not without objections because in the long run if Bhutan ever decides to increase its capacity it will need to create a larger storage capacity where one cannot ignore the chances of over flooding in the Lower region on the North Eastern part of India where there has been constant problem of flood.[16]

Another dispute is over the Teesta River where India and Bangladesh had signed a water sharing agreement in 1983 by which 39 percent and

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[14]Dipanjan Roy Chaudhury, India holds back on talks with Pakistan water secretary, The Economic Times, Updated: Apr 17, 2017, 01.49 AM IST, Accessed: https://economictimes.indiatimes.com/news/politics-and-nation/india-holds-back-on-talks-with-pakistan-water-secretary/articleshow/58213389.cms

[15] International Hydropower association, Accesed: https://www.hydropower.org/country-profiles/bhutan

[16]B.P. Veerabhadrappa , Guru Prasad.M.S, Regional integration through energy trade: a case stuy of Bhutan"s hydro power projects, Page: 2-6

36 percent flow of water was allocated for India and Bangladesh[17]. The agreement was supposed to be concluded by 2011 but then there has been constant pressure from the west Bengal government which has held that it would be against the interest of people of the state. Such oppositions from the state government and the non state actors clearly led to the stalemate on the management of river waters. India had also proposed for the construction of canals across Bangladesh which would link the Brahmaputra with Ganga above the Farraka Barrage.[18] Bangladesh came up with a more pragmatic approach which proposed for a 20 billion dollar construction of reservoir and dams in the Himalayan foothill of Nepal and India which addressed the issues of flood, electricity and salinity etc but this could not have materialized because of India's own Interest[19].

The Indian government dominance of such policies against its neighbouring states led to the distrust and tension which led to the failure of water management in the region. This failure is not only the result of the government asserting its dominance but also because of the pressure from its internal regions which prevents them getting into an working solution[20]. In the case of India it cannot ignore its state government voice as this could lead to disadvantages for the ruling government in the electoral stage.

NEED FOR OVERCOMING RISK AND COOPERATION FOR A PERMANENT SOLUTION

The issue of transboundary water management is not an isolated issue. The political scenario of the countries has a crucial role to play. The South Asian countries, due to their political relationship with each other make it even harder to come up with a permanent solution that can end the disputes. The historic hostility between India and Pakistan, the

[17] Anumita Raj, Teesta Basin Case study, Page: 1-4

[18] Farraka Barrage, the greatest ever riparian bluff for upstream water piracy, Accessed: Academia Journal of Environmental Sciences 1(3): 036-052, March 2013 DOI: http://dx.doi.org/10.15413/ajes.2012.0105 ISSN: 2315-778X

[19] Madeleine LOvelle, India, Bangladesh and the Farakka Barrage, Page 3-6

[20] Falguni Tiwari, Paradiplomacy and the Teesta river water Dispute: National Interest vs Regionalism, Page 1-3

hegemonic behaviour of India over Bangladesh etc. makes it even harder. A tendency to cooperate with each other exists, when both the countries have 'historical cooperation.' But it is not the case here. Though India and Pakistan have the Indus Water Treaty of 1960, which both the countries once agreed to cooperate, but till now there has been a gross violation of the treaty from both the sides and its enforceability have almost ceased[21]. The Permanent Indus Commission, which was created as per article VIII of the Indus Water Treaty also failed to resolve the disputes over the sharing of water between both the countries[22]. On the other hand Bangladesh has 54 rivers sharing with India. Despite setting up a Joint River Commission for water management as early as 1972, tensions between the countries on how to share resources recently came to a head in a dispute over the Teesta River[23]. At stake are the lives of countless people from West Bengal and Bangladesh who depend upon the river for survival. For Ganges water management, both the countries have Ganges water sharing treaty, but for Teesta River's water management, till now there is no such treaty. River water for these two countries has much more significance. As both the countries have a large population who is directly or indirectly depended upon the rivers, hence it is very tough to decide the faith of the two countries on the issue of sharing the river water. The Ministry of Water Resources in Bangladesh has drafted a new river law. Zafar Ahmed Khan, Secretary in the ministry, says the new law is aimed more at protecting and conserving rivers than at exploiting water resources.[24] Khan suggests that instead of working separately, both the countries should work together, conduct scientific studies on the rivers they share and ensure sustainable development without losing on both the sides.

However, this seems good but there is no such alternative that can lead to a solution. In this situation where no one wants to back out, there

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[21]Waseem Ahmad Qureshi, Water as a Human Right: A case Study of Pakistan-India Water Conflict, Page: 376-379

[22] Zawahri, Neda. (2009). India, Pakistan and cooperation along the Indus River system. Water Policy. 11. 10.2166/wp.2009.010.

[23] Uzzaman, Arfan. (2015). Teesta agreement: facts-disputes-and-bangladeshs-game-plan. The daily star.

[24]Banani Mallick, Bangladesh seeks to protect rivers with new river laws, Accessed from: thethirdpole.net Published: 30/01/2018

comes a need of a mediator that can mediate between the countries. There are many examples in the international politics that have set an example on sharing water among countries. The Nile River Basin Initiative in North Africa, the Mekong River Commission in Southeast Asia can be considered as a good example of regional cooperation.[25] The question now arises is what is to be done where there is a lack of willingness for cooperation? When there is less cooperation among states, the international bodies have historically played important roles. United Nations has tried with various conventions to solve the issue of transboundary water disputes. One of them is the United Nations International Watercourses Convention that was adopted by the United Nations General Assembly in 1997.[26] The convention proposed many general principles including "equitable and reasonable utilisation" and "obligation not to cause significant harm" to the river waters. Interestingly, Only Nepal and Bangladesh voted in favour of the convention and Pakistan and India chose not to vote. Though Bangladesh voted in favour, but till date, it has not been ratified by the country.[27]

Hence, to solve this problem of transboundary water management, it is the regional organisations that can play an important role. The South Asian Association for Regional Cooperation (SAARC) can be a key player in this. The SAARC was formed with one key objective- to promote cooperation among the South Asian regions. But unfortunately, till date, SAARC has failed to mediate between its members on the issue of transboundary water management. The previous SAARC Summit that was supposed to be held at Islamabad, Pakistan on November 2016 was boycotted by all the members[28]. This

[25] Bruzelius Backer, Ellen. (2007). The Mekong River Commission: Does It Work, and How Does the Mekong Basin's Geography Influence Its Effectiveness?. Journal of Current Southeast Asian Affairs. 26. 32-56.

[26] Stephen McCaffrey, INTERNATIONAL WATER LAW FOR THE 21ST CENTURY: THE CONTRIBUTION OF THE U.N. CONVENTION

[27] Alistar Rieu-Clarke and Flavia Rocha Loures, Still not in Force: Should States Support the 1997 UN Watercourse Convention?

[28] Kallol Bhattacherjee, SAARC summit to be cancled, Published: The Hindu, Updated: November 3rd 2016, Accessed: http://www.thehindu.com/news/international/SAARC-summit-to-be-cancelled/article15004093.ece

easily explains the equation. The hydro political dilemma, growing population etc. have been serious factors of increasing 'water nationalism' among countries. Without sitting together and discussing the issues this problem cannot be solved. The upcoming SAARC Summit, which is supposed to be held at Sri Lanka can lead to a solution if the countries agree to talk about that and seriously wants to resolve the debates and claims over river waters.

Considering the growing water scarcity, growing demands one day or the other the countries will be compelled to consider the issue and will understand the need for interdependence. Without camaraderie and understanding, it will not be possible to resolve the issues. It is sheer necessary to depoliticise the issue of water as it is linked with lives and livelihoods of crores of people across countries. Increase in dialogue amongst the nations is the only way to solve the issue. As countries in the South Asian region are considered to be the third world countries and hence developing, it is very important for them to understand that they must develop their own mechanism for water management to sustain. Also, the countries cannot neglect China in these issues as it is becoming a critical factor in the South Asian politics. If China mediates, there is a chance that the disputes will decrease as China holds the upper hand in all other sectors and there is a chance that the countries will take China seriously unlike the regional and international organisations.

CONCLUSION

Firstly among the general public the distribution of water through pipelines has led to the easy accessibility of water and had led to a better settlement in regions where there was previously a great task to gain access to fresh water. But with that, people also overlook the need for a sustainable use of water.

Water dispute in the south Asian region is not just a problem of management or implementation of the treaties but it is mostly because of the geopolitical situations which have always been tensed due to the territorial disputes. In such situation it has not been possible to properly

govern the water sharing treaties which used to be overshadowed by the territorial disputes and mistrust among the government.

We have seen many treaties formed among the various states in these regions but the objective of these treaties has never materialised to a great extend. Also in the present scenario the growing regional powers in this region are not in good terms with each other. The bigger states like India and China see each other with suspicion and in such cases it tries to assert its influence over its smaller neighbouring states. The geopolitical situations as well as the trade deficit of the smaller states make it more complicated on coming into terms on the water management issue.

It is not a problem of transboundary water disputes that led to a stalemate in making any progress on water management but the geopolitical issue is the main reasons which prevent the region from making any development in the regions. The situation demands for a solution which can only be done if the countries agree to cooperate with each other. The regional organisations with the help of international organisations need to act here. The objective of the SAARC that aims for cooperation among the South Asian countries will play a vital role here. Also, the countries need to understand the importance of the matter. Millions of lives are in danger as most of these countries have an agricultural economy and without fair sharing of river water, it is the common mass which will be effected the most.

SAARC – A Platform to Address River Water Disputes

Asmita Topdar[1]

ABSTRACT

Rivers form the economic, cultural and political backbone of a nation. From times immemorial, rivers like Ganges, Brahmaputra, Indus, Teesta, Mahakali, Kabul have contributed to the formation of civilisation in South Asian countries. These Rivers are the source of livelihood for millions of inhabitants in the region. However, for the last few decades it has become a bone of contention among these countries. The problems of water shortage, construction of hydro-power plants and drawing of more waters by the neighbouring countries are some of the reasons why the member countries have ended up having disputes with each other.

This paper aims to analyse the common grounds for conflicts over water by studying the various water disputes which exist between the countries even after entering into water treaties. This paper will try to bring up various ways by which SAARC can act as a uniform covenant and ensure regional cooperation in South Asia under aegis of comity of member states.

ABOUT SAARC

The idea and need for political and economic collaboration among the countries in South Asia led to the formation of The South Asian Association for Regional Cooperation (SAARC). It came into existence with the signing of the SAARC Charter by the member countries in Dhaka on December 8, 1985. It is comprised of

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Bangladesh, India, Pakistan, Bhutan, Sri Lanka, Nepal, Maldives and Afghanistan, the latest entrant to the association in the year 2007.

SAARC aims at improving the quality of lives of people in the member countries along with an intention to achieve social, cultural and economic progress in the region. Further, it works towards achieving a strong and cordial bond among the member countries whereby they would comprehend each others' problems and take efforts to solve the same. Other goals include promotion of active collaboration and mutual assistance in the economic, social, cultural, technical and scientific fields and strengthening their relations with other developing countries and to collaborate on matters having common interests in international forums. However, deliberations of the association on bilateral and contentious issues have been excluded. [2]

WATER – THE SOURCE OF CONFLICT

"Whiskey is for drinking; water is for fighting over"

-Mark twain

As the saying goes, it stands extremely correct in today's world where the concern over water scarcity has been growing day by day and the day is not too far where countries will end up waging wars over water against each other.

South Asia homes eight countries having population of 1.4 billion people that is 24.78% of the total world population. The total surface area covered by these countries is about 5.2 million km2 which estimates to 3.5% of the world surface area. South Asia's per capita availability of water in 1995 was only 2,665 cubic metres as against the world average of 7,000 cubic metres, thereby indicating a possible shortfall of water in the future.[3] According to survey, it was estimated

[2] http://saarc-sec.org/about-saarc; Accessed: 12-03-2018 14:35

that there will be a surplus of 2,737 billion cubic metres (BCM) of water by 2025 in South Asia.[4] However, the concern is the unequal distribution of water which is expected to take place as per the findings of the report. Only Pakistan will be facing a shortfall of 102 BCM by 2025.[5] This does not imply abundance of water in other regions. Poor leadership, insufficient treaties, increasing population and poor economy are some of the factors which have led to the concern over depleting water resources thereby causing water disputes among the eight countries in the region.

India shares her borders with all the countries in SAARC except Sri Lanka and Maldives. Besides India, Afghanistan and Pakistan are the only next set of countries sharing their borders. No other countries in South Asia, other than these two sets of countries, share their boundaries with each other. From this description, it is obvious to conclude that India is the only country to occupy the prominent position with major water disputes among them. However, this cannot be the reason for India to be ignorant towards the other water disputes in the region. With an increase in demand for water and decrease in water supply, the member countries have been compelled to collaborate together by entering into bilateral treaties. However, these treaties have not proved to be quite effective and successful as the problem of water discourse still continues to exist.

South Asian countries have still not been able to develop and structure an arrangement to resolve this issue with the existing treaties

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[3]K.N. Adhikari, Conflict and cooperation on South Asia water resources, XIV no. 2, IPRI, 45-62, 46 (May,2014) http://www.ipripak.org/wp-content/uploads/2014/10/3-article-s14.pdf
Accessed: 12-03-2018 17:55

[4] K.N. Adhikari, Conflict and cooperation on South Asia water resources, XIV no. 2, IPRI, 45-62, 46 (May,2014) http://www.ipripak.org/wp-content/uploads/2014/10/3-article-s14.pdf
Accessed: 12-03-2018 17:55

[5] K.N. Adhikari, Conflict and cooperation on South Asia water resources, XIV no. 2, IPRI, 45-62, 46 (May,2014) http://www.ipripak.org/wp-content/uploads/2014/10/3-article-s14.pdf
Accessed: 12-03-2018 17:55

going haywire thereby leading to water disputes and tensions in the region. In this context, this article tries to analyse the common ground on which all the water disputes are based and will also try to find the answer for the question whether SAARC can provide a uniform covenant to address such non-cooperation among the country members. An attempt will be made to look into the various bilateral treaties relating to water issues existing in the region.

VARIOUS TREATIES GOVERNING WATER DISPUTES IN SOUTH ASIA

There exist several water disputes between the countries in South Asia. Some of them are governed by bilateral water treaties. However, a study has shown that signing such treaties has not assured complete solution to the existing water discords.

- **The Ganges Treaty 1996**

This treaty was signed between Bangladesh and India wherein it was agreed that the two countries will share the river water at the Farakka Barrage near their mutual borders. The Ganga water dispute between the countries had been in limelight for many decades. The dispute started way back in 1951 when Bangladesh was known as 'East Pakistan' and was under the governance of Pakistan. India unilaterally started building the Farakka Barrage, 18 kilometres upstream from Bangladesh border, thereby diverting waters by a 26 mile feeder canal in order to preserve the Kolkata port by improving the regime and navigability of the Hooghly River.[6] Since the construction of the Farakka Barrage, Bangladesh has been a witness of drastic decrease in the water flow of Ganges in Bangladesh along with decrease in the amount of sediment. This resulted into a serious bilateral dispute which forced Bangladesh to bring this issue in the international forum for

[6] Ashok Swain, The Farakka effect: If honeybees migrate, why not people?, (Apr. 7, 2017) http://indiaclimatedialogue.net/2017/04/07/farakka-effect-migrate-people/

discussion. Various agreements were signed between 1975 and 1988 for sharing water but nothing could work out. Finally in 1996, with a change in the government of both the countries, a 30 year bilateral treaty named The Ganges Treaty came into existence. Although it might have strengthened the bilateral ties between India and Bangladesh, the treaty failed to bring any significant and effective resolution for the downstream country.

Improper water allocation has rendered the water treaty unacceptable to the mass. The treaty divides the river water without taking into account the usages and benefit sharing. It is solely an arrangement for the volumetric allocation of river flow in the dry season. It does not concern benefit sharing, nor does it purport to be a comprehensive river sharing and management treaty. [7] Instead, the Ganges Treaty establishes India's right to withdraw up to 40,000 cusecs of flow at the Farakka Barrage between 1st January and 31st May every year. If availability of water at Farakka falls below 70,000 cusecs, the flow will be equally divided between the two countries, while guaranteeing a minimum of 35,000 cusecs of water to each member, over alternating 10-day periods between 11th March and 10th May annually.[8]

Moreover, the water allocation mentioned in the treaty is based on the average water flow between 1949 and 1988. Although the treaty was signed in 1996, it failed to consider the usage of water during the previous 8 years (1989 to 1996) period prior to signing of the treaty. Although this immediately previous period of 8 years before signing the treaty was substantially long and significant to analyze the trend of current usage of water, it was not taken into consideration during the framing of the water treaty in 1996.

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[7] Paula Hanasz,Sharing waters vs Sharing rivers: the 1996 Ganges Treaty, Global Water Forum (Jul. 28, 2014) http://www.globalwaterforum.org/2014/07/28/sharing-waters-vs-sharing-rivers-the-1996-ganges-treaty/

[8] Paula Hanasz,Sharing waters vs Sharing rivers: the 1996 Ganges Treaty, Global Water Forum (Jul. 28, 2014) http://www.globalwaterforum.org/2014/07/28/sharing-waters-vs-sharing-rivers-the-1996-ganges-treaty/

Not only reduction in water flow, Bangladesh also faces the problem of flooding due to this water allocation arrangement provided by the treaty. This treaty allows India to draw a maximum of 40,000 cusecs of water irrespective of actual water available. Even if the river water breaches the water banks (that is 20,00,000 cusecs) leading to a flood situation in Bangladesh, there is no recourse available in the treaty for Bangladesh to escape from the threat of flood whereby upstream India would be allowed to draw additional water from the river by acting as a saviour.

These issues have not been addressed by the treaty between these countries thereby acting as bone of contention between India and Bangladesh.

- **Brahmaputra river water as a bone of contention**

The Brahmaputra, also known as Yarlung Zangbo in China, originates from the northern sector of Himalayas which is located in Tibet. Before draining into Bay of Bengal, it travels a total distance of 2900 kilometres from China, India and Bangladesh.

Due to depleting aquifers, climate change, urbanisation and rapid population growth, there has been a rise in the increasing tensions between India and China. To add fuel into the fire, China has been giving India apprehensions because of their multiple dam building agendas which are in progress of taking their shapes in that sector on the Brahmaputra River. China's plan to tap the untapped Tibet water for hydro power generation has created immense ruckus in the South Asia's downstream riparian countries including Bangladesh, Laos, Cambodia, Vietnam, Myanmar and India as it will put in danger the lives of millions staying in this region.

