THE FUTURE OF INDUS WATER TREATY: NEED TO RENEGOTIATE AND INCLUDE CLIMATE CHANGE IMPACT

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1. INTRODUCTION

One need not reiterate the importance of water for existence. India is a country which is abundantly surrounded by water bodies. Time and again, it has been established that the lack of water for drinking, agriculture, industrial purposes and for many other essential purposes has been a limiting factor for development in regions all around the globe. The inherent scarcity of water Although the freshwater percentage of the world is only 3%, India has its fair share of numerous fresh water sources running through it. But due to the enormous population of our country and the ill conservation of the water bodies in addition to the increasing impact of climate change, we are at a dire stage. It is therefore no other better time than to start now to incorporate provisions to combat with climate change. It is still a pitiful condition that climate change is not taken as seriously as it should be. It has affected our planet so intimately to the point every household around the world feel it's impact in multiple ways. It is no more the abstract concept that people perceived it to be. It is dire but an essential truth to know that the impact is only going to grow worse and the effects on water bodies will be more pronounced than the present. It is therefore essential for us to alter the water treaties in accordance with the current conditions.

It is also essential to know that almost 60 % of the total freshwater resources are supplied by transboundary river basins[1]. Providing clean water to everyone and climate action form part of the Sustainable Development Goals. Transboundary water treaties are there for the reason that it enables the countries involved to distribute the resources in an equitable and efficient way.

The standing committee of water resources submitted its 12th report to the Lok Sabha. Therein, it had recommended that the Indus River Water Treaty, 1960 signed between India and Pakistan

[1] Transboundary Waters. U.N. Water, United Nations, https://www.unwater.org/water-facts/transboundary-waters

to be renegotiated and changed incorporating the climate change component. Since the treaty was signed in 1960, it does not have provisions to combat climate change on water availability. Therefore, it is high time that changes have to be renegotiated and incorporated to enable precious water resources to be utilised in the most efficient way possible. With the fast-depleting river on one side and the frequent flooding on the other, there has been wide arching impact on both the countries. The author in this paper have attempted to understand the Indus River Water Treaty in the present context especially in the light of Climate Change Impact. The author have also studied other similar trans boundary treaties signed by India to dissect into climate change impact and the necessity for change in those treaties. The author in the third part has compared and contrasted the Mahkali Water Treaty - certain provisions of which can be used in the Indus River Water Treaty to ensure an effective renegotiation of the Indus River Water Treaty from the perspective of Climate Change Impact. In the final part the author, has suggested how the treaty with Pakistan could be possibly implemented in this present geo-political scenario.

2. RIVER WATER TREATIES OF INDIA IN TODAY'S CONTEXT

According to UN, climate change refers to the long-term shifts in the temperatures and weather patterns.[2] Climate had been natural at point of the Earth's geological and climatological process but with advent of industrialization, rising pollution and population combined with a plethora of other anthropogenic activities climate change has now become a steady, continuous fast-paced anthropogenically driven process. As a result of these activities, the Earth has now become 1.1ºC warmer than it was in the 1800s.

The impact of climate change has been far- reaching, it has changed, climates across the world, affected wildlife habitat, caused intense droughts, water scarcity, severe forest fires, flooding, melting of permafrost, etc. the most debilitating effect that could cause diplomatic issues in today's fragile peace that has been established amongst countries is the scarcity or overflooding of transboundary rivers. Despite being endowed with waterbodies, climate change has had a stark impact on India.

IMPACT OF CLIMATE CHANGE AND INDIA

The key reasons for the increase in the demand of water is rapid industrialization and

[2] Climate Action, United Nation, https://www.un.org/en/climatechange/what-is-climate-change

urbanization. In addition to the changes posed by climate change, improper water management and conservation has led to the depletion in water quality and availability. The hydrological cycle in India's river basins have changed due to the alteration of land use, inter-basin transfers, irrigation and drainage. In the developing countries, the impact of future climatic change maybe felt more severely which are completely dependent on agriculture and is under stress due to the current population increase and associated demands for energy, fresh water and food. Besides being the chief determinant of economic welfare of the country, the summer monsoon is the predominant source of fresh water required for the rejuvenation of the water resources after the hot pre–monsoon spell.