The major factor which can even lead to water wars between these two countries is the recently introduced plan which will build a 1000 km long tunnel to divert Brahmaputra water from Tibet to Xinjiang, a barren region in northwest China. By quoting an anonymous geotechnical engineer, a South China Morning Post (SCMP) report brought to the notice that this proposal if brought into shape can

transform Xinjiang into California.[9] On the other hand, this will make India witness a green patch of region in Assam turning barren.

These projects have not only created apprehensions for Indians but Bangladeshis too.

At present, there is no water sharing agreement on these issues between India and China thereby giving no umbrella of protection to the general public.

- **The mahakali treaty 1996**

This treaty was signed between India and Nepal in 1996 after the failures of Kosi and Gandak agreements. This treaty was formulated with the aim of having integrated approach towards water resource development along with its use by the two countries on the Mahakali River.

The Mahakali River is the confluence of Kali River and Kuthi-Yankti River originating in the Himalayas. It flows south west making various oxbow lakes and draining an area of 188 km^2 in Nepal. The maximum annual discharge of the water is 1,066 cumec.[10] It also serves as a western border between these two countries along the state boundary of Uttar Pradesh. It enters India with the name Sarada River which meets the Ghagra River in Uttar Pradesh. It gradually flows towards east in the state of Bihar when it joins the River Ganga. Later on, she ends her journey by draining in the Bay of Bengal. Thus, Mahakali River is the International River making her way through two countries namely Nepal and India.

The scope of the Treaty covers the Sarada Barrage, the Tanakpur Barrage and the proposed Pancheswar project.[11] This

[9] Manu Balachandran, China's Planning a 1,000 km tunnel to divert water away from one of India's largest rivers, Quartz India (Oct.30, 2017) https://qz.com/1114843/chinas-grand-plan-for-the-brahmaputra-a-1000km-tunnel-to-divert-water-away-from-tibet/

[10] Salman M. A. Salman & Kishor Uprety, Conflict and Cooperation on South Asia's International Rivers 97 (2002)

[11] http://nihroorkee.gov.in/rbis/Mahakali_treat.htm; Accessed: 17-03-2018 10:35 AM

treaty absorbed the regime established by the Sarada treaty, validated the controversial Tanakpur Agreement and endorsed the idea of a new multipurpose project the details of which, at the time of conclusion, still needed to be worked out. [12]

With signing the treaty, the two countries have come to a consensus where Nepal will be withdrawing 150 cusecs of water from the Sarada Barrage in dry season and 1000 cusecs in wet season, with a section in the preamble specifically emphasising on the fact that Nepal will continue to be entitled to this water supply even if the barrage becomes non-functional. In order to maintain the ecological balance, India will be required to maintain run-off of not less than 350 cusecs in the Mahakali River downstream of the Sarada Barrage. This treaty also entitles Nepal to a continuous supply of electricity of 70 million kilowatt hours. The treaty reaffirmed Nepal's sovereignty over 2.9 hectares required for constructing the eastern afflux bund along with 9 hectares of poundage region.[13] The treaty deals with the construction of the Pancheswar project which is a joint Indo-Nepal project on their mutual borders but the progress in the treaty's implementation regarding this project has been sluggish. A joint detailed project report (DPR) was to be prepared within six months of the treaty's effective date, but due to various political and technical conflicts between the two countries, it could not be accomplished. Though there have been signs of improvement and progress in this project, but a clear impasse regarding the Mahakali Treaty still continues to exist.

Although the treaty has incorporated the principles of 'equal distribution' and 'no harm', the treaty does not lay down clear provisions with regard to the sharing of the Mahakali River water between India and Nepal, thereby giving rise to various conflicts

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[12] Salman M. A. Salman & Kishor Uprety, Conflict and Cooperation on South Asia's International Rivers 101 (2002)

[13] Ramaswamy R Iyer, Water: Perspectives, Issues, Concerns 225 (2003)
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between the two countries. The treaty without specifying the nature of use of the water by the two countries protects the 'respective consumptive use of the waters of the Mahakali River'. [14] There also lies difference in interpretation of the treaty by the two countries where Nepal argues that since Mahakali is the boundary river, both countries should withdraw the river water equally. On the other hand, India opposes this argument on the ground that no river can be divisible. No country can claim ownership over a natural resource. As understood by the treaty, the 'equal sharing' pertains to the joint incremental benefit, the two countries will avail from the Pancheswar project and this relative benefit gained by these countries will determine the respective share in the cost of the project.[15] These faulty provisions still leaves a big dent in the treaty.

- **WATER DISPUTE BETWEEN AFGHANISTAN AND PAKISTAN – STILL UNRESOLVED**

Pakistan and Afghanistan share common history, culture and various natural resources. These countries share seven trans-boundary rivers with most of the rivers having their source of origin in Afghanistan. Among these rivers, the sharing of Kabul river water has generated differences leading to serious tensions between the two countries. The point which should be noted that in spite of sharing seven rivers, the two countries never entered into bilateral treaty with each other. Interestingly, Afghanistan despite the fact that it shares almost 90% of its river water with its neighbours, till date, has only one bilateral agreement, with Iran. The absence of a formal water treaty has left a mark of hostility leading to a sour relationship between the two.

The Kabul river (a tributary of Indus River), over which lies the conflict, originates in Himalayas, travels 700 km, first makes its way to Afghanistan irrigating the major cities of Jalalabad and Kabul before entering into Pakistan via Khyber Pakhtunkhwa.

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[14] K.L. Shrestha, Mahakali Sandhi Ra Rastriya hitko Sawal (The Mahakali Treaty and the Question of National Benefit), Kathmandu: Sumitra Shrestha, 32 (1997)
[15] K.L. Shrestha, Mahakali Sandhi Ra Rastriya hitko Sawal (The Mahakali Treaty and the Question of National Benefit), Kathmandu: Sumitra Shrestha, 33 (1997)

Reasons for the complexity in the disputes can be attributed to concern over environmental change, availability of sufficient water, varied climate and drought like situation in the countries.

In order to meet irrigation, power generation and water shortage, Afghanistan government has been working on a plan to construct twelve dams on the Kabul River. These dams, once built, will serve mainly as a source of hydropower, with a total potential of about 2400 megawatts thereby, reducing the gap between 670 megawatts produced and the 3571 megawatts required by the fast growing population of the country.[16]

The construction of hydropower projects will enable the country to cultivate additional land of 16400 hectares. The project will also help in increasing the water storage capacity from 3% to 24% of the annual surface water availability.[17] Kabul will witness an improved domestic water supply thus helping in lessening the burgeoning burden presently experienced by the ground water resources.

These projects however prove to be a point of concern for the neighbouring country of Pakistan who depends on the water from these rivers mostly for her irrigation purposes. According to a report, it has been estimated that construction of such dams can lead to 16% to 17% drop in Pakistan's water supply.[18] The major concern for Pakistan is over the fact that the proposed construction of dams will confer unjust rights on Afghanistan to withhold water from the Indus Water Treaty during the dry season and releasing the same during the wet season which will have a serious impact on the agricultural sector of the country.

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[16] Raza Ullah & Farhad Zulfiqar, Transboundary Water Issues between Pakistan and Afghanistan, https://www.iasc2017.org/wp-content/uploads/2017/07/13I_Raza-Ullah.pdf; Accessed: 18-03-2018 11:35 PM

[17] Raza Ullah & Farhad Zulfiqar, Transboundary Water Issues between Pakistan and Afghanistan, https://www.iasc2017.org/wp-content/uploads/2017/07/13I_Raza-Ullah.pdf; Accessed: 18-03-2018 11:35 PM

[18] Sharing Water Resources with Afganistan, DAWN (Nov. 13, 2011) http://www.dawn.com/news/673055/sharing-waterresources-with-afghanistan

Hydel Power projects of Afghanistan on River Kabul [19]

Sr. No.	Name of the project	Name of the basin of Kabul River	Capacity (in MW)
1	Totumdara	Panjsher	200
2	Baghdara	Panjsher	210
3	Barak	Panjsher	100
4	Panjsher	Panjsher	100
5	Kama	Lower Kabul Sub-basin	11.5
6	Konar	Lower Kabul Sub-basin	94.8
7	Laghman	Lower Kabul Sub-basin	1251
8	Sarobi	Lower Kabul Sub-basin	210
9	Tangi Wadag	Logur Upper Kabul Sub-basin	56
10	Haijana	Logur Upper Kabul Sub-basin	72
11	Gat	Logur Upper Kabul Sub-basin	86
12	Kajab	Logur Upper Kabul Sub-basin	15

Thus there is an urgent need for both countries to enter into an agreement before it becomes unattainable thereby leading to serious conflicts. It is better to be late than never.

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[19] Shakeel Azam, Kabul River Treaty: A Necessity for Peace and Security between Afghanistan and Pakistan, and Peace in South Asia, 31, GUJR, 134-145, 137(Dec,2015) http://www.gu.edu.pk/New/GUJR/December_2015_PDF/_13_%20Azam_%20KABUL%20RIVER%20TREATY%20A%20NECESSITY%20FOR%20PEACE-N-SECURITY%20BETWEEN%20AFGHANISTAN%20AND%20PAKISTAN,%20AND%20PEACE%20IN%20SOUTH%20ASIA.pdf; Accessed: 18-03-2018 11:45 PM

- **THE INDUS WATER TREATY**

A major breakthrough in the history of India and Pakistan came in the year 1960 when the two entered into a water sharing agreement of the River Indus which has successfully stood as a wall of protection withstanding three major wars between the countries. In international forum, the treaty has achieved the position of successful conflict resolution mechanism.

Indus, one of the Asia's longest River, takes birth in Tibet near the Manasarovar Lake, leads her way to Ladakh and enters Pakistan via Gilgit-Baltistan, takes a turn and starts flowing along the length of Pakistan in the southern direction before draining herself in the Arabian Sea. This river system comprises of five main tributaries namely Beas, Ravi, Sutlej Chenab and Jhelum.

During the partition in 1947, the once domestic issue with Indus water sharing had become an international one. However, due to non demarcation of land borders between the countries, the allocation of water was not dealt by the British Act of Parliament. Radcliff had commented during partition, 'in this deliberations did acknowledge the importance of the Indus system to both countries, but did not make any explicit recommendation other than to hope that they would work together in finding a solution'. [20] With the persistent conflicts with the river water sharing, after entering into various agreements and determining the modus operandi finally the two countries in 1960 entered into the landmark Indus water treaty under the mediation of the World Bank.

The treaty provides for mechanisms where the two countries can exchange information while cooperating with each other on sharing the river water. A comprehensive dispute resolution mechanism is constituted whereby the conflicts will be resolved by the Permanent Indus commission. No doubt it emerged as the most successful treaty

[20] Salman M. A. Salman & Kishor Uprety, Conflict and Cooperation on South Asia's International Rivers 37 (2002)

till date which could withstand many wars; however it has not been received positively by some of the complainants.

Highly technical and ambiguous provisions provide ample opportunities for misinterpretation of the treaty. Two countries can interpret the same provision in their own beneficial manner thereby opening doors for fresh debates. One such debate can be on the use of the term 'run-of the river'. There lies a confusion in the meaning of the word - whether this term constitute 'storage' or not. In clear definition, 'run-of the river' infers non existence of any storage. However, even such projects involve construction of some structures and any construction can lead to reduction in volume of water flow thereby leading to a creation of minimal storage. The treaty prohibits storage construction by India on the western rivers except to a limited extent, but permits run-of the river schemes subject to certain conditions.[21] There is difference of interpretation between India and Pakistan on the term 'run-of the river'. Pakistan view this as storage as against India's interpretation of run-of the river.

Secondly, the issue is concerned with the nature of allocation of the rivers. With western rivers being allocated to Pakistan, it restrains India from carrying out any kind of development projects over those rivers although the treaty has provided some limited permissions. It requires India to send all the technical data and information about its development projects to Pakistan. Here start all the conflicts because transferring such data raises concerns over India's national security. Pakistan on the other side strongly disagrees on such construction activities on the rivers allocated to her as it would give control on the hands of India.

Although the treaty has achieved international standards for preventing water war between India and Pakistan, there still exists discord due to the lacunas present which are yet to be settled.

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[21] Ramaswamy R. Iyer, Indus Treaty: A Different View, Economic and Political Weekly, 40, 3140-3144 (Jul. 2005) http://www.jstor.org/stable/4416904; Accessed: 20-03-2018 9:45 PM

CONCLUSION

An eagle eye over the causes of water disputes across the SAARC countries over last few decades portrays striking similarities. All the water disputes in these countries have some common reasons. Some of these disputes led the concerned states to enter into bilateral water treaties. However, these treaties have demonstrated that signing a legally binding agreement does not always resolve such disputes because of non-cooperation between the parties.

Water crisis in the South Asian region has been the paramount rationale behind the burgeoning water discords among these countries. The threat of increasing water shortage, which can lead to drought, has taken the centre-stage of all major disputes. Countries are therefore constructing water storages and hydro-power plants on the major trans-boundary rivers in order to primarily address their future water requirements. Such constructions cause concern for the neighbouring countries over their water needs. Such concerns gradually take the shape of conflicts between the countries and thereby impelling them to enter into bilateral treaties over water with the hope of getting justice over unequal water sharing. However, as intended, the outcome of treaties does not always fall in line of expectation. Innumerable challenges emerge after signing of the treaty. Ambiguous clauses in the treaties, mistrust between the countries, weak negotiations, other political, environment and climatic factors are some of the challenges which cause hindrance to the success of the treaty. Two countries, member to a treaty, interpret the same clause in two different ways in order to protect their respective interests.

RECOMMENDATIONS

Being a top level joint forum of all the South Asian countries, SAARC platform can be utilised to address all the related challenges to arrive at an acceptable consensus by mutual discussion and a long term understanding of peaceful co-existence. SAARC can provide a uniform covenant which will bind all the member countries to facilitate discussions and address the issues of water disputes on the following grounds:

- It can ensure and facilitate joint water storage by constructing a common warehouse for water on major trans-boundary rivers between the countries where running river water will be collected till a specified limit and the rest of the water will be allowed to run-off to ensure the natural flow. Water from this storage can be distributed to the member countries based on the actual requirement of water by each country, depending on factors like population, water usage, irrigation requirement etc. based on actual usage of water over a period, requirement of water by the member countries can be fine-tuned further. This arrangement can be monitored by a committee appointed by SAARC in line with the existing SAARC Disaster Management Centre to handle disasters in South Asian Countries.
- Member countries should join hands for watershed management in order to ensure superior quality of water to its mankind.
- Additionally, it can guide the countries in defining policy matters for formulation of water treaty which may include an enabling clause either to allow or compel upstream country to withdraw more cusecs of water than what has been agreed between the two countries in order to save the downstream country from possible floods. Also a proper and unambiguous clause regarding Alternate Dispute Resolution mechanisms and inland water transportation could be inserted in the treaty.
- It can facilitate formation of a uniform information sharing platform on trans-boundary water disputes which can be utilised as an effective tool by the member countries for collecting and sharing data. It shall also provide with timely information on potential threats including floods.
- Annual assessment of the existing and proposed hydro power projects on the trans-boundary Rivers and corrective actions on the findings can be initiated by SAARC in order to ensure and maintain regional cooperation among the countries in South Asia.

After all, healthy deliberations, desire of peaceful co-existence, prioritizing the concerns of mankind irrespective of their origin, respect to each other can lead to successful end of water discords in the South Asian countries. This will also help in overall development and economic growth of the region leading to better lives of the inhabitants in these nations.

'TRANSBOUNDARY WATER CONFLICTS IN SOUTH ASIA- TOWARDS WATER FOR PEACE'

South Asia struggling for water : A short study

Nouria Rafi[1]

ABSTRACT

"The Earth is one but the world is not. We all depend on one biosphere for sustaining our lives. Yet each community, each country, strives for survival and prosperity with little regard for its impact on others." (Brundtland Commission's Report, Our Common Future, 1987)

South Asia, being the biggest reservoir of fresh water, has been witnessing conflicts over the resource. Such conflicts may be attributed to the growing demand and decreasing availability of the resource. But this may notbe correct to say that all problems related to water can be reduced only to "scarcity"; the issue of distribution is also equally important and in most of the conflicts there is a perceived unfairness in the distribution of this "scarce" resource. Though water conflicts are seen as negative occurrences, they are logical developments in the absence of proper democratic, legal and administrative mechanisms which are the root cause of these conflicts. This article is a preliminary effort to understand the very nature of water conflicts engaging India with other South Asian nations. It attempts to highlight the water profile, causes and the detailed account, past and present, of such peculiar tussles. Finally the paper examines the possible ways to address and work towards the governance of these conflicts.

Keywords- governance, scarce resource, water conflicts.

INTRODUCTION

Water is said to be the mainstay of all civilizations until humans learned to bring water to where they lived and tilled. Water is important for

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most South Asian countries because they have a short, well defined monsoon in which most of the rainfall occurs and has to provide for the rest of the period, especially the scorching summer which is relieved only in places with thick and perennial cover. South Asia has four major rivers basins - Brahmaputra, Indus, Ganges and Meghna which provide livelihood to millions of people.South Asia is a region with the largest amount of untouched freshwater resources. In the past, water was mainly used for domestic and agricultural purposes. New demands are emerging from other sub-sectors such as hydropower and other industries. Urbanization has become a key issue that has serious impact on both water demand and quality increasing water shortage has made South Asia a water-stressed region, thus, water becoming a scarce resource and the rivers are also becoming a bone of contention between countries.As a result, Water disputes in South Asia' Water issue is gradually becoming the prime focus between the interstate relations.

In 2003, UN Secretary General Kofi Annan stated that "….in addressing the root causes of armed conflict, the U N will need to devote greater attention to the potential threats posed by environmental problem." He was articulating a globally felt need of linking 'security' and the so called 'soft threats' such as environmental degradation and poverty.[2]However, most of South Asian 'security debates' continue to revolve around national security and high politics and ignorance of such soft threats. It appears that, various environmental issues are getting regionalised and politicised. Against this broad backdrop, politics has appeared to be environmentalised.[3]For Instance, protests against the Farakka dam originally rooted in the sufferings of people and environmental degradation of Bangladesh, took a communal turn among many sections of the population.[4]Water has been a cause of conflict since ancient times. One of the earliest water conflicts in the sub-continent is recorded in the famous Goutama Buddha Kappiyam: a

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[2] Kofi Annan, Interim Report of the Secretary-General on Prevention of Armed Conflict, September, 2003.