The prime concern today is the probable impacts that climate change and global warming might have on the annual cycle of the monsoon and the associated precipitation over south Asia. Climate change is just one of several factors influencing the hydrological system and water resources. Population growth, changes in land use, restructuring of the industrial sector, and demands for ecosystem protection and restoration are all occurring simultaneously. Current policies affecting water use, management, and development are often contradictory, inefficient, or unresponsive to changing conditions. A change in drought or flood risks is one of the potential effects of climate change with the greatest implications for human well–being. In the absence of explicit efforts to address these issues, the societal impacts of water scarcity in India are likely to rise as competition for water use grows and supply and demand conditions change[3].

Sharing transboundary water resources has always been a major bone of contention amongst neighbouring countries, especially those with strained histories between them. In many a region there is not enough water in the rivers to satisfy the growing needs of the ever growing population [especially in developing countries] across the world. At present there are more than 250 river basins are shared by two or more countries. These shared basins occupy 43.5% of the surface of Earth, contain approximately 60% of the surface water flows, and house 40% of the population of the world.[4] Although tensions in many parts of the world has led to armed conflicts - *The Nile Basin Dispute, The Euphrates- Tigris Conflict, armed conflict in Somalia etc.* many countries have also increasingly entered into Trans-boundary river water treaties

[3] Climatic Change — Implications for India's Water Resources, Murari Lal, Journal of Social and Economic Development Jan. – June 2001, Pages 58- 87

[4] Chundun Prakash Khedun, et al. "Climate Change and Transboundary Water Resources." Water Resources IMPACT, vol. 11, no. 2, 2009, pp. 11–13. JSTOR, http://www.jstor.org/stable/wateresoimpa.11.2.0011. Accessed 28 Nov. 2025.

like in the case of Turkey- Armenia Cooperation or the long-standing Indus River Water Treaty between India and Pakistan. In the last 50 years, more than 150 treaties have been negotiated. Nevertheless, potential for conflicts exist. Demographic changes and competing interests among co-riparian states place additional pressure on available water resources and this has become greater with climate change. But despite the consistent recommendations suggesting that new factors and clauses be included in newly drafted treaties and the suggestions to amend old existing treaties, climate change *per se* has neither been addressed or incorporated in current treaties nor amended to be added in existing treaties. The Helsinki Rules on the Uses of the Waters of International Rivers and the United Nation's (U.N.) Convention on the Law of the Non-navigational Uses of International Watercourses recommend that climatic factors, should be considered in the utilization of shared watercourses. The 1995 Protocol on Shared Watercourses in the South African Development Community (SADC) region echoes the same principle. The drafters of the revision, however, ignored climate change in the protocol of 2000 (SADC, 2000).

The Berlin Rules on Water Resources recognizes that global warming affects water quality and protecting the health of the aquatic environment is important. But it does not provide a mechanism to deal with this change. Instead it places the onus on the states involved, encouraging them to create and implement legal mechanisms for cooperative management of the resource and to resolve disputes peacefully. In this light, touted as one of the most successful transboundary river water treaties, The Indus River Water Treaty needs to be modified to today's need and requirements especially without overlooking climate change.