[3]Richa Singh, "Trans-boundary Water Politics and Conflicts in South Asia: Towards 'Water for Peace" 7*Centre For Democracy And Social Action (CDSA).*
[4]RonojoySen, "And a river runs through it" *The Times of India*, Mar. 12, 2005.

conflict over the sharing of Rohini river water between the Sakyan and Koliyan clans, which was, according to Dr. Ambedkar, the cause of the Buddha‟ s leaving home. Conflict rages on: replace riverRohini with any of rivers in South Asia, and the Sakiyas and Koliyas tribes with riparian nations. Except that there is no Buddha in our midst.[5]

Wars continue to be fought over oil and not water? Here's the importance of studying the issue, by not giving credence to the water war thesis,

Water insecurity is all pervasive in the region, visible in conflicts and tensions erupting within and across countries. The questions of sharing, and management of trans-boundary water continues to be an irritant. The fact that South Asia lacks a regional framework for water governance only magnifies these conflicts. The governance of trans-boundary rivers has been carried out through bilateral treaties signed by different countries and India, treaties that themselves have been sites of conflict. At one level, the dominant discourse remains one of 'security' defined in narrow militarized term as 'national security,' and as a thing apart from human or resource security. At another level, regional cooperation in South Asia is increasingly getting defined in economic terms. Consequently, there is a push to perceive water as an 'economic good,' a tradable commodity to be left to the market forces. Such approach threatens the recognition of water as a common pool resource. Clearly, the battle in much of South Asia to establish a framework for water governance that is fair, equitable, and environmentally sound is far from over[6]

BRIEF STATE OF WATER RESOURCES IN THE REGION

South Asia is a region of both water abundance and scarcity. The Hindu Kush-Himalayan region (HKH) is one of the largest storehouses of

[5]Guhan, S., *The Cauvery River Dispute: Towards Conciliation*47 (Frontline Publication, Kasturi and Sons, Madras,1993).

[6]Richa Singh, op.cit, p.7-8. See Also Ajaya Dixit, "Rivers of Collective Belonging" *Himal South Asia*, Aug. 2003.

fresh water in the world, and its mountains are the source of major river systems.[7] South Asia is inhabited by 1.4 billion people and home to 40 per cent of all those living in poverty worldwide. The IGB basin alone supports over half billion people (10 percent of the world's population), an area where poverty is endemic and agriculture forms the main basis of livelihood. Hence, though theoretically the availability of water is high, access to water remains one of the major challenges. Water supply remains seasonal in nature. About 80% of the total annual flow occurs between June to September, with the remaining 20% occurring during the rest of the months. This poses a threat both to water as an environmental resource as well as means of survival.[8]A study by International Water Management Institute (IWMI) indicates that the per capita water availability would decrease and the overall demand for water in most of the South Asian countries would increase keeping in step with the increasing population as well as the increased demand from certain sectors.

TRANS-BOUNDARY WATER CONFLICTS:AN ANALYSIS

In an analysis Peter Gleick of Pacific Institute for Studies in Development, Environment, and Security (Oakland, CA, USA) states that these conflicts stem from the drive to possess or control another nation's water resources, thus making water systems and resources a political or military goal. Inequitable distribution and use of water resources, sometimes arising from a water development, may lead to development disputes, heighten the importance of water as a strategic goal or may lead to a degradation of another's source of water. Conflicts may also arise when water systems are used as instruments of war, either as targets or tools" .[9]

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[7]BhimSubba, "Himalayan Waters"*Panos South Asia,Kathmandu, Nepal*, 2001.
[8]WASSA, Project Report on "Water Sharing Conflict among Countries and Approaches to Resolving Them" (Water and Security in South Asia, 20 Vol. 3).
[9] The Pacific Institute for Studies in Development, Environment, and Security has developed a global water conflict chronology starting from 3000 BC to October 2006. The Chronology indicates that, compared to other parts of the world, incidents of water conflicts seem to be more of a twentieth century phenomenon in South Asia.

Conflicts between countries are generally classed as trans-boundary conflicts. Given the atmosphere of hostility, 'upstream downstream' syndrome, 'unequal' partnerships, lack of definitive international laws, regional principles or enforceable global conventions, a number of conflicts has erupted in South Asia on trans-border water issues. Numerating other such causes, these include, increasing populationgrowth in South Asia, as the growth rate does not match the increase in water resources, therefore, the needs of population are not be met adequately; treaties which are weak are those which may be ambiguous, do not anticipate future trends and those with loopholes among others has been one major factor of dispute too; Leadership where the leadership is weak, the available resources are misappropriated or used for the benefit of a few. Further, Climate change of South Asia has had severe impacts on available resources that include environmental destruction and weather conditions include drought, floods, heat, waves and others.

BRIEF ACCOUNTS OF SOUTH ASIAN WATER CONFLICTS

India and Pakistan The dispute between India and Pakistan can be partly blamed for weak leadership which is hesitant in solving the issues present. However, In regard to the bitter relations between both countries, World Bank mediated the 'Indus Water Treaty (IWT)' in 1960 which was signed between India and Pakistan. The Indus water treaty allocated three eastern rivers (Ravi, Sutlej and Beas) to India and three western rivers (Indus, Jhelum, Chenab) to Pakistan which is still exercised today. Provision of the Indus water treaty gave Pakistan rights

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The first mention of a South Asian water conflict in this chronology is that of the Farakka case between India-Bangladesh (1947) even though the first incident of water conflict in the Indian Subcontinent is dated back to the times of Buddha by this essay. Also the Chronology does not capture all different types of water conflicts in South Asia; for example many of the important conflicts in India are not covered in this chronology as shown in annexure one In order to capture the whole complexity of water conflicts within the region the major themes are elaborated upon in the rest of this section.

on waters of the Indus, Jhelum, and Chenab 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 of Indus water treaty covered the conditions under which India could use waters of Western Rivers; a) Domestic Use b) Non-Consumptive use c) Agricultural Use (limited) d) Generation of Hydro-electric Power e) Storage Works (limited). The Asian Development Bank report states that, Pakistan is one of the most water stressed countries in the entire world. According to projections, India will become water stressed by 2025. Pakistan is likely to be classified as water-scarce soon, and India is set to become water-scarce by the year 2050. The reason why Pakistan suffers with water is because of its lower riparian status. The country does not have a good supply-side management structure. This results in wastage of almost 35% of its water resources. Imbalance in water distribution across Pakistan is another reason for some areas getting less water than required. Even today, in many reports by UN, a clear warning for Pakistan and India has been extended. These two nuclear armed neighbors have already experienced wars and conflicts. India's need for water has grown over time and now they feel least hesitant to stop Pakistan's water supply. India has become thethird country to build most dams. India had planned to build dams that would hinder the water supply in Pakistan. Such disputed dams are:

BAGLIHAR DAM DISPUTE:

On Chenab, Baglihar hydro-electric project is being constructed in the southern Doda district of Jammu & Kashmir. This project was approved in 1996 and the construction on it began in 1999. Pakistan was left with no choice but to move the World Bank for arbitration provided in IWT. In 2007, the design of Baglihar hydropower project was approved, ignoring the appeal of Pakistan. The design was completed on October 10, 2008 as Pakistan has asked India to inspect it before its operationalization.[10]

[10]This brief write up on the Baghliar Hydropower Project is based on:SinhaRajesh, "Two Neighbours and a Treaty:Baglihar Project in Hot Waters" in Joy K. J. et al (ed.)*Water Conflicts in India: A Million Revolts in the Making*396-402 (2007).

KISHENGANGA HYDRO-ELECTRIC PROJECT:

The 330-MW Kishenganga hydro-electric project is about to build on Nelum River as it will create a large reservoir of water. Pakistan has pointed out that India has redesigned Kishenganga project. This project will address some environmental concerns within Pakistan and will leave little water for Nelum Valley. Pakistan has also pointed out that India cannot divert water from rivers allocated to Pakistan according to IWT. Although, the construction work has not begun yet, surveys have been conducted and people of the Gurez Valley are expressing environmental concerns.

Both the projects lie in the state of Jammu and Kashmir and are perceived as being guided more by India's geo–strategic concerns vis-a-vis Pakistan and by its larger geo-political manouvers in South Asia, rather than for the development of Jammu & Kashmir as stated by the Indian government.

WULLAR BARRAGE:

The Project was started by India in 1984, halted in 1987 after Pakistan raised objections. India is insisting on revival of work on this project while Pakistan has asked India to abandon it as itcan 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. 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 issue.

If one were to look at the conflict between India and Pakistan through watery frames it does reflect is that there is serious insecurity in Pakistan about India's strategic control over the Indus water systems. . In March 2003, prime minister of Pakistan-occupied Kashmir Sikandar Hayat went to the extent of suggesting at a seminar that the "freedom fighters of Kashmir are in reality fighting for Pakistan's water security.[11] At one level the apprehensions are over India withholding the water for an extended period, especially during the dry season. This carries

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[11]RonojoySen, op. cit.

disastrous implications for Pakistan. For Mangla Dam which is a source of irrigation and electricity for Punjab, would be adversely affected.

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. These rivers serve as natural surface water resources in Bangladesh. Bangladesh major problem is too much water in the monsoon and drought in dry season. Still, rapid population growth, economic activities and climate change putting are stress on water resources. Dhaka has serious differences with New Delhi over the sharing of Ganges, Brahmaputra and eight other rivers. Sharing of the waters of Feni, Manu, Muhuri, Khowai, Gumti, Dharala and Dudhkumar rivers is also creating problems between Bangladesh and India. 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 present in West Bengal. It was to divert water by the Bhagirati system as its aim was to benefit port of Calcutta. Bangladesh objected to this but India began construction which was completed in 1974. Water shortages occurred in Bangladesh by blockade of the Ganges by Farakka barrage and sudden water releases could have caused floods and extensive damage. India consulted Bangladesh for test operation of feeder canal. The PM of Bangladesh, Sheikh Mujib agreed to India's proposal for test operation of the barrage and feeder canal. Initially, in 1975 India was allowed to flow river for a period from 21 April-31 May 1975 with the deal that India will not operate feeder canal until a final agreement was reached between India and Bangladesh on the sharing of Ganges water.However, India started diverting the Ganges waterin 1976-1977, violating the deal. It affected environment, agriculture, industries, fisheries and 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 cubic kilometer for Bangladesh and 20,500 cubic kilometer for India. India is planning to

build a project to divert water of Ganges and Brahmaputra. It is also a 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. Although, 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 India. Moreover the conflict between India and Bangladesh has been heated up due to Tipaimukh Dam.

TIPAIMUKH DAM:

Indians are constructing 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 as it is done without taking Bangladeshi government into confidence. It will have damaging effect on agriculture of Bangladesh as it is drying up Kushera and Sumra River over there which are Bangladesh's major water outlets. It will also harmful to ecosystem and climate of Bengal. 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.[12]

INDIA-NEPAL

In India-Nepal issue, the major problem behind the water issue seems is the political mistrust which has escalating the conflict. Nepal is the upper riparian state in the shared Himalayan waters of South Asia. The

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[12] This brief write up on the India–Bangladesh conflict over sharing of the Ganga waters is basedon :SenSumita,"The Indo-Bangladesh Water Conflict: Sharing the Ganga" in Joy K. J. et al (ed.) *Water Conflicts in India: A Million Revolts in the Making*403-410 (2007). *See Also,*Vidal, J. "Troubled waters for Bangladesh as India presses on with plan to divert major rivers: UN urged to act amid warnings of social and ecological disaster" *The Guardian (London)*, Jul. 24 2003. Vidal (2003) as cited in Bandyopadhyay, Jayanta and ShamaPerveen, "The Interlinking of Indian Rivers: Some Questions on the Scientific, Economic and Environmental Dimensions of the Proposal" (2002). "Interlinking Indian Rivers: Bane or Boon?" IISWBM, Kolkata Jun. 17 2002. Peter Rogers, Alan W Hall, "Effective Water Governance" Global Water Partnership Technical Committee (TEC), Background Papers, No. 7. 2003.

major rivers of Nepal, like the Mahakali and Karnali fall into Ganges. The Karnali, SaptaGandaki and SaptaKoshi, 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. Nepal's hydropower generation capability is some 83,000 MW in total. As a upper riparian country, Nepal has a different relationship with India and faces many problems about the projects proposed by India. Nepal is concerned about the backwater effects of the proposed storages and link canals. Nepal's mistrust has been reinforced by the various unequal treaties, starting from Sharada Dam construction, Koshi Agreement, Gandak Agreement, Tanakpur agreement and Mahakali Treaty. In 1997 issue between both countries escalated when Nepal wanted formulation of treaty regarding their water channels. Both countries have their own claims about its source. India favors 'LipuLekh' as its source but Nepal favors the 'Limpiyadhura'. Sino-Indian border lies near this region and because of its close proximity it is very important. The Nepalese feel that they have been 'cheated' in these agreements and projects. Although opinion about Mahakali Treaty was divided in Nepal. The main issues pertain to potential benefit from these projects regarding flood control, irrigation and power generation.

MAHAKALI TREATY:

The Mahakali Treaty, signed in February 1996 between India and Nepal, pertains to sharing water of a river by the same name. Now the treaty has been ups and downs in its implementation. The Mahakali Treaty basically aims at an integrated development of water resources in the Mahakali River and has been finalized on the basis of equal partnership. The Mahakali originates in Nepal and forms the border between the two countries for a considerable distance. The scope of the Treaty covers the Sarda Barrage, the Tanakpur Barrage and the proposed Pancheswar project. The Mahakali Treaty is the establishment of Indo-Nepalese commission. This Commission is guided by the principles of equality, mutual benefit and no harm to either of the countries. The joint well reflected because the Commission will be composed of an equal number of representatives from both countries and its expenses also are to be borne equally by both India and Nepal.

Between India and Nepal, despite no overt conflict and a treaty of 'Peace and Friendship' between the two countries, India's "security" concerns have been an irritant in the relationship between the two countries. Problems have erupted over India's insistence to station its troop at Kalapani (a disputed territory) at the headwaters of Mahakali, and its control of the Kosi and Gandak barrages on common rivers in Nepal. In Nepal the feeling is that this compromises its sovereignty. India on the other hand feels that this is a matter of its national security arising out of the use of Nepalese territory by ISI agents and other outfits manoeuvered by third countries, a fear that has been aggravated by the hijacking of India Airlines from Kathmandu to Kandhahar.

INDIA-BHUTAN

India's water relations are stress-free and unproblematic with Bhutan. Bhutan's water abundance contributes to the country's hydropower production. Bhutan's dams have been developed with foreign aid, primarily from India, and it is India that is the largest customer of Bhutanese hydropower. India is connected to the Bhutanese hydropower through Chukha project, Kurichu, Chukha Stage II projects, and Tala Dam. The collaborative nature of the relationship between Bhutan and India in regards to transboundary water resource management that attributed to Bhutan's benefit and cater India's attempts on creating more equitable regional relations. India uses the utilitarian mechanism from Bhutan because Bhutan is heavily dependent on India for trade and almost entirely reliant on India for navigation and transport routes. For Bhutan, assistance gained from India in developing its hydropower capacity has been crucial in the socio-economic development of the country. Bhutan has the distinction of achieving the highest per capita income in South Asia by exploiting its hydropower reserves through environmentally sustainable projects which are mostly small in scale. Export of hydropower brings in more than half of Bhutan's total revenue. India's willingness to facilitate mutually beneficial outcomes with a cooperative partner such as Bhutan serves as a model for cooperation. India, unlike with other neighboring countries, share soothing relations with Bhutan only over hydropower projects.

The current relationship of India-Bhutan can be observed by the visit of India's PM, NarendraModi in 2014 who chose Bhutan as his first foreign destination, placing regional co-operation before global co-operation and has also promised to help to Bhutan in IT and digital sector.

INDIA-SRI-LANKA

Conflicts between India and Sri-Lanka are not based on any specified water outlets. Instead their disputes are based on fishery. Fishery is an important industry for both countries especially Sri- Lanka which contributes about 70% of GDP. The shallow Palk Bay is the scene of a transboundary fisheries conflict between trawl fishers from the Indian state of Tamil Nadu and small-scale fishers from Northern Sri Lanka, who are both dependent on Palk Bay's fishing grounds. Tamil fishermen in Northern Sri Lanka were restricted from fishing for most of the 26-year civil war, but have been slowly rebuilding their livelihoods over the past few year of a highly militarized environment. Aided by significant state subsidies, the Indian trawler fleet in the region expanded during the civil war period from a few hundred to approximately 1,900 trawlers, part of them filling the vacuum of abandoned Sri- Lankan fishing grounds. Over the years, Indian fishers became dependent on Sri Lankan waters to secure a profitable catch: if fishing in Sri Lanka were to be stopped most Indian trawler fishers and those dependent on allied fishing activities would be highly affected. Sri Lankan fishers, on the other hand, are furious about Indian trawlers fishing in their fishing grounds: they point out that trawlers not only turn the rich marine ecosystem into a marine desert, but also prevent them from fishing as their nets get damaged by Indian trawl nets. Fishing conflict fought between the Liberation Tigers of Tamil Eelam (LTTE) and Sri Lankan government armed forces from 1983-2009. Since 2009, the Sri Lankan government has pursued a policy of redevelopment with an important role for the military in governing society. This is ongoing grievances for the Tamil population and compromising any potential for reconciliation.Internationally, a pro-Tamil lobby with strong nationalist tendencies is exerting pressure on the Sri Lankan government to take steps to address alleged war crimes,

stop ongoing Tamil marginalization. Palk Bay was an important location during the civil war with the Sea Tigers (sea division of the LTTE) battling the Sri Lankan Navy. Both fisher groups are Tamil, sharing a long history and familial and cultural ties that resulted in moral support for the Tamil Eelam struggle from Tamils in Tamil Nadu. While there are claims and counterclaims as to who was responsible for the deaths of over 200 Indian fishermen, what is clear is that these deaths reinforced strong anti- Sinhala sentiments in Tamil Nadu. In the aftermath of the war, while the Navy has engaged in regular arrests and Indian fishermen do report occasional harassment, it appears to be no longer a matter of life and death. The Palk Bay is divided by an International Maritime Boundary, which was bilaterally agreed upon in 1974. Although the agreement was ambiguous about the fishing rights of Indians, there is widespread consensus that the Sri Lankan fishermen have legal and moral right on their side and that Indian trawling should be reduced. Yet the status quo of approximately 1,000 boats fishing regularly in Sri Lankan waters has hardly changed over the past few years.

INDIA-CHINA

China's grand plans to harness the waters of the Brahmaputra River (as known as the Yarlung Tsangpo in Tibet) have set off ripples of anxiety in the two lower riparian states: India and Bangladesh. China's construction of dams and the proposed diversion of the Brahmaputra's waters is not only expected to have repercussions for water flow, agriculture, ecology, and lives and livelihoods downstream; it could also become another contentious issue undermining Sino-Indian relations.

Chinese construction of dams and water diversion projects threatens the downstream countries. Beijing's plans for the Brahmaputra include two kinds of projects. The first involves the construction of hydro-electric power project, one of which is the Zangmu Hydropower Station and the other, more ambitious project, envisages the diversion of its waters to the arid north, i.e. the northward rerouting of water.

Also, in the meantime, there is need for Beijing to maintain relatively stable relations with neighbouring countries in order to provide conditions for China's peaceful rise. Therefore, China follows the desecuritization policy to deal with the water sharing conflicts. Desecuritization refers to the process of "moving issues off the security agenda and back into the realm of political discourse and normal political dispute and accommodation. Whenever the circumstances arise the issue of water is often mixed with border conflicts. During the Doklam conflict, the issue of Brahmaputra also came into play. The main tool used by the Chinese is the signing of Memorandum of Understanding (MoU) regarding sharing hydrological data with India and Bangladesh, not leaving any space for downstream to point finger to China for being uncooperative upper riparian country. However, these MoUs are non-binding and there is no overseeing organizational body that can ensure a fair implementation of the agreement.

With the recent Chinese policy of not sharing hydrological data with India, China has actually violated the bilateral MoUs. According to the MoUs, China is obliged to share a hydrological data from three upstream monitoring stations of the Brahmaputra River in Tibet during the monsoon season from May 15 to October 15 every year and India on other side has to pay for the hydrological data. While China sells hydrological data to downstream countries, India provides such data without charging fee to both of its downstream neighbors- Pakistan and Bangladesh. But this year after Doklam conflict, China has not provided any hydrological data, taking technical glitch excuses.[13] This hydrological data is of great importance to the Indian side to predict or prepare for flood and to mitigate flood damage. But the question of upgrading and reconstruction comes to light when Bangladesh, downstream to India received same hydrological data from China about the same river. Beijing is using the Brahmaputra as leverage against India to achieve its political goal. If China continues with the lack of transparency over its project, and not adheres to the MoUs, the mistrust

[13] India has not received data on rivers from China, says External Affairs Ministry,*available at*:http://www.hindustantimes.com (Visited on September 29, 2017).

between the countries will continue to increase and it could lead to conflicts in the future. Therefore, it is necessary for both countries to set up a joint institutional mechanism to encourage further cooperation on disaster management, climate change and environmental protection. If the current situation remains the same, then this is likely lead to a war over water as predicted by some of the experts.[14]

GOVERNANCE OF TRANS-BOUNDARY WATER IN SOUTH ASIA

Conflicts on trans-boundary water have been widespread all over the world, plagued by claims and counter claims, but water conflict, particularly the case of South Asia is fragile because of the lack of a democratic framework, gross mismanagement of water, and of as "water-greed" where nobody seems to have enough and there is an unlimited and ever growing demand for water, or a regional mechanism that involves all the conflicting parties that is perceived to be fair and is rooted in an ecologically sustainable approach. The existing mode for such governance is bi-lateral treaties, signed by Nepal, Bangladesh, Pakistan with India (which is an upper riparian in most cases, except with Nepal) out of which, some treaties have worked, others have not, but each has been surrounded by controversy and misgivings at some point or other.[15] Another issue of 'Securitization of water resources' and its management is the classification of hydrological data as "secret" information and its consequent removal from public domain. This is clearly evident in South Asia, and more so with ChinaandIndia. In Nepal, in Bangladesh, and in Pakistan, a common complaint has been that India maintains utmost secrecy about any facts/figures/data regarding trans-boundary water. In all these countries, a striking feature was that any projects being built on trans-boundary water was known not by open sharing of information, but through newspaper reports. More so, it is a fact that timely and adequate information are never

[14] Zhao Yusha, "China has to halt river data sharing as India infringes on sovereignty: expert" *Global times* 2017. *See Also*. Navin Singh Khadka, "China and India water dispute: After border Standoff"*BBC,* September 18 2017.

[15]Richa Singh, op. cit.

easily or fully given or shared. For instance, this has been the complaint of Pakistan over the Baglihar and Kishenganga projects, or of Bangladesh over the Tipaimukh or over the now stalled Indian River Linking project.Similar allegations can be made on part of India against China on deliberate omission made in providing the hydrological report of Brahmaputra flow during their monsoon, which is essential for India to predict or prepare for flood and to mitigate flood damage every following year, whereas the same was provided to Bangladesh.

The uneasy marriage of politics and external drivers that govern most shared waters creating conflicts among nations could possibly be settled by better effective policies, dialogues, new emerging treaties. *Effective policies*, all countries within South Asia should implement policies which favor their mutual use of the rivers. These countries should to use rivers which complement its goals as long as national interests are not affected. For example, when both countries are constructing dams, mutual consultation will enable then to draft policies which favor both countries and reduces destructive effects of this construction to the other country. Just as the two countries are collaborating to fight terrorism, they should also collaborate to ensure that they both achieve their objectives regarding the availability and use of the water resource.*Dialog*, is the most effective way in which the dispute over water can be resolved. Other measures such as aggression or violence will only lead to losses among both countries. It is imperative that the issue is sorted soon in order to prevent further conflict or bloodshed which may occur as a result of the conflict. Treaties which are based on dialog have settled many fired disputes over water in South Asia like the Indus Water Treaty and Mahakali Treaty. *Developing new treaties,*the establishment of a new treaty is another way in which the conflict maybe resolved. However, when the treaty was initially established, future projections on water needs for both countries should adequately assessed. The already existing treaties should be re-negotiate to clearly explain how the water maybe used by both countries to achieve mutual benefit. New treaty should project future trends as far as water consumption is concerned to avoid other future conflicts relating to water use. Above all, South Asian cooperation is vital here. Besides coordinating with international organization, such the United Nations

and other international climate regimes, South Asian countries must also establish a coordination that is lacking among them, as well as with neighbouring regions in order to handle the crisis more effectively.

CONCLUSION

In South Asia, rivers are also a deeply ingrained part of cultural and religious life. But rivers know no 'man-made' borders and flow freely across countries, cities, and villages, across fields and industrial belts. Therefore, it is impeccable for man to maneuvers his wit to make an arrangement for his sustenance with a natural resource such as water, for his survival in every way possible, viz. social, economic, political, because nature, even in worst time , finds a way to its survival.

In terms of hydrography, one can argue that the states and societies of South Asia share a remarkable unity and its rivers bind the landscape into a composite whole. India is seen as the hydro-hegemon in various guises to Pakistan, Nepal, Bhutan and Bangladesh. Many researches also argue that India's hydro-hegemony has created consent and stability in the transboundary water interactions in South Asia thus making water wars unlikely.While China is seen as a hydro-hegemon with respect to India. However, none of them, in entirety, dominates water interactions in the region, nor does it achieve its hydro- hegemony through coercion. It is merely the political issues which re-emerge in the name of water conflicts. And even if such countries are trying to dominate the South Asian waters, they should not forget that such a tussle has far reaching consequence on parties on either side. Tensions certainly exist about the management and development of shared rivers, but declared war or violent acts are likely to undermine the complex system of mutually beneficial arrangements that currently exist. Although India has uneasy water disputes with all South Asian countries like Pakistan, Nepal, Bangladesh, China and Sri-Lanka, India still maintains friendly and collaborative terms with Bhutan who share their hydropower. This easeful relationship between 'India-Bhutan' can be set as an example for other South Asian countries to solve the existing water disputes with India and promote harmony and peace in the region. Countries assuming themselves as dominant, on the other hand, should stop interrupting with the water outlets of other nations to

avoid any water war and cause damage to property and human life of the neighboring countries. The government of all South Asian countries should take necessary steps to enhance public awareness about water issues Neglect of water issues could lead to tension and conflict in the future not only within India but also and also with neighbors.

FATE OF BRAHMAPUTRA:JOURNEY FROM CONTENTION TO CO-OPERATION

Shivam Jaiswal[1]

ABSTRACT

South Asia is water scarce. Thus, the two Asian giants India and China are competing for resources along the Brahmaputra River which flows through the parts of Asia that have been prone to territorial disputes. Reports of diversion plans of Brahmaputra River by building up of monstrous dams are a source of major tension between India and China. This article is a modest attempt for enquiring into the reaction of both people on the water diversion issue, disastrous ecological consequences due to race for dams building and the urgent necessity for having a water treaty between Asian giants. In recent years China has resisted to share hydrological data on Yarlung Tsangpo/Brahmaputra during the monsoon season. China charges approximately $ 125,000 for the data it provides to India which it same provides to Bangladesh for free. Discussions over the Yarlung Tsangpo/Brahmaputra have often been overshadowed by the border dispute. In my opinion, it will be a welcoming move if this problematic issue is analysed through data, hydrological regimes, upstream interventions and their downstream implications. India needs to set a vision for the desired goal and strategic outcomes for dealing with it. India needs to be firm in negotiations with China on water rights, as it did in Doklamstand-off. India needs to push for Bilateral agreement and treaties on Brahmaputra water sharing as it has with Pakistan, Bangladesh, Nepal and Bhutan.

Keywords: South Asia, Brahmaputra river, water wars, water diversion scheme, u-bend, upper riparian countries, pending negotiations, ecological concerns, hydropower dams, diplomatic channels, bilateral arrangements

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PROLOGUE

Jumping from Nuclear Wars, Water Wars are becoming a serious issue today on the note of population expansion. Along with rapid urbanization climate change has created a situation where the ratio of fresh-water to human population is immensely unproportional. Himalayas are on stake and sources predict that by next two decades, four countries in Himalayan Sub-region are going to face the depletion of almost 275 billion cubic metres of annual renewable water.[2]The present paper gives flesh to the issue of water war which has cropped up in South Asia, home to about half of the world's population, between India and China over river Yarlung Tsangpo/Brahmaputra. Like Teesta for Sikkim, the Brahmaputra is the lifeline for Assam. The main tributary of Brahmaputra, Siang (primary water source) has been turning muddy and polluted by heavy cement type content.. The 2,880 km-long Brahmaputra originates in Tibet, where it is known as the Yarlung Tsangpo. It flows eastwards through southern Tibet for a distance of 1,625kilometres large part of which takes U-turn and flows through North-eastern Indian states of Arunachal Pradesh known by Siang river and into Assam. Then it flows downstream to Bangladesh as Jamuna joined by Ganges and Meghna forming World's largest delta emptying their waters into Bay of Bengal.[3]The dispute is alarming over sustained growth in water and energy demand, act of interfering with natural river flows from dams, inter-basin water diversions. The basin is characterised by large seasonal fluctuations in water availability due to the very wet monsoon and the extremely dry winter. [4] There are, however, few robust mechanisms for riparian co-operation between them. There are no water sharing agreements, joint river commissions, or dispute settlement mechanisms. Existing mechanisms consist mostly of a series of Memorandum of Understanding(MOUs) on hydrological

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[2] 'The Himalayan Challenge: Co-Operation and Security in River Basins' , Strategic Foresight Group
http://www.strategicforesight.com/HimalayanSolutions.pdf

[3] https://www.google.co.in/amp/s/m.mapsofindia.com/maps/rivers/brahmaputra-amppage.html

[4]http://www.saciwaters.org/brahmaputra-dialogue/index.html

data sharing and a body of technical experts. These MOUs are non-binding and there is no oversight body that can ensure implementation.[5]

NEIGHBOUR'S CONCERN ON SHORTAGE OF WATER

China is facing acute freshwater strain as it has to support 20 percent of the world's population on 5 percent of the world's renewable freshwater.[6]Water shortages are felt in the agricultural, industrial and municipal sectors.[7]Sustained economic growth in China is threatened by depleted freshwater resources, inefficiency in its use and pollution.[8]Chinese leaders recognise the need to move away from coal, which supplies approximately 70 percent of the country's electricity, to clean energy sources like hydroelectricity.[9]The Tibetanplateau, which is also known as the third pole has enormous amounts of freshwater potential with China and is looking to harness to ease the water scarcity itfaces. China is currently undertaking numerous water projects in Tibet. The South North Water Transfer Project (SNWTP) is the most ambitious water transfer project which China is constructing. It plans to transfer surplus water from the southern region in China to its northern areas. Ideas of such a diversion well present as early as 1952 when *Mao Zedong* is said to have remarked that the South has plenty of water and the north likes it so if possible why not borrow some. The term for the project–*nan shui bei diao* (*South-North-Water Diversion*) appeared in a Political Bureau directive in 1958.[10]

The Chinese government did not seriously consider the project until severe drought hit the northern provinces in the 1990s. In 2000, president *JiangZemin* stated**"** In order to radically alleviate the sewer water shortage in the north, it is necessary to implement the South North Water Transfer Project".[11] In 2002, *Li Ling* published the widely read

[5]Asia Pacific Bulletin, Number 371, Feb 16 2017
[6]KPMG, 2012
[7]Rosegrant, *et al.,* 2002
[8]Gleick, 2008: 79
[9] Turner, *et al.,* 2013: 12
[10] Biswas, *et al*., 1983
[11]Yang and Zehender, 2009: 339

book *Saving China Through Water From Tibet,* which listed various causes and options for tapping the rivers of the southern region, the SNWTP was formally approved in 2002. The SNWTP is comprised of Northern, Central and western rules designed to transfer water from the southern provinces to the parched Northern provinces of China. In the Northern/East route water will be diverted from the *Yangtze* River. The Westin route will harness water from the upper reaches of the *yangtze, yellow, yarlung zangbo, Nu* and *Lancang Rivers* to *Langzhou*.The total diversion capacity is estimated to be 45 millioncubic meter.It will lead to flood control and several energy requirements of China will also be met.

China's 12th Five Year Plan(2011-2015) calls for an increase in the use of hydroelectric power which the downstream countries have interpreted as indicating that China will be accelerating its damming and diverting activities on its trans boundary rivers.[12]India harbours suspicions about China's diversion projects as in the past that have been fractal floods in *Arunachal Pradesh* and *Himachal Pradesh* which were traced to unannounced excess water releases by China.[13] The plant diversion of the Brahmaputra's waters is expected to have bad consequences for water flow, agriculture, ecology and lives and livelihood downstream. In the eyes of Chinese, China's dams on the Brahmaputra may be*run-of-the-river*but they are a matter of greatest concern to lower riparian countries.[14]To quote China, it strives for doubling its electricity generating capacity from 960 gigawatts in 2010 to 1900 gigawatt in 2020. Huge hydroelectricity projects for energy and water diversion schemes for food sufficiency are strategic to China's growth path.

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[12] China's Energy Policy, 2012
[13] Shah and Giardano, 2013: 30
[14]Ramaswamy Iyer (Iyer, 2015).

THE ZANGAMU DAM AND THE DIVERSION ISSUE

The Zangmu Dam that China is building is just the first of 28 dams that Beijing plans to build on the Yarlung Tsangpo in Tibet, including a hydel power generation plant at Zangmu on the middle reaches of the Brahmaputra River, less than 200 kilometres from the Indian border. China had initially denied that they were constructing a dam on the Brahmaputra river, even after the contract was awarded. It was only in April that *Yang Jiechi*, Chinese Foreign Minister, officially revealed that they were constructing the Zangmu Dam. The Zangmu Dam is part of the Zangmu Hydropower Project and is estimated to support a 510 MW power station. It is being built at Gyaca County in the Shanan Prefecture of Tibet Autonomous Region.[15]to be completed by 2015. Specifications for the dam are uncertain as China has not shared much information. The real worry for India is not whether China will divert the Brahmaputra but where as China has already identified the point of diversion the U -bend where the Brahmaputra forms the world's largest and deepest Canyon just before entering India. It is at this great blend that China plans to divert water, and also build hydroelectric power projects that could generate 40000 megawatts of power.

The diversion of the water is part of a larger hydropower engineering project, the South North water diversion scheme, which involves three man made Rivers carrying water to its arid North region. With 56.5% of Brahmaputra river length and 50.5% of the area of the drainage basin line within Tibet, China naturally has a claim to at least a share of Brahmaputra water. Moreover, with weak International laws and no Candid-water sharing arrangements between the two countries, China has all the leverage in the issue Beijing gave notice when it started building the $ 1.2 billion Zangmu Dam on the Brahmaputra. China still chooses to remain secretive about the diversion issue as it " implies

[15]Dutta, N. (2012, July 09). China and India have to bathe together. Tehelka, Retrieved from
http://www.tehelka.com/story_main50.asp?filename=Ws110711ChinaIndia.asp

environmental devastation of India's North Eastern Plains and Eastern Bangladesh and would that be ok into a declaration of water war."[16]

THE POTENTIAL IMPACTS ONDOWNSTREAM COUNTRIES

INDIAN CONCERNS:

Water is the lifeline for more than 1 million people living downstream. The diversion of water heavily causes environmental devastation of India's North Eastern Plains. North India would be starved of its life line. Building of Mega dams on the Brahmaputra is opposed by certain political parties and organisations of the North-east rising protests against building dams in Arunachal Pradesh could make the Indian government decide to stop construction of dams there but what about the dams China is likely to build on the Yarlung Tsangpo in Tibet. Even if construction of dams in stops, the existence of similar dams would still bea threat and would nullify any security acquired from preventing Mega dams in Arunachal Pradesh. In such a case, what would be the stand of the anti Dam protesters? China would surely not be bothered even if there are protests against it in India. Moreover, diversion of the Brahmaputra, the lifeline of India's Northeast would Wreck havoc in the region with the water being diverted, the amount of water in the Brahmaputra will fall significantly, affecting the region. Environmental experts report that roughly 60% of the total water flow will fall drastically if China is successful in diverting the Brahmaputra.[17] India has raised concerns about the project on the grounds that it could pose a grave threat to the farmers and environment in North East India. It will severely impact agriculture and fishing in the North East India it will severely impact agriculture and fishing as the salinity of water will

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[16]Holslag, J. (2011). Assessing the Sino-Indian water dispute. Journal of International Affairs

[17]Hodum, R. (2007). Conflict over the Brahmaputra river between China and India. The Inventory of
Conflict & Environment (ICE), Retrieved from http://www1.american.edu/ted/ice/brahmaputra.html

increase, as well silting in the downstream area. Moreover, India being a lower riparian state would be at the mercy of period China in matters of releasing pre regulated water flows back into the river whenever needed.

BANGLADESH CONCERNS :

Any diversion of the Brahmaputra waters will likely have the most severe consequences for Bangladesh, how much poor Nation than India Bangladesh is a riverine country the livelihood of millions depends on the availability of water in total there are about 250 words that Criss cross the country but 92% of annual floor is contributed by 57 rivers that originate outside the borders the unilateral withdrawal of water by Upper riparian countries such as India and China camp, therefore, Upper riparian countries such as India and China can cause irreversible damage to the economy and sustenance of the country. The threat to Bangladesh is even greater as Bangladesh is the lowest riparian state of the Brahmaputra(*i.e.Jamuna* in Bangladesh) and the river is more vital to it then even India. Bangladesh is very much concerned over water diversion of the Brahmaputra by China as well as on the building of dams by China and India on the Brahmaputra. It fears the quantity of water reaching Bangladesh would reduce drastically leading to lowering in agricultural production and aggravate environmental problems.[18]

CHINESE CONCERNS REGARDING INDIAN HYDROPPWER ACTIVITIES

A second challenge for China relates to Indian efforts to develop the Brahmaputra in Arunachal Pradesh. At present, the river is largely undeveloped as it flows through the north-eastern Indian state. However, India's Ministry of Water Resources has announced plans to

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[18] http://www.thedailystar.net/op-ed/bangladesh-should-be-worried-about-chinas-brahmaputra-dam-160111

build dams in that section of the river in order to control flooding and to increase electricity production. The ministry also contends that dam construction is necessary for securing water usage rights under international practice.[19]This appears to be a step forward in firming up India's claims to Arunachal, which China regards its own territory under the name "southern Tibet". Arunachal Pradesh is one of two major areas of dispute along the Sino-Indian border. The other is Aksai Chin, which lies farther to the west, and has been controlled by China since 1951.[20]Arunachal was the main theatre of the 1962 Sino-India Border conflict, in which Chinese forces advanced into Indian-controlled territory and then withdrew, pending negotiations. At the core of China's contention is the view that Beijing has sovereignty over lands formerly led by the Tibetan Kingdom, including Aksai Chin and Arunachal. India rejects these claims and argues that these lands belong to India as a part of a 1914 treaty. Indian infrastructure development along the Brahmaputra is of particular concerned for China because it could grant India leverage in boarded negotiations and complicate Chinese efforts to gain control of this territory. India has used several means to strengthen its actual control over Arunachal, including and increasing military presence, Migration of citizens into the region, and development of water resources for rivers including Brahmaputra.[21]

In addition to Sovereignty concerns Chinese observers also. To environmental risks caused by Indian development of the river. One Chinese claim, albeit made without a clear scientific explanation, is that Indian industrial activity in Arunachal Pradesh could increase sedimentation of the river, which might raise the risks of flooding in

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[19] "India Plans to Build Big Dams Over Brahmaputra, Says Uma Bharti," The Economic Times,
Jun. 4, 2015.

[20] John Garver. Protracted Contest: Sino-Indian Rivalry in the Twentieth Century. Seattle:
University of Washington Press, 2001.

[21] Li Zhifei, "Water Security Issues in Sino-Indian Territorial Disputes" (ZhongYin lingtu
zhengduan zhong de shui ziyuan anquan wenti), South Asian Studies Quarterly (Nanya Yanjiu
Jikan) 4 (2013): 29-34.

parts of Tibet.[22]Other Chinese sources assert that Rising Indian carbon emissions connected to Greater industrial activity in the region could contribute to glacial melt in the Himalayas, and threaten the long-term flow of the river.[23]These arguments may reflect genuine ecological concerns, but also may be designed in part to provide an additional pieces for opposing Indian development in the disputed region.

CONFIDENCE BUILDING MEASURES TAKEN

In 1954, both countries signed a MoU to share hydrological data but the border war 1962 halted in the progress. In 2002, a MoU was signed for 5 years to help in forecasting floods caused by Brahmaputra in this North Eastern India in accordance with the provisions of MoU the Chinese side provided by hydrological information in respect of 3 stations namely Nugesha, Yangcun and Nuxia located on river Brahmaputra from the 1st of June to 15th October every year through e-mail twice a day. Both nations have not shown any interest in 1992 United Nations Economic Commission for Europe (UNECFE). Another MoUwas signed in April 2005 for supply of water flow information in respect of Satluj in the flood season. In 2006, during Chinese President visit to India an agreement was made for setting up an expert level mechanism to discuss interaction and cooperation on the provision of flood season hydrological data, emergency management and other related issues. According to 20013 MoU, both exchanged views on issues of mutual interest the main concern for India was not only the Yarlung project in Brahmaputra water, rather the China's effort of diverting the water to its added Northern areas. In October, 2013, Prime Ministers of both countries agreed to strengthen their cooperation on the Transporter reverse through the existing expert level mechanism to

[22] Lan Jianxue, "Water Security Cooperation and China-India Interactions" (Shui ziyuan anquan
hezuo yu ZhongYin guanxi de hudong), 2010
[23] CNA interviews, Beijing, 2015. For background on potential climate change effects on the
river, see: Immerzeel et al., "Climate Change Will Affect the Asian Water Towers," 2010, 1382-
1385.

provide flood season that and emergency management under the new agreement, the Chinese side agreed to provide more flood data of Brahmaputra river from May to October instead of June to October that was in practice beforehand.

Themes of Indian and Chinese experts on Transporter rivers will meet in Hangzhou between March 26 to 30 to discuss sharing of information etc.- during the Doklam crisis last year, China refused to share hydrological data with India. India has been concerned at the damn building exercise by China on the YarlungTsangpo/Brahmaputra river that would have implications for downstream areas.[24]

NEED OF THE HOUR

China, India and Bangladesh should design a comprehensive river basin plan to control geological disasters and impact of the hydro electric projects. The impact of ecosystem tipping points is also highly devastating beyond our current knowledge. Keeping this thing in view, adoption action plans need to be undertaken collectively. An integrated dialogue is called for managing and reducing disaster along with the use of technology and resources. The security forces of both countries should be deployed in the border areas for the early reporting of any serious ecological changes found in the region. There is a greater necessity of undertaking collaborative scientific studies on Glacier melting and its effects on the flow of river. There is a necessity to redefine Tibetan water sources as a ‘ commons ’ that would draw International attention and encourage China to get into a water dialogue with downstream countries India needs to put forward a strong case to China based on the ecological cultural and livelihood sustenance, the river provides the lakhs of people downstream. It is equally important for India to frame policies that are not reactive but perceptive India should leave no stone unturned to draw China into our water dialogue diplomatically there is a need of a Treaty on the Brahmaputra, but it cannot be a bilateral one between India and China. It will have to be a multilateral one covering China, India, Bhutan and Bangladesh, with a

[24]Times of India, March 3, 2018 23:17 IST

multilateral Brahmaputra Commission similar to the Mekong Commission. A Joint India-Bangladesh approach to China on this matter would be far more effective than separate approaches.[25]Preserving rivers and ecosystems that support low energy intensive livelihoods of rural population, and help those livelihoods more sustainable could be a better alternative for building hydropower dams such an approach to rivers is unlikely to cause any harm to criterions, a major principle of modern trans boundary water laws.[26]

EPILOGUE

Water related conflicts have a long time history and will continue to be a global and regional problems as water scarcity in both China and India versions with Rapid economic development and population expansion, the competition over shared water resources in trans boundary rivers, particularly the Brahmaputra will intensify. Without an effective working mechanism between the two countries and with lingering border disputes, Water conflicts could potentially become a serious challenge to Sino-Indian relations. Diplomatic channels and bilateral arrangements will serve the purpose in the due course in case the negotiations for amicable settlement falls flat, the issue should be raised at UN Security Council as the lives of millions of people are in danger. Reports suggested in 2010 for the formation of Himalayan rivers Commission to create a peaceful and multilateral approach to tackle overall water shortage. But China India and their neighbours are yet to agree on a coordinated approach so far there is needed bilateral agreement on water sharing not any supervening International Law to regulate such activity. In this situation, both nations are required to discuss the issue in order to reach a satisfactory agreement. The need for consultation and a chord on specific projects has become more important on water sharing.

[25] Iyer, 2015
[26]Baruah, 2014

AN ANALYSIS ON HYDROPOWER: A REPORT ON LEGAL FRAMEWORK, COOPERATION OF BHUTAN AND NEPAL WITH INDIA

SIRI SAKHAMURU[1]

SRINATH SAMBANGI[2]

ABSTRACT:

Countries like India, Bhutan, Nepal, Pakistan, Afghanistan, Sri Lanka, Bangladesh and Maldives have abundant natural resources for generating renewable sources of energy. It is important for these countries to make proper utilization of these resources by tapping them sustainably. These SAARC nations have recognized the tapping these resources sustainably is essential as they have realized the growing space between the supply and demand of energy.

In order to achieve these goals, countries need financial and technical resources, which lacks in these developing nations. Therefore it is necessary to understand the limitations as well as other restraints such as political and cultural aspects in order to grow without making any major disturbances. This article's objective is to address this issue from different perspectives with special focus to the countries of Nepal and Bhutan is enumerated as following:

→ To find the importance of regional and international cooperation in building hydroelectric power plants.

→ To understand the need for adverse effects of these establishments

→ To understand the challenges faced for establish and functioning the hydroelectric power generating units.

→ To find the importance of a legal regime relating to generation of hydroelectric power

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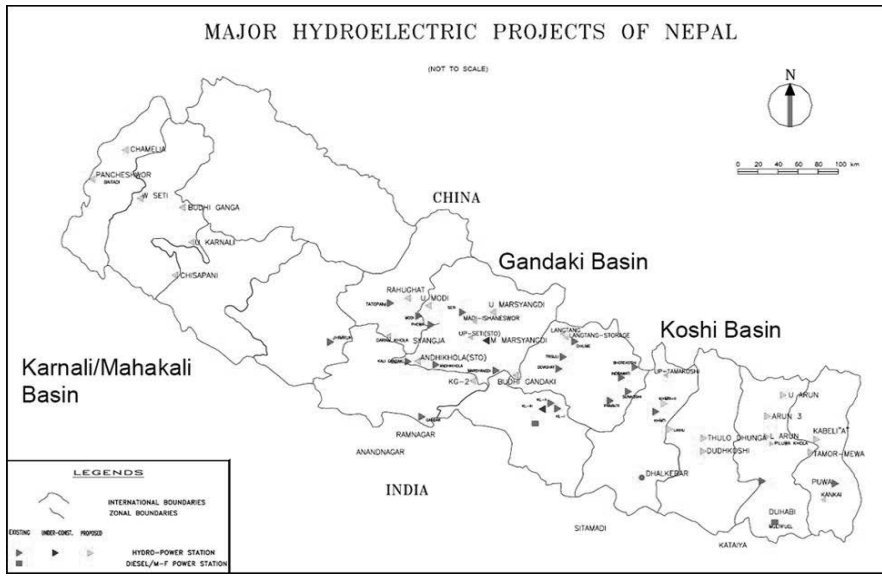
→ To understand the legal challenges faced by hydroelectric power units

It is important for these countries to bring in cooperation from their citizens as well as the SAARC nations as these natural resources are not just limited to one country and the advantages and disadvantages arising out of these projects are to be shared by these countries collectively. Therefore, this article focuses on the regional as well as international cooperation with respect ti India regarding hydroelectric power of Federal Democratic Republic of Nepal and Kingdom of Bhutan. Further, it tries to understand the importance to have a proper legal regime governing these activities in order to avoid disputes in future. Hence, this article also concentrates on the need for legal regime, and its present scenario.

This article tries conclude by assessing the present scenario as well as the limitations of these hydroelectric projects and give suggestions accordingly

SAARC Countries

http://www.eduzonecalicut.online/indias-bilateral-issues-with-saarc-countries/



https://sandrp.wordpress.com/2017/01/02/drp-news-bulletin-02-jan-2017-corruption-in-nepals-hydro-power-projects/

1. INTRODUCTION:

In developing nations such as India, Bhutan, Nepal, Pakistan, Afghanistan, Sri Lanka, Bangladesh and Maldives, there is growing need for power generation as it supports to industrialisation and urbanisation. It is a well known fact that the main sources of energy i.e coal, petroleum, and natural gas will be exhausted in near future and therefore there is an indispensable need for renewable and sustainable sources of energy. These south Asian countries have abundant natural resources which can be used as renewable energy. South Asian countries have a geographical advantage of Himalayas and its glaciers whose off springs are major rivers such Indus, Ganga and Brahmaputra which are some of the biggest rivers on earth. These rivers mainly constitute a large part of the south Asian region. Therefore tapping these rivers through hydroelectric power would create a lot of renewable power useful for development as well as for the generations to come.

Power Generation through tapping up of these rivers is a sustainable method which offers a zero input cost, zero emissions of gases and

residuals, and very low operating costs for the sake of its maintenance. The SAARC nations have recognized that the gap between demand and supply of energy is widening and therefore harnessing water resources for gathering energy has become their priority. The progress of achieving these goals has slowed down in many nations due to political and economic interferences. In recent past, there has been growing focus on regional connectivity and transnational transmission lines and regional power grids as well.

However, The SAARC countries such as India, Pakistan, Nepal, Bhutan, Sri Lanka, and Afghanistan do not have enough financial resources to accomplish their massive goals. Therefore, there is a need for coordination between the countries and their plans to achieve these goals for common good. Apart from the need for coordination between the countries, there has to be a regional coordination as well. The inhabitants of the SAARC nations generally view natural sources such as water and sunlight as godly figures and a mere change of course or conversion of the same would be seen from an emotional point of view leading to ethnic contestations. There is a need for education to the masses of the advantages of tapping up of renewable resources and they must be encouraged to support and push for the ideas which makes for an easier life.

2. COUNTRY- SCOPE AND PERSPECTIVE:

The combined potential of hydropower generation in South Asia is estimated at 388,775 MW, of which only about 13% of this potential has been used so far. India has the highest potential of generating 150,000 MW, followed by Pakistan with 100,000 MW, Nepal with 83,000 MW, Bhutan with 30,000, Afghanistan with 23,000 MW, Sri Lanka with 2,000 MW, and Bangladesh with 775 MW. Countries like India and Pakistan are highly populous, therefore the power generated in these countries would not be surplus and hence they would not be in a position to export power. Whereas, Nepal and Bhutan have excess power generation which can be exported to other nations as well.

2.1 Federal Democratic Republic of Nepal:

The Federal Democratic Republic of Nepal is a landlocked country with over 28 million inhabitants located in between India and China. It's home to the highest peak in the world, The Mount Everest standing 8,848 m above the sea level. It accommodates three large river systems: a) Koshi River System, b) Gandaki River System and c) Karnali River System. Owing to the fact that it is an area whose terrain is mountainous, it is relatively remote and is hard to reach and explore. Adding to the difficulties, Nepal has no major oil, gas or coal reserves which contribute to its energy production which is a contradictory to the situation of her neighbours.

Historically, The Nepalese have met the demand for energy through biomass, human labor and other traditional methods. According to various news reports[3], Nepal's energy consumption is lowest in South Asia at 132 KWh which is one-third the average of Asia and one-fifth of the total consumption worldwide.

Sources of energy consumption in Nepal[4]:

ENERGY SOURCE	CONTRIBUTION (%)
Biomass	88.0
Petroleum Products	9.0
Electricity	2.0
Renewable	1
TOTAL	**100**

Between 2001 and 2009, the total energy consumption was growing at a rate of 2.4 % per year in average. Although there is a considerable lack of efficiency in energy use, Nepal accounts for relatively low CO2 emissions compared to other countries in the region. The reason is the high proportion of renewable energy sources (biomass and hydro

[3] http://kathmandupost.ekantipur.com/news/2018-02-19/a-secure-energy-future.html
[4] https://www.nepal.gov.np/NationalPortal/view-page?id=92

power) in primary energy consumption. 43.6 % (2009) of Nepalese population has access to electricity; 81.0 % (2012) depend on traditional fuels (wholly or partially)[5]

These statistics maybe damming to tell us that only 1% of the total source is renewable, it needs to be understood that stats only provide a dwarfed point of view of the picture on the ground. Nepal has approximately developed 600 MW of Hydropower as against the reported potential of 83,000 MW of energy where about 42,000 MW is economically feasible. Kali Gandaki, Marshyangdi and Kulekhani I are the major hydropower plants in Nepal which contribute to the most output so far and several other under construction.

This potential is a reflection to its vast water resources. The rivers have also been appropriately termed by experts as a 'bounteous s gift' to the nation. To efficiently use the so called 'bounteous gift', the country needs to effectively cooperate with international and regional bodies as no country can work in isolation in the world of globalization where there is an increasing difference between the demand and supply of the resources.

2.2 Kingdom of Bhutan:

Kingdom of Bhutan, a country located in South Central Asia is located in the eastern ridges of the Himalayas. Bhutan was historically a closed and remote area and has become less isolated in the 21st century as it opened up to its neighbours. The Bhutanese economy is largely agrarian and the diverse altitudes provides for the opportunity to grow a variety of crops. The main focus of Bhutan was to come out of its geographical isolation and has generally relied on external assistance from India, United Nations and the World Bank. The Success of Five Year Plan of India in 1961 has helped Bhutan in getting the regular flow of funds and technical personnel. The country has seen upward growth in economy and the Chhukha Hydel Hydroelectric Power Plant has propelled it. Not only has Bhutan but also India has reaped the benefits of it by importing

[5] Renewable Energy and Energy Efficiency Partnership (REEEP) Clean Energy Information Portal, Energy Profile Nepal (Vienna: REEEP Secretariat, 2012)

power. Bhutan has 4 major river systems viz. Drangme Chhu, Puna Tsang Chhu, Wang Chu and Torsa Chu which are sourced from fresh himalayan water.

Hydro power is the backbone of the Bhutanese economy as the other sources of energy have proved to be an expensive affair for them majorly due to its logistical challenges due to high altitudes and no access to the seas because of its landlocked. The decision to tap its water resources has been advantageous to its economy. The country was at advantage due to its altitudinal variations with swift flowing rivers.

Electricity was first introduced in Bhutan in the year of 1966 when a diesel engine with the capacity of 256 KwH was installed at Phuentsholing. Subsequently, in 1967, Bhutan's first hydroelectric plant was installed to provide electricity to its capital city of Thimpu. This was followed by installing various mini hydro power plants with the range of 300 kW- 1250 kW were built in 5 districts to power these specific regions. Gradually, the demand for power has been increasing mirroring the increasing population. Today, 99.5% of electricity demand is being met due to the presence of Hydroelectric Plants. This also helped the nation in its fight for poverty alleviation and growth in economy.

PRODUCTION CAPACITIES IN BHUTAN[6]:

ENERGY SOURCE	**kWh**
FOSSIL FUEL	**148.88 Mn kWh**
NUCLEAR POWER	**0.00 kWh**
WATER POWER	**14.14 Bn kWh**
OTHER SOURCES	**0.00 kWh**
TOTAL CAPACITY	**14.29n kWh**

[6] https://www.worlddata.info/asia/bhutan/energy-consumption.php

3. REGIONAL COOPERATION:

Regional cooperation varies from country to country. It depends on its political, economic, cultural, technological and financial aspects. Regional schemes and policies also play a vital role in the development of hydropower projects. Hydropower projects usually disturb the basic synthesis of life near their surroundings. They create major changes in life and livelihood of people living in and around the area as they have to be evacuated and rehabilitated. It changes the basic ecology of the river as well as the forests nearby. Some countries believe rivers and forests as their deities, if that's the case cultural and emotional aspects come into picture. Further, the political stability of the country plays a major role as it is important for the governments to act towards its development, which seems to be a major constraint in the present political scenario of these countries. There must be enough financial support for building up such massive projects. The SAARC Nations lack in financial capacity as most these nations fall under their developing or underdeveloped countries with regards to their GDP. Hence, development of hydropower projects seems to be a difficult task for these countries.

Nevertheless, these SAARC Nations have realized that in order to reap the benefits of development it is important to strive hard towards achieving their goals. They have further realized that hydroelectric power would create sustainability and help in the development of the nations economically. Therefore, it is important for these countries to work better in order to develop hydropower projects.

Major challenges faced by Nepal, Bhutan and India as discussed below;

3.1 Regional Cooperation in Federal Republic of Nepal:

Nepal has taken the generation of hydropower seriously. It has made efforts to develop hydroelectric power by laying emphasis on the

growth and development in its five year plans. Further there have been many costs and other concerns such as deforestation and indoor air pollution by generating electricity through traditional methods, trying to bring accessibility through electricity among the rural poor and missing out revenue generation and etc. though, the generation of hydropower is highlighted there are many challenges Nepal faces in order to achieve its massive goals towards development.

CHALLENGES:

- **Political Challenges:**
- Lack of Political Will**:** There have been many ups and downs in Nepal's political scenario. The country has seen many governmental systems implemented and many constitutional forms were tried and tested. Further, frequent changes of ministers, lack of inter-governmental agency coordination, prolonged processes and procedures for environmental clearances from the government are important factors hindering progress and economic growth. The process of these revolutionary changes have only left negative byproducts such as slow decision making which made the earlier problems worse if not better.
- Aspiration of local people:
  a long list of inordinate local demands has been posing a major threat to hydropower development in Nepal.

- **Technical Challenges:**
  Technical constraints for development of hydroelectric power relates to geological, hydrological, and topographical settings of a country. Lack of manpower in specialized hydropower development and lack of hydrological and sediment logical data, lack of adequate transmission lines and insufficient capacity to cross-border transmission lines are some of the technical constraints.

- **Financial Challenges:**
  Hydroelectric power projects are usually capital intensive. Nepal

doesn't have necessary financial resources to develop hydropower on its own and therefore needs assistance from international financial institutions. Further the issue pricing is also one of the major constraints for hydroelectricity.

- **Policy Challenges:**
  Some of the major policy constraints include issuing of licenses and overlapping responsibilities among governmental ministries and departments. Further the monopoly of NEA over the transmission and distribution of power is also one of the major constraints for the development of hydroelectric power projects.

- **Climatic Challenges:**
  Environmentally, the Himalayan geology is young and fragile; hence, there is the risk of earthquakes and landslides. Controlling sediments in the hydro projects is also a challenge. Most of the Nepali rivers have little discharge in the dry season but become wild in the monsoon season. The effects of climate change in Nepal are visible and there may be little snow cover in the glaciers and Himalayas in the next 50 years. In some cases, the risk of glacier lake outburst flood may be a major threat to hydropower development.[7]

3.2 Regional Cooperation in the Kingdom of Bhutan:

The situation has been quite contradictory to that of Nepal. In the Kingdom of Bhutan though King Jigme Singye Wangchuk, in 1972 coined the term "Gross Happiness Index"[8]. He stated that the Gross Happiness Index is more important than the Gross Domestic Product. This concept points out the importance of sustainable development while giving a lot of priority to the well being of the people. Since then,

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[7] https://www.google.com/url?q=http://www.waterpowermagazine.com/features/featurehydropower-promise-in-nepal/&sa=D&ust=1521637355751000&usg=AFQjCNGexWUY3ddbwPOe5TMUnOrx2exhyg

[8] http://ophi.org.uk/policy/national-policy/gross-national-happiness-index/

the idea of Gross Happiness Index has influenced much of its economic and social policies and used the data collected from the Gross Happiness Index to implement rules and regulations accordingly. The situation in Bhutan has been pretty impressive regarding production of Hydropower that it supplies water to India. Though, politically the kingdom of Bhutan is towards the production of hydropower there are various other concerns regarding its development in this sphere.

Challenges:

Environmental Challenges:

Bhutan being a global leader in conservation practices, and has an amazing 52% of its land under its protected areas. While this may protect Bhutan's terrestrial biodiversity, it will not be sufficient to preserve its aquatic and riverine ecosystems. With large number of hydropower projects being planned in almost every river, and several projects in cascades in each basin, aquatic eco-systems will come under severe stress and threats.

Further, Bhutan has a system of environmental impact assessment, and projects have to obtain clearance from the Government. There also seems to be an attempt to continuously improve the environmental protection regime, but important gaps remain.

Financial Challenges:

Borrowings to finance hydropower projects and imports for the related construction have sent Bhutan's external debt to soar. Bhutan needs to go slow on fresh hydropower development projects to safeguard its financial stability, say reports. More than 40% of the country's export is hydropower, and its second major export, metal-based products, is also highly dependent on cheap electricity. The high dependence on hydropower exposes it to 'trade shocks' and any uncertainty in these projects would, pose a great threat to the country's economy. Further, the Committee for Development Policy (CDP) of the United Nations recommended Bhutan's graduation from LDC (least developed country) status in 2018 to 2021. This will entail a decrease in assistance from the

United Nations, decrease in grants and increase the loan component from development partners.[9]

Community Challenges:

The construction of hydroelectric power projects needs a lot of dry and wet lands. Evacuation of people living in the vicinity of these regions is needed. It is important to seek consent from people for acquisition of their lands. Potential adverse impacts of large hydropower projects on the natural environment and people are to be discussed during consultative meetings with community. Dust pollution from construction of hydropower projects causes respiratory illnesses. Formal procedures for addressing grievances are needed. Projects have to generate employment for local communities.

4. INTERNATIONAL COOPERATION:

In the era of accelerated economic growth, most of the countries in the world have drastically developed by taking part in international cooperation and pursuing all-round economic and social development, and made remarkable achievements. This was the whole purpose of establishment of international bodies such as SAARC which is a tool to promote the welfare of the people in South Asia and promote active collaboration, mutual assistance in various fields to cooperate with international and regional organizations. Nepal and Bhutan has been an active participant in international community having been a part of bilateral treaties with its immediate neighbours of China and India.

4.1 Need for international cooperation:

It's said that no country can survive in isolation and those who try to survive in isolation will succumb to it until unless it's a case of extraordinary nature. International cooperation or interdependence is nothing but a relationship between two countries when each is dependent on other for various variables such as goods, services, financial tie-ups and energy requirements. This dependency helps countries come out of isolation and coordinate with different nations. No country or land is blessed with all resources that are required for that

[9] https://www.internationalrivers.org/blogs/328-5

particular country to function. Hence the need arises for cooperation where there is a sharing of the mentioned resources.

Aspects of International Coordination:

- Foreign Trade: Foreign Trade is one of the oldest surviving examples of international cooperation and interdependence. It consists of sub aspects such as import, export and entrepot. The inflow of goods into a country is known as an import whereas the outflow of goods from a country is an export. Sometimes, good need operational processing in other countries and then return to home countries and it is called entrepot. Foreign Trade helps in 1) Division of Labor and Specialization, 2) Optimum allocation and usage of resources 3) Equality of Prices and 4) Potential Employment Opportunities.[10]
- Foreign Direct Investment: Foreign direct investment (FDI) is an investment made by a company or individual in one country in business interests in another country. Generally, FDI takes places when an investor establishes foreign business operations or acquires foreign business assets, including establishing ownership or controlling interest in a foreign company. Foreign direct investments are distinguished from portfolio investments in which an investor merely purchases equities of foreign-based companies. Foreign direct investment (FDI) is an investment made by a company or individual in one country in business interests in another country. Generally, FDI takes places when an investor establishes foreign business operations or acquires foreign business assets, including establishing ownership or controlling interest in a foreign company. Foreign direct investments are distinguished from portfolio investments in which an investor merely purchases equities of foreign-based companies.[11]
- Globalization of Technology- Globalization of Technology or Techno Globalism is sharing of technology between the

[10] http://kalyan-city.blogspot.in/2011/03/what-is-foreign-trade-types-and.html
[11] https://www.investopedia.com/terms/f/fdi.asp

countries supplying it and the countries demanding for it. Generally, the Triad Nations viz. Japan and USA, contribute the maximum in the exporting technology. This Technology is essential for every nation for equality.

- Equality of Energy- As mentioned above, not every country is blessed with all the resources and some have it worse either by exhausting all their resources or not having resources as such. The scope of sharing of energy arises due to this problem. In Order to avoid this problem and attain an equality of energy, countries tend to share their energy resources. For example: India and Bhutan having cooperation over sharing of energy for a common interest.

4.2 Challenges of International Cooperation:

International Cooperation or interdependence may look good on the paper but it faces a lot of encumbrances just like any other aspect. International Cooperation might be advantageous on a higher level, but it also carries a heavy baggage. The main challenges of international cooperation are as follows:

- Overdependence- As discussed above, it is a fact that not every country can live in isolation and not every country is blessed with every resource required for survival of that country. However, sometimes there are times that country over depends on other countries. To exercise morality, some countries even go to an extent of self-harming in order to help other countries. This not only is a danger to the supplier nation but is also dangerous to global economy on a larger scale when we look at it vaguely.
- Reduced Protectionism- The major hurdle that poor countries face is not too much global interdependence but too little. It's hard for the poor countries to climb out of poverty when rich countries restrict imports and subsidize their farmers and workers. The poor countries would be benefited if these subsidies are lifted.
- International cooperation is not something that extends to all the countries. One must ensure that it's involved in all the countries as it does not occur automatically.

- Generally, International Cooperation is associated directly to instability which is particularly marked in the developing world.
- International Cooperation generally complicates the problems relating to it and must not be used as an excuse to search for new ways to cooperate in overall interest of the countries and the people.
- It's time taking and complicated. There has to be a high level of discussion and deliberations before a nation cooperates with another nation and a failure of that cooperation could jeopardize the international relations between them.

4.3 Present Scenario of International Cooperation

The following is the present scenario of international cooperation between Nepal, Bhutan with India with a special focus given to the sharing of hydroelectric energy:

4.3.1 Bilateral Treaties and Agreements between Nepal and India:

The start of ties between modern states of India and Nepal are traced back to 1950.1950 also saw the signing of the Treaty of Trade and Commerce between India and Nepal. Along with strengthening trade ties, the treaty would also streamline customs and duties regulations between the two nations, an important factor. 1950 also saw the signing of the Treaty of Trade and Commerce between India and Nepal. Along with strengthening trade ties, the treaty would also streamline customs and duties regulations between the two nations, an important factor for Nepalese trade; given that it is a landlocked country. An Indian military mission would also be established in Kathmandu and be the source of tension in Nepal towards India for Nepalese trade, given that it is a landlocked country. An Indian military mission would also be established in Kathmandu and be the source of tension in Nepal towards India.[12]

Nepal has a high potential for hydropower production and the present status of development is approximately 600 MW which is very less when compared against it potential of 60,000 MW. The cooperation for

[12] http://www.southasiaathudson.org/history/

hydro power dates back to 1950 with the Katriya Powerhouse Koshi Canal and subsequently, the Devighat and Fewa projects were built under the assistance of India in the 1970s. There are transmission interconnection in the border areas with for mutual exchange in power deficit areas on either side. The Power Trade agreement between Nepal and India has opened up the possibility of development of projects both in private and public sector. This bilateral cooperation has created balance power systems in both the countries as they had different patterns of seasonal demand[13]. There have been many treaties signed between Nepal and India on this aspect. They are:

1. Koshi Treaty- the Government of India and His Majesty's Government of Nepal have entered into a treaty on the Koshi Project. The Nepalese Government was desirous of building a barrage, headworks and other works about three miles upstream of Hanuman Nagar Town on Koshi River with afflux and flood embankment for the purpose of prevention of flooding, irrigation and generation of Hydroelectricity. The Government of Bihar in the Union of India was seen as one of the beneficiaries in this project and this was done primarily to maintain good and friendly relationship subsiding between India and Nepal.[14]
2. Gandak Treaty: The Government of India and His Majesty's Government of Nepal found common interest in constructing a barrage, canal head regulator and other works, this was done to take out the existing canal systems which helped in production of hydropower as well as facilitate the irrigation between Nepal and India.[15]
3. Mahakali Treaty: The Government of India and His Majesty's Government of Nepal have seen this project as an effort and strengthen the relationship between each other by cooperation in development for water resources. Mahakali, the river was in the boundary of both the countries and the treaty was entered into to

[13]https://www.google.com/url?q=http://cii.in/WebCMS/Upload/CII%2520-%2520Nepal%2520India%2520Cooperation%2520on%2520Hydropower.pdf&sa=D&ust=1521738741316000&usg=AFQjCNHrqdY0_zQuO7qqcQOZCS8xSKoAWQ

[14] http://www.moen.gov.np/pdf_files/koshi_treaty.pdf

[15] http://www.moen.gov.np/pdf_files/gandak_treaty.pdf

realize the common intention of using the resources of Mahakali River. In the course of this, there were letters exchanged for the construction of Sarada Barrage in Mahakali River which helps both the countries to receive some waters. This was a Win-Win situation for both the countries.[16]

4.3.2 Bilateral Treaties and Agreements between Bhutan and India:

Bhutan has excess hydropower capacity, and is geographically situated next to India which has a high demand for electricity. The power relationship between Bhutan and India started with kick-start when the new elected prime minister of India, Narendra Modi made his first foreign visit to his small potential neighboring country Bhutan in 2014. But, previously in 2006, the two countries signed a framework agreement on hydropower development and trade and undertook to develop 10,000 MW of hydropower from 10 large projects. India recognized that its power insufficiency can be curbed by Bhutan's power generating efficiency by tapping its natural resources. Therefore, a bilateral agreement was signed between the countries for power trading. This hydropower development became a cornerstone for India-Bhutan Cooperation. The model consists of India supporting Bhutan in building hydropower projects by providing financial assistance by way of issuing mix of grants, loans and technical support to design and construct the projects. Bhutan not only gets to use electricity of its own but also exports the surplus to India. Which would earn much needed revenue and foreign exchange as hydropower exports contribute around 40% to Bhutan's revenue and 25% of its GDP? The project helps to ensure that Bhutan is moving from being a "landlocked" country to a "land-linked" country. Further, India gets relatively cheaper power. [17]

The main factors that made regional hydropower development possible were shown to be public private partnerships; equity sharing; financial leveraging; the Clean Development Mechanism; sound policy frameworks; and implementation of a sector-wide approach. It was noted that when project proposals are well-structured with strong legal

[16] http://www.moen.gov.np/pdf_files/mahakali_treaty.pdf

[17] https://www.thethirdpole.net/2016/10/04/india-bhutan-hydropower-cooperation-fraying-at-the-edges/

and policy frameworks, they are more likely to be developed. In developing countries, the lack of grids connecting regions is a common problem.

Major projects for power generation between India and Bhutan include;

1. Dagachhu Hydropower Project: The Dagachhu Hydropower Project in Bhutan, which exports 88% of the energy it generates to India, and is the first cross-border hydropower project to be financed through the Clean Development Mechanism (CDM). Bhutan therefore benefits from more reliable connections to its neighbors, while expanding its electricity market.[18]
2. Chhukha HEP: The 336 MW run-of-the-river (RoR) Chhukha HEP is built on River Wangchhu in Chhukha district, is the oldest hydropower plant in Bhutan. The agreement for the development of the 336 MW Chhukha run-of-the-river HEP was signed in 1974, with an energy buy back arrangement for 99 years. The Chhukha Hydel Project Authority (CHPA) was formed in 1975 and entrusted with the responsibility of constructing and commissioning of the project. The National Hydro Power Corporation (NHPC), Geological Survey of India (GSI) and Central Water and Power Commission of India (CWPC) provided their expertise to the project. Bharat Heavy Electrical Limited (BHEL) supplied the electro-mechanical machinery.
3. Kurichhu HEP: The 60 MW reservoir-based Kurichhu HEP is built on River Kurichhu, a tributary of River Manas, in Mongar district. The Government of India and the Royal Government of Bhutan entered into an Agreement in 1994 to construct the project. The Government of India financed the project with a 60 per cent grant and a 40 per cent loan, repayable over a period of 12 years at an interest rate of 10.75 per cent. More than 60 per cent of the power produced is exported to India at the rate of Rs. 1.98 per unit.
4. Tala HEP: The 1020 MW run-of-the-river (RoR) Tala HEP is located downstream of Chhukha HEP on River Wangchhu in Chhukha district. The Agreement for the implementation of the Tala HEP was signed by the two governments on 05 March 1996,

[18]https://www.ifc.org/wps/wcm/connect/160c7c0042e6f46ea01fec384c61d9f7/Hydropower+and+regional+development-case+studies.pdf?MOD=AJPERES

following which an autonomous body named the Tala Hydroelectric Project Authority (THPA) was constituted for the construction, operation, and maintenance of the Project.

5. Punatsangchhu I HEP: The 1200 MW run-of-the-river (RoR) Punatsangchhu I HEP, located on the River Punatsangchhu in the western district of Wangdue Phodrang, is the largest such project undertaken in Bhutan. The agreement between the Government of India and Royal government of Bhutan for implementation of the Punatsangchhu I HEP was signed on 28 July 2007. The project involves a 137 m high and 279 m wide concrete diversion dam across the River Punatsangchhu, an intake with desilting chamber, a water conductor system, an underground power house and transmission lines for evacuating power to India.
6. Mangdechhu HEP: The 720 MW run-of-the-river (RoR) hydropower project is situated on the River Mangdechhu, a tributary of River Manas, in Trongsa district. The agreement between Government of India and Royal government of Bhutan for implementation of the Mangdechhu Hydroelectric Project was signed on 30 April 2010. The project is being implemented by the Mangdechhu Hydroelectric Project Author- 22A Study of the India-Bhutan Energy Cooperation Agreements and the Implementation of Hydropower Projects in Bhutan (MHPA), constituted jointly by the GoI and the RGoB. The scheduled date of commissioning the project is 2017.
7. Punatsangchhu II HEP: The 1020 MW Punatsangchhu II is a run-of-the-river (RoR) hydropower project situated on the right bank of River Punatsangchhu in the western district of Wangdue Phodrang. The Agreement between Government of India and Royal government of Bhutan for implementation of the Punatsangchhu II project was signed on 30 April 2010. The project is being implemented by the Punatsangchhu II Hydroelectric Project Authority (PHPA II), constituted jointly by the GoI and the RGoB. The project was scheduled to be completed in 2017; however owing to delays the date of completion has been pushed to 2018.[19]

[19] http://www.vasudha-foundation.org/wp-content/uploads/Final-Bhutan-Report_30th-Mar-2016.pdf

4.3.2 Role of SAARC:

The SAARC (South Asian Association of Regional Cooperation) has been set up to facilitate cooperation between the states involved in it. There have been many initiatives regarding trade, immigration and energy sharing taken up by the Association which helped ease the processes required for the international cooperation. In the 5th meeting of the Energy Ministers from SAARC Nations in New Delhi, the main discussion of the meeting was to establish an energy ring in order to connect all the members' countries. This was top facilitate growth and development in the region by sharing of information, technological expertise and hardware. All the members have identified that the felicitation and promoting energy in South Asia as one of the key areas of cooperation. India already has a lot of grid connections with Nepal and Bhutan and this meeting helped them discuss the feasibility of the same.
Energy demands have been growing at a pace of 6% per year in the SAARC nations and the requirement for such agreements is a must for the nations.

The SAARC Framework for energy cooperation endorsed by Nepal Parliament:

The SAARC Framework for energy cooperation was endorsed by Nepal Parliament on 30th August, 2016. It enabled 8 nations viz. Afghanistan, Bangladesh, Pakistan, Sri Lanka, Bhutan, Nepal, Maldives and India to conduct cross border trade of electricity. The main objectives of this agreement were to:

- Authorize the entities in SAARC to buy, sell and produce electricity in this region.
- Buying and selling entities to negotiate the terms and conditions, payment security mechanisms and the tenure of the terms and conditions.

- Exemptions for the member states to conduct trade for electricity. [20]

The SAARC Energy Centre was established in Islamabad, Pakistan to specifically focus on the promotion and development of energy resources including hydropower. This facilitated many hydropower projects between India and Bhutan such as:

- 600MW Kholongchu located at Kolongchhu River.
- 570 Wangchhu on Wangchhu River
- 180 MW Bunakha on Wangchhu River
- 770 MW Chamkarchhu located on the right bank of the river Chamkarchhu.

The role of SAARC in the sharing of resources and hydropower has been telling and has been helpful to provide a jumpstart for these nations to develop their energy resources. The South Asian Regional Cooperation has been living up to the Vision and the Mission it has set.

5. CURRENT LEGAL FRAMEWORK AND ITS FLAWS:

5.1 Statutory Provisions Relating to Hydropower Projects in Nepal:

The Hydropower Development Policy, 2001 of Nepal evokes to pursue a strategy of bilateral or regional cooperation in the hydropower development sector taking into consideration the feasibility of hydropower in Nepal and the demands of electricity in the neighboring countries in view of the fact that development of hydropower in Nepal supports not only the domestic but also the regional economy.

The major objectives of the Hydropower Development Policy 1992 were to involve private investment in hydropower generation. In order to fulfill these objectives, concept of BOOT (Build, Operate, Own and Transfer) in developing hydro projects was introduced. The Hydropower Development Policy 1992, supported by the Electricity Act 1992 provided incentives to develop hydropower in Nepal.

The legal framework for hydro projects of less than 100 kW includes extend distribution system in rural areas, import tax exemptions, period

[20] https://www.sasec.asia/index.php?page=news&nid=516&url=saarc-framework-agreement-for-energy-cooperation

of ownership/exclusive water rights is unlimited, the power can be sold to national grid, and no royalty to be paid by the project.

An amendment was made to hydropower development policy in 2001. The major objectives of the Hydropower Development Policy 1992 were to:

• To develop hydropower potential of Nepal in a sustainable way to meet the domestic demand
• To provide reliable and quality electricity at a reasonable price,
• To link electrification with the economic activities,
• To extend rural electrification, and
• To develop hydropower as an export commodity
• To attract foreign investment in the sector.

The new Hydropower Development Policy of 2001 has made some significant changes in tax and customs policy and a new rational royalty regime was recommended. The new policy has discontinued various incentives provided by the earlier one. It has proposed reducing hydropower generation license validity from 50 years to 35 years, increasing royalty payment, scrapping income tax holidays and bringing the hydropower projects under the usual corporate tax net. The policy has also proposed reform in institutional arrangements for the development of hydropower. The provisions of Hydropower Development Policy, 2001 include:

Projects envisaged to be developed through competitive solicitation
• Special provisions for captive plants
• BOOT model for private investment
• GoN may participate in multipurpose projects
• Provisions for environment protection
• GoN will facilitate land acquisition
• New structure of royalty (separate for export oriented project)
• Maximum duration of generation license is 35 years for domestic supply and 30 Hydropower related Policies and Legal provisions HDP, 2001 years for export oriented projects
• Additional five years for hydrological/projects risks
• At the end of the license period, the project is to be handed to the state in good operating condition; free of cost
• Water rights guaranteed

• No nationalization [21]

Though a separate legal framework was initiated by Nepal in order to regulate its hydro power projects, acts and regulations are not developed adequately to assist the policies along with inconsistencies and conflicts in various acts, policies, and regulations. Besides the above, the following are barriers to development of hydropower projects in Nepal:

• Difficulty in selling electricity to third parties;
• Lack of independent regulatory mechanism;
• Lack of well-defined power export policy;
• Shortcomings in the compliance of acts and regulations.

5.2 Legal provisions relating to hydropower projects in Bhutan:

As per the 2020 Vision Document of the Royal Government of Bhutan, it is envisaged to add 1,000 MW of hydropower generation capacity by the year 2012 and another 2000 MW by the year 2017. Bhutan has therefore embarked upon the following approaches, methodologies, strategies and initiatives to achieve the national goals:

a) Preparation of 20 Years' Power System Master Plan (PSMP) for sustainable hydropower development and Water Resources Management Plan on the basis of technical, economic, social and the environmental considerations.

B) Preparation of Rural Electrification Master Plan for achieving 100% electricity access by 2020 and to fulfil the Millennium development goals of the Energy sector.

c) Preparation of the Integrated Energy Management Plan for sustainable supply and demand management of energy resources for the economic development.

d) Development of Legal and Policy frameworks for restructuring and reforming the power sector. [22]

6. CONCLUSION:

[21] http://cii.in/WebCMS/Upload/CII%20-%20Nepal%20India%20Cooperation%20on%20Hydropower.pdf

[22] http://www.un.org/esa/sustdev/sdissues/energy/op/hydro_tsheringbhutan.pdf

Development of hydropower projects attracts a lot of issues as discussed above in challenges faced during their development and after as well as. There are many aspects involved in these massive developments such as abiding to the existing regional and international laws, understanding ethnic severance, abiding to the standards and norms during construction, human rights, and etc. water is an important source of life, and is also a part of the five most important elements of life as well. Therefore, it is important to have equal distribution of the benefits of water to all humans. We have understood that tapping water and generating power from it is regarded as one of the most effective and sustainable forms of energy. Hence, it is even understood that the primary objective of development of these hydropower projects to distribute power equally to the most of the human fraternity and for the industrial and economic development of these nations. These hydropower projects hence tend to attract a lot of international strategies, rifts and legal implications in the relationships of these countries as most of the SAARC countries are developing countries and are trying equally hard in the race of development. It is well understood that water, hydropower projects in specific can be a reason for a war between nations due to factors discussed above. Hence, it is important to have a proper regulating legal framework in order to maintain same and better cooperation between the SAARC nations with regards to hydropower.

Further, a lot of bilateral agreements have been signed by various nations relating to hydropower projects in specific India and Nepal and India and Bhutan. In the recent past it is observed that these agreements are not completely abided by these countries and there have been a lot of misunderstandings and loopholes in these agreements as well as in their implementation. Therefore, a proper legal framework specifically limiting to the development of hydropower projects and bilateral agreements is needed.

As observed in the current legal scenario of the laws relating to hydropower in countries of Nepal and Bhutan, the countries have made an attempt to recognize the importance of enacting a special legislation in this regard but have failed to analyze various other aspects and issues which arise out of these developments with bilateral agreements with

other countries. For example, the hydropower projects implemented with assistance from India are implemented jointly through project authorities with representatives from both governments. Analysis of projects reveals that the control of management in project authorities is skewed in the favour of India. Indian citizens occupy a disproportionate percentage of decision-making roles within project authorities. Furthermore, the planning, designing and management of projects, implemented under the India-Bhutan energy cooperation agreement, and all major construction and supply contracts are handled by Indian agencies. Further, there is minimal access to essentially basic information relating to the agreements and hydropower projects implemented with assistance from India while projects implemented with assistance from the Asian Development Bank (ADB) and other governments have proactively disclosed basic information. The hydropower sector financial performance has seen deterioration, indicating that its commercial profitability cannot be taken for granted. The net profit per unit of electricity sold has fallen sharply since 2007. Simultaneously, the sector's contribution to the national budget has reduced and Bhutan's external debt has increased.[23] In such a case, there might be differences between the two countries and their relationships might get strained. Therefore, it is important to adopt an international uniform legislation addressing these issues and as to how to solve disagreements between the countries with this regard are to be introduced in the SAARC Secretariat in order to keep peace in the SAARC nations.

[23] http://www.vasudha-foundation.org/wp-content/uploads/Final-Bhutan-Report_30th-Mar-2016.pdf

THE PARALLEL CONUNDRUM IN INDUS WATER TREATY: WORLD BANK'S DECISION ON SIMULTANEOUS PROCEEDINGS

RAKESH KUMAR SAHU

ABSTRACT

World Bank has always been considered quasi-Judicial Mediator between India and Pakistan under the Indus Water Treaty. It is vested with the authority to institute a proper adjudicatory body for the conflicts arising out of the Treaty. With such great responsibility the world bank is expected to perform in a reasonable and sensible manner which seemed to be absent when it sought to institute two simultaneous or in the legal parlance "Parallel Proceedings" for two similar conflicts between the Countries. World Bank's defense that it is bound to accept request of both the countries even when both the countries wish for two different Adjudicatory forum seems to be quite slippery and unreasoned, since the approachability of different Adjudicatory forums under Indus Water Treaty is Unique and clear in itself. Moreover, if both the proceedings are left to proceed the principle of les Pendens would come into play. This would consequently lead to chaotic situation giving rise to the impending Water War between both the Countries.

Keywords: World Bank, Indus Water Treaty, Les Pendens, Res Judicata, Parallel Proceedings

INTRODUCTION

India and Pakistan concluded the Indus Waters Treaty(IWT) in 1960 after lengthy and difficult negotiations mediated by the World Bank and spanning over almost a decade. The IWT is a complex instrument comprising 12 articles and 8 annexures. The IWT is indeed a complete treaty in view of its objective.[1] It has normative and functional values as

[1] 1 MA SALMAN & KISHORE UPRETY, CONFLICT AND COOPERATION ON SOUTH ASIA'S INTER- NATIONAL RIVERS48(The World Bank, 2002).

it contains, in addition to the substantive rules regarding the regime of the Indus system of rivers, provision regarding the implementation of an administrative and institutional mechanism and the management of the basin resources.[2]India and Pakistan have always been known for their inner conflicts on different issues and this has shaped various dispute resolution mechanism under the treaty between the two countries. The IWT has been regarded not only as a remarkable example of successful resolution of conflict between two sovereign countries but also as an instrument which recognizes World Bank for its landmark role as an international mediator.[3]

There has been a number conflicts regarding the implementation of IWT by both the parties namely the Kishanganga Dam on the Neelum and Jhelum Rivers, the Baglihar Dam on the Chenab River, the Ratle Dam on the Chenab River,the Wullar Barrage on the Indus River, the Salal Dam on the ChenabRiver, and the DulHusti power project on the Chenab River.[4] The World bank played a major role in the Baglihar Dam issue[5] and the Kishanganga Project issue.[6] The Baglihar Issue was settled by the decision of the neutral expert accepted by both India and Pakistan.[7] Whereas the Kishanganga Project issue was settled by the Permanent court of Arbitration.[8]After Few years following the settlement of the Kishanganga issue, Pakistan approached the world bank with a different issue concerning the construction of the

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[2] Ibid.

[3] N. R. Chaudhury, *Neutral expert clears Baglihar project*, HINDUSTAN TIMES (Feb 13, 2007, 03:47), https://www.hindustantimes.com/india/neutral-expert-clears-baglihar-project/story-aM1kDz4HVB8stOxrkfyQsJ.html.

[4]38 SHAHEEN AKHTAR, EMERGING CHALLENGES TO INDUS WATERS TREATY: ISSUES OF COMPLIANCE & TRANSBOUNDARY IMPACTS OF INDIAN HYDROPROJECTS ON THE WESTERN RIVERS,30(Institute of Regional Studies. 2010); Mubarak Zeb Khan, *India Asked toStop Work on Kishanganga and Ratle Projects*, DAWN (Jan. 21, 2017), https://www.dawn.com/news/1309767.

[5] M. A. Salman, *The Baglihar difference and its resolution process - a triumph for the Indus Waters Treaty?* 12 Water Policy 10, 105–117 (2008).

[6]Lalit K. Jha, *India Allowed to Construct Kishanganga, Ratle Hydroelectric Projects,* WIRE (AUG 2, 2017) https://thewire.in/163760/india-allowed-construct-kishanganga-ratle-hydroelectric-projects/.

[7] Salman, *supra* note 5 at 31.

[8]Indus Waters Kishenganga Arbitration (Pak. v. India) (Partial Award of Feb. 18, 2013), http://www.pcacpa.
org/showfile.asp?fil_id=2101 (last visited June 3, 2013) [*"Partial Award"*].

Kishanganga Dam and Ratle Damand asked it to be settled by the Court of Arbitration[9], the issue was in reference to the design of the Hydel Project. World bank accepted Pakistan's request to refer the issue to the court of arbitration for a better adjudication.[10] Whereas India asked the world bank to settle this dispute by appointing a neutral expert as it has always been doing.[11] The response of world bank upon this seems to be quite astonishing and at the same time interesting, it said that it would carry both the dispute settlement mechanisms ie., appointment of a neutral expert and instituting a case in the Permanent Court of Arbitration simultaneously stating that the dispute settlement process in the IWT is not hierarchal and there appears no express prohibition to the simultaneous mechanisms.[12]Though later the world bank paused the simultaneous proceedings and asked for amicable settlement by the parties, the decision still appears to be debatable.

It has been well accepted that World bank not only provides for administrative safeguards to the dispute under IWT but also acts as a quasi-Judicial Authority providing for the rules and procedure guiding the dispute resolution process. Thus, acting not only as a mediator but also as a framer of rules of procedure when the countries come to a dispute. Article IX of IWT provides for the appointment of a neutral expert when there arises differences on a particular issue among the parties. It also provides for a mechanism to approach the court of arbitration when any dispute arises between the parties. This distinction enables the issues to be resolved according to their nature by appropriate tribunals and court.

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[9] *Court of Arbitration 'must hear' Kishanganga case*, THE TRIBUNE (Oct 4, 2016, 1:33 AM), http://www.tribuneindia.com/news/nation/court-of-arbitration-must-hear-kishanganga-case/304622.html.

[10] Anwar Iqbal, *Next round of water talks with India in jeopardy*, DAWN (March 23, 2017), https://www.dawn.com/news/1322300.

[11] Suhansini Haider, *India slams World Bank decision on Indus Treaty,* THE HINDU (Nov. 10, 2016 11:54),http://www.thehindu.com/news/India-slams-World-Bank-decision-on-Indus-Treaty/article16442829.ece

[12] *World Bank drawn into Indus Waters Treaty dispute,* THE THIRDPOLE(Nov. 13, 2016), https://www.thethirdpole.net/2016/11/13/world-bank-drawn-into-indus-waters-treaty-dispute/

Thus, a clear interpretation regarding the appointment of an appropriate forum of adjudication of the issues arising between the two countries seems to be missing with the decision of the world bank. One can clearly notice the plurality of dispute settlement mechanisms in action and how the countries react to this step. Moreover, the initiation of a Parallel proceedings by world bank raises various concerns regarding the outcomes. In this paper I argue about the need for clear interpretation of adjudication under the IWT and the implications of World Bank's Parallel proceedings and its standing in the fabric of International Law.

THE KISHANGANGA PROJECT DISPUTE

The Kishanganga project's power generation capacity is about 330 MW and the height is about 75 meters. It is located about 160 km upstream of Muzaffarabad (Pakistan Administrated Kashmir Capital). The project involves the diversion of Kishanganga (Neelum River in Muzaffarabad) through a 23 km long tunnel into the MadumatiNala, which will empty into the Wullar Lake, through which the Jhelum River flows. Pakistan was of the opinion that the diversion of the Kishanganga River will reduce the flow of 140,000 million acres feet of water to the Neelum Valley in Pakistan Administrated Kashmir.[13] At first Pakistan pushed the world bank to appoint a neutral expert for the adjudication of the issue when its Senior official stated that "WB-appointed neutral expert is our top most priority after receiving a discouraging response while exercising bilateral channels as the Indian project is being built to divert River Jhelum water"[14]But consequently after large number of deliberations the matter was referred to the Permanent court of Arbitration. This was the first time when a matter between the two countries was referred to a Court of arbitration.[15]

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[13]Raja Nazakat Ali et al., *Indus Water Treaty: From Conciliation to Confrontation,* 10 Dialogue 167, 171 ¶1(2015).

[14]*Pak pushing WB to appoint neutral expert over Kishanganga dam dispute with India*, SIFY (Nov. 08, 2009 08:30), http://www.sify.com/news/pak-pushing-wb-to-appoint-neutral-expert-over-kishanganga-dam-dispute-with-india-news-international-jlioaxggebesi.html.

[15] Shashank Kumar, *The Indus Waters Kishenganga Arbitration (Pakistan v. India),* 17 ASIL 2 (2013).

A Partial Award was rendered in the Indus Waters Kishanganga Arbitration between Pakistan and India on February 18, 2013.[16]The verdict was in the partial favor of both states.[17]In this award the court stated that India is under an obligation to construct and operate the Kishanganga Hydroelectric Plant (KHEP) in such a way as to maintain a minimum flow of water in the river.The court asked India and Pakistan to provide data by June so that it could determine the minimum flow of water in its final award to be issued in December[18],which was decided to be 9 cumecs at all times in the final award.[19] Moreover the final award imposed no other restrictions than the ones mentioned in the final award.[20]Pakistan seemed unhappy with the verdict of the court since it had upheld India's right to divert water from the Kishanganga project.[21]

Pakistan frequently objected to the project's Construction contending it to be illegal and outside the ambit of IWT. On October 2016 Pakistan raised objections over the design of the hydel project in Jammu and Kashmir, saying it is not in line with the criteria laid down under the Indus Water Treaty between the two countries.[22] India however rejected the objections and said that it was all well within the IWT and urged the World Bank to appoint a neutral expert as the issue is a "technical matter" as suggested in the treaty.[23] On the other hand Pakistan insisted

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[16]Partial Award.

[17]Ashok Swain, *Water Insecurity in the Indus Basin: The Costs of Noncooperation, in* IMAGINING INDUSTAN: OVERCOMING WATER INSECURITY IN THE INDUSBASIN, 40 (Zafar Adeel & Robert G. Wirsing eds., 2016).

[18]InpaperMagazine, *Kishanganga verdict a tilt in India's favour*, DAWN (Feb 25, 2013), https://www.dawn.com/news/788524.

[19]Indus Waters Kishenganga Arbitration (Pak. v. India) (Final Award of Dec. 20, 2013),https://www.pcacases.com/web/sendAttach/48 (last visited March23, 2018).

[20] Ibid.

[21]Staff Report, *Pakistan loses Kishanganga case at The Hague*, PAKISTAN TODAY (FEB 20, 2013)https://www.pakistantoday.com.pk/2013/02/20/pakistan-loses-kishanganga-case-at-the-hague/.

[22]Munawar Hasan, *WB to set up court of arbitration, appoint expert to resolve dispute,*THE NEWS (Nov. 12, 2016),https://www.thenews.com.pk/print/164132-WB-to-set-up-court-of-arbitration-appoint-expert-to-resolve-dispute.

[23]Press Trust of India, *Kishanganga dispute: Pak demands Court of Arbitration, India*, BUSSINESS STANDARD (Oct. 3, 2016 16:07), http://www.business-standard.com/article/pti-stories/kishanganga-dispute-pak-demands-court-of-arbitration-india-116100300631_1.html.

on setting up of a Court of Arbitration[24] and was of the opinion that it needs a decision which could be legally binding on both the parties and this can come only from the court of arbitration.[25]

Thus, it can be clearly construed that the Kishanganga Project has attracted a large number of controversies since its inception. The Kishanganga Project still stands to be a disputed project waiting for an amicable settlement by the parties.

SIMULTANEOUS SETTLEMENT BY WORLD BANK

The World Bank stated in its Brief that "The two countries disagree over whether the technical design features of the two hydroelectric plants contravene the Treaty and the World Bank World Bank sought to fulfil its procedural obligations with respect to both the Court of Arbitration and the Neutral Expert citing that the Treaty does not empower the World Bank to choose whether one procedure should take precedence over the other; rather it vests the determination of jurisdictional competence on each of the two mechanisms."[26] With this declaration the World Bank decided to institute a parallel proceedings with the neutral expert and in the court of arbitration, the Indian ministry of external affairs said that the two simultaneous steps are "legally untenable".[27] India Considered this step to be illegal and not in accordance with the IWT, moreover contending that this step questions of the workability of the treaty in today's world.[28] The dissent expressed by India on this step roots to the interpretation of Article 9 of IWT which talks about the dispute mechanism on the conflict arising out of the interpretation and applicability of the provisions of the treaty.

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[24]Press Trust of India, *Pakistan demands Court of Arbitration over Kishanganga dispute*, THE ASIAN AGE (Oct. 3, 2016, 5:32 pm),http://www.asianage.com/international/pakistan-demands-court-arbitration-over-kishanganga-dispute-411?fromNewsdog=1.
[25]*supra* note 10 at 2.
[26] World Bank, *Fact Sheet: the Indus Waters Treaty 1960 and the World Bank*, BRIEF (Aug. 1, 2017), http://www.worldbank.org/en/region/sar/brief/fact-sheet-the-indus-waters-treaty-1960-and-the-world-bank.
[27]*supra* note 23 at 3.
[28]*supra* note 12.

The Dispute Resolution mechanism under the Indus Water Treaty can be classified in view of its nature into three categories, the first being the Questions, the second being the differences and the third being the Dispute.[29]The Questions are resolved by a Permanent Indus Commission[30] consisting of one from each of the parties which arise between the parties upon any provision of the IWT.[31] Secondly if the Permanent Indus Commission is not able resolve the issue or the question between the parties it takes the form of a Difference which then can be referred to a neutral expert[32] which in practice is appointed by the world Bank in accordance with the principles set by it as seen in the Baglihar Project case. More specifically Annexure F of the Treaty deals with the questions to be referred to the Expert, the appointment procedures and the expenses of the Expert. The Annexure states that the appointment of the Expert shall be made jointly by India and Pakistan, or by a person or body agreed upon by India and Pakistan. If the Parties fail within one month to make an appointment of the expert or to agree on a person or body to make such an appointment, then the appointment shall be made by the World Bank, in consultation with the parties. Thirdly the Treaty specifies that if the difference falls outside the list of questions specified in Annexure F, or if the Expert decides it to be so, then the difference will be considered to be a "dispute" and would then be referred to a "Court of Arbitration" which in practice is the Permanent Court of Arbitration.

Thus, there seems to be a clear distinction on the involvement of specific forum on an issue of specific nature. Article 9 of the IWT clearly underlines the invocation of specific proceedings for specific conflicts. It seems clearly untenable to invoke simultaneous proceedings for a specific issue. Though World Bank is true in its opinion that the treaty does not empower it to choose a proceeding that would take precedence over any other proceeding. But this does not waive the responsibility of the World Bank to look into the consequences of employing both the methods simultaneously. The continuation of both

[29]Indus Waters Treaty 1962, 419 UNTS 126. Art IX. ["IWT"]
[30]*supra* note 30 at Article VIII.
[31]*supra* note 30 at Article IX (1).
[32] Ibid.

the proceeding would lead to a plurality of solutions and would result in a deadlock since decision given by both neutral expert and the court of arbitration is binding on the parties. It is also true that the invocation of the proceedings is not hierarchal in nature thus justifying world bank's action but this again brings out the concerns regarding the consequences of continuation of the both the proceedings. The most prominent concern relates to the derogation of the most unique feature of the IWT i.e., involving a specific forum for specific redressal.This would consequently lead to the depletion of the dispute settlement mechanism envisaged under the Article IX of the Treaty defeating the very purpose of its enactment. Moreover, this would attract a large number of expenses to both the parties, which consequently would be deducted from the trust fund maintained by the World Bank created to meet the expenses of the Neutral Expert or Court of Arbitration.[33]

These concerns may be the reason why the world bank paused both the simultaneous proceedings by a Press release on December 12 2016 wherein **World Bank Group President Jim Yong Kim said** "We are announcing this pause to protect the Indus Waters Treaty and to help India and Pakistan consider alternative approaches to resolving conflicting interests under the Treaty and its application to two hydroelectric power plants".[34]This was done to safeguard the treaty, since referring the matter simultaneously to the processes sought by each of the countries risked contradictory outcomes and worked against the spirit of goodwill and friendship that underpins the Treaty.[35] This paused the simultaneous proceedings and asked the parties to settle the dispute in an alternative manner rather than the manners chosen. However, the pause does not seem to be an end to the dispute since it has the risk of resuming again if the alternate mechanism fails.

PLURALITY OF SETTLEMENT MECHANISMS IN INTERNATIONAL LAW

[33] *supra* note 30 at Article V.
[34] World Bank, *World Bank Declares Pause to Protect Indus Waters Treaty*, PRESS RELEASE (Dec. 12, 2016), www.worldbank.org/en/news/press-release/2016/12/12/world-bank-declarespause-protect-indus-water-treaty.
[35] *supra* note 27.

Plurality of settlement mechanism in the International tribunals and courts is one of the long-standing notion in international law. There have been innumerable instances where more than one mechanisms have been set up for resolution of a conflict due to the proliferation in the number and type of international courts and tribunals.

The Indus Waters Treaty between India and Pakistan[36] is a perfect example of a regime providing for a menu of dispute settlement options which is only binding on two states. The settlement of questions, differences and disputes between the parties in different forums set out under Article IX of the IWT sets up a sequential set of steps. Specifically, The Court of Arbitration established under Paragraph (5) of Article IX is set up where the parties mutually agree to do so, where either party requests it and is of the opinion that the commenced negotiation or mediation will fail, or where either party believes the other party is unduly delaying the negotiations. Unless the parties agree otherwise, the Court of Arbitration is to consist of seven members. Among these seven, at least one must be a highly qualified engineer same as the one being a neutral expert and another must be a person well versed in international law. The chairman of the Court of Arbitration must be qualified by status and reputation to be Chairman of the Court of Arbitration.[37] In addition to these mutually agreed appointments, each party should appoint a further arbitrator chosen by them.As it has already construed that process of dispute settlement under the Article IX of IWT is not hierarchical.[38] This renders the decision given by the neutral expert non-appealable to the Court of Arbitration and shall stand binding on the parties. This was also clearly envisaged on the world Bank's simultaneous appointment and its consequent pause.[39]

The World Bank Group President explained that the international organization has announced this pause to 'protect the Indus Waters Treaty'.[40]Thus it is clear that even when the IWT provides a plurality of

[36]*supra* note 30.
[37]*supra* note 30 at Annexure G(4).
[38]*supra* note 6 at 107.
[39]*supra* note 35.
[40]*supra* note 35.

dispute settlement mechanisms, one has to opt for a single mechanism at a particular time. It is also clear that World Bank has recognized that instituting both the proceedings simultaneously would lead to unprecedented consequences. It is true that these dispute settlement processes have seldom been used,[41]the simultaneous proceedings have the potential to undermine the IWT itself. Thus, with the plurality of mechanisms enumerated under the IWT, world bank's intervention is good example of the managerial trend to international dispute settlement regulating the unprecedented consequences of multiple dispute settlement mechanism.

PARALLEL PROCEEDINGS IN INTERNATIONAL LAW

With the plurality of dispute settlement mechanisms, the implications resulting from a parallel proceeding has come to lime light in the recent times. The term parallel proceedings lack a general definition[42] which could provide its precise interpretation. But the International Law Association defines the term as 'proceedings pending before a domestic court or another tribunal, in which the parties and one or more of the issues are the same or substantially the same as the ones before the arbitral tribunal in the Current Arbitration.'[43] In Kishanganga Dispute the issue of the design of the dam was already accepted for adjudication in the court of arbitration by the world bank one and half months before India made a request to appoint a neutral expert, thus accepting India's request and carrying out simultaneous proceedings is clearly a parallel proceedings in the eyes of law. It is feared that if the parallel proceedings in case of Kishanganga were left to continue it would lead serious complications derogating from the object and purpose of Article IX of the treaty itself. This could easily lead to risks of overlapping jurisdiction which always has been and remains quite common to see in

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[41] See Salman, supra note 5, at 116; Kishor Uprety and Salman M.A. Salman, *Legal Aspects of Sharing and Managementof Transboundary Waters in South Asia: Preventing Conflicts and Promoting Cooperation*, 56(4) H.S.J 641, 648 (2011).

[42]Nadia Erk-Kubat, JURISDICTIONAL DISPUTES IN PARALLEL PROCEEDINGS: A COMPARATIVE EUROPEAN PERSPECTIVE ON PARALLEL PROCEEDINGS BEFORE NATIONAL COURTS AND ARBITRAL TRIBUNALS25 (University of St Gallen, 2014).

[43]Filip De Ly &Audley Sheppard,*ILA Final Report on Lis Pendens and Arbitration,* 25 Arb. Int'l 83(2009).

domestic settings and in international law as anemergingnotion.[44] The Parallel Proceedings in itself seems to be problematic in nature with its issues of cost and time, moreover the conflicting awards could lead to problems with the execution and enforcement of those awards.[45]The problem exists since different solutions are adopted in different jurisdictions to the very same legal problems.[46]Moreover the growing tension between the two countries coupled with the world bank's step leads to serious loss of confidentiality.[47] Furthermore India would seem to be at a negative end with these parallel proceedings since the party initiating a parallel proceeding which in the present case is India, since it was the one who proposed the second dispute settlement mechanism for the issue. India would not only be presumed to obstruct the proceedings, but also to erode the counter-party's choice of arbitration.[48]

Thus, it is clear that the initiation of the parallel proceedings was itself bad in law raising serious doubts upon the adjuratory provisions of IWT and concerns over the world bank's role as a quasi- judicial authority under IWT therefore constituting a threat as considered under the international law.[49]

ROLE OF RES JUDICATA AND LIS PENDENS

In International law the concerns raised by the parallel proceedings have always been addressed by invoking the rule of Res Judicata and Lis Pendens.[50] Both of these rules act as a preventive doctrine by barring either the jurisdiction of the court or the party's right to have its claimed

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[44]Joost Pauwelyn& Luiz Eduardo Salles, *Forum Shopping Before International Tribunals: (Real) Concerns, (Im)Possible Solutions* 42 Cornell Int'l L. J.77 &79(2009).
[45]David W Rivkin, *The Impact of Parallel and Successive Proceedings on the Enforcement of Arbitral Awards* in Julian D M Lew and Bernardo M Cremades Roman (eds), PARALLEL STATE AND ARBITRAL PROCEDURES IN INTERNATIONAL ARBITRATION271 (International Chamber of Commerce, 2005).
[46] Ibid at 19.
[47]Denice Forsten, PARALLEL PROCEEDINGS AND THE DOCTRINE OF LIS PENDENS IN INTERNATIONAL COMMERCIAL ARBITRATION37–38 (Uppsala University 2015).
[48]Nadja Erk, PARALLEL PROCEEDINGS IN INTERNATIONAL ARBITRATION: A COMPARATIVE EUROPEAN PERSPECTIVE3 (1st ed., 2014).
[49]Ibid.
[50]*supra* note 48at 43.

examined.[51] In general terms the principle of Res Judicata prohibits a party from seeking to relitigate a claim that has already been resolved in a final and conclusive manner. In parallel proceedings its application is restricted where the parties and the issue at question is same and already litigated by a adjudicatory body.[52]Whereas according to the principle of Lis Pendens an adjudicator can stay or suspend its own legal proceedings in the case of another more specifically a parallel proceeding before another judicial body.[53] In simpler terms Res Judicata applies when the matter has already been adjudicated and Lis Pendens applies when the dispute in question is still pending before a court or a tribunal.[54]Moreover James Fawcett an International Scholar has described the doctrine of Lis Pendens to be applicable in a "situation in which parallel proceedings, involving the same parties and the same cause of action, are continuing in two different states at the same time."[55]

It can clearly construed that the doctrine of LisPendens is a fundamental principle allowing a procedural transparency and governing the procedural fallacy caused due to the parallel proceedings.[56] Moreover helping to resolve the concerns raised by the multiplicity of the proceedings.[57] The doctrine of Lis Pendens is not only limited to the international commercial arbitration but also extends to both the civil law and common law jurisdictions as a means of suspending or dismissing a proceeding in case of another parallel proceeding.[58]

In the Kishanganga Dispute World Bank's decision on going for a simultaneous proceeding or more specifically a parallel proceeding could in future invoke the doctrine of Lis Pendens if the world bank

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[51] *supra* note 45 at 86.
[52] Mariel Dimsey, THE RESOLUTION OF INTERNATIONAL INVESTMENT DISPUTES: CHALLENGES AND SOLUTIONS 103 (2nd ed., 2008).
[53] Gary B. Born, INTERNATIONAL COMMERCIAL ARBITRATION: VOLUME III: INTERNATIONAL ARBITRAL AWARDS3792 (3rd ed., 2014).
[54] *supra* note 45 at 86.
[55] J.J. Fawcett, DECLINING JURISDICTION IN PRIVATE INTERNATIONAL LAW 32 (2nd ed., 1995).
[56] Hobér, PARALLEL ARBITRATION PROCEEDINGS – DUTIES OF THE ARBITRATOR332 (2nd ed., 2013).
[57] Supra note 54 at 3793.
[58] Supra note 54 at 3792.

resumes these proceedings. It would also be great a look into the procedural intricacies or complications that would arise due to the simultaneous proceedings within the neutral expert and the court of arbitration, though it is clear that the court of arbitration being at a high pedestal will have a more persuasive judgement, but one cannot clearly put aside the opinion of the neutral expert upon the "technical irregularities" relating to the designs of the project which Pakistan poses to be the issue in question. Thus, there seems to be tussle between anexpert opinion and a court's decision.

CONCLUSION

It is clear that World bank's decision was based upon the interpretation of the express provision provided in the IWT but it is also true that this decision lacked the conformity with the obligations enshrined under International law. Moreover, the growing tensions between India and Pakistan regarding the water sharing issue has become more intense in the recent times. The World Bank has always acted not only as broker but a mediator resolving every issue it was approached with by the parties. Its duty resembles to the third party or a neutral party to the treaty whose responsibility is to provide a clear and a legit interpretation of the terms and provisions of the IWT. But the recent decision by the world Bank seems to be legally unsound and untenable as contended by India. Though World bank quickly reversed its decision by putting a pause on both the proceedings but still the pause on the proceedings seems to be gateway of resuming both the proceedings once again and risking the outcomes of these proceedings for the second time. It should also be realized that it is not only the outcomes that are at stake but also the consequences resulting from the outcomes, the most prominent one being the straining of water sharing relations between the two countries. Both the countries are mostly dependent on agriculture for their economy which directly relates to the importance of irrigation, thus any discrepancy in the decision determining the fate of the water conflict between the countries would directly affect the agricultural economy of both the countries.

Moreover, the lack of cooperation that would result from an unprecedented outcome would make the region geopolitically

tense.[59]The world Bank's decision would in more specific terms increase the conflicts between India and Pakistan and would add to the persistent conflicts between the countries which is hindering regional cooperation in South Asia.[60] Thus it is important for the world bank to take note of the consequences of its decision as a mediator under the IWT or else the persistent conflicts would take the form of the "water war" as viewed by people of both the countries.

[59]SOUTH ASIA'S WEAK STATES: UNDERSTANDING THE REGIONAL INSECURITY PREDICAMENT108 (T.V. Paul ed., 2010).
[60]Mario Telò, REGIONALISM IN HARD TIMES 21 (1st ed., 2016).