The Government of India has signed water treaties/ agreement with our neighbouring countries in the past for mutual benefits in the field of water resources. The following are the treaties signed by India with its neighbours:

i. **Indus Waters Treaty** was signed in the year 1960 with Pakistan concerning the use of waters of the Indus system of rivers. The Treaty extends to main rivers of Indus basin i.e. Sutlej, Beas, Ravi (Eastern rivers) and Jhelum, Chenab and Indus (Western rivers) including their tributaries and sub tributaries and other water bodies. All the waters of the Eastern Rivers were allocated to India for her unrestricted use while India is under obligation to let flow all the waters of the Western Rivers, except for the domestic, non-consumptive and other uses permitted in the Treaty.

ii. A Treaty has been signed with Nepal in the year 1996, viz. **Mahakali Treaty** concerning Integrated Development of the Mahkali River (known as river 'Sarda' in India), including Sarda Barrage, Tanakpur Barrage and Pancheshwar Project. In addition, Kosi Agreement, 1954 (amended in December, 1966) and Gandak Agreement, 1959 (amended in April, 1964) were signed with Nepal for construction of Kosi Project and Gandak Project respectively.

iii. **Ganga / Ganges Waters sharing Treaty** was signed with Bangladesh in the year 1996 for sharing of Ganga/Ganges waters at Farakka. As per the Treaty, the Ganga/Ganges waters is being shared at Farakka (which is the last control structure on river Ganga in India) during lean period, from 1st January to 31st May every year, on 10-day period basis as per the formula provided in the Treaty[5].

3. THE FUTURE OF INDUS RIVER WATER TREATY

A. INDUS RIVER WATER TREATY:

The partition of Indian and Pakistan did not only create new boundaries, but had also divided the water resources and well- established irrigation systems of the Indian subcontinent. In the initial years post- partition, there had been issues of disruption of the Indus River in April by the state of Punjab [later rectified by P.M. Nehru]. Negotiations on the water sharing of Indus River began soon after. There were prolonged talks between the two governments assisted by the World Bank leading to the signing of the Indus River Water Treaty in 1960.[6]

According to the treaty, the Indus River along with its three western tributaries- Jhelum, Chenab and Indus, itself was allocated to Pakistan and the Eastern tributaries- Ravi, Beas and Sutlej was allocated to India. Neither of the countries are, as per the treaty allowed to build storages on the rivers allocated to the other except to a very limited sense. Restrictions had also been extended to irrigation development in India. Provisions had also been made regarding the exchange of data on project operation, extent of irrigated agriculture and so on. The treaty has also further mandated certain institutional arrangements: - wherein there has to be a permanent

[5] Ministry of Jal shakti, Water Treaty/ Agreement https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1807862 Posted On: 21 MAR 2022 7:53PM by PIB Delhi.

[6] Ramaswamy R. Iyer. "Indus Treaty: A Different View." Economic and Political Weekly, vol. 40, no. 29, 2005, pp. 3140–44. JSTOR, http://www.jstor.org/stable/4416904. Accessed 2 Dec. 2025.

Indus Commission consisting of a commissioner each for India and Pakistan with the provision to convene at periodically via meetings and exchanges of visits. Provisions on dispute resolution w.r.t the treaty has been touted as one of the most effective provisions, especially between two countries with a fragile relationship. The treaty had included a provision of financial assistance to Pakistan for the development of irrigation works and to ensure the maximum utilization of water resources allocated to it. As per this provision, India too had paid a total sum of £ 62.06 million as laid down in the treaty.

B. SIGNIFICANCE OF INCLUDING CLIMATE CHANGE IMPACT IN THE INDUS RIVER WATER TREATY-

The impact of climate change has cast a vulnerability on the Indian subcontinent w.r.t. hydrology, water scarcity, flooding and agriculture. However there has not been much of a change in tackling hydrological problems caused by climate change in India. The Ganga, Brahmaputra and Indus are the most important river systems all three of which are international transboundary rivers shared by India with its hostile neighbours. The main river systems of the Brahmaputra, Ganga and Indus that originate in the Himalayas are vulnerable to climate change due to the significant contribution of snow and glaciers to them, recent studies have proven that that global warming and its impact on the hydrological cycle and the nature of hydrological phenomena would pose an additional threat to the Indus Basin.[7]

The Indus River Water Treaty has come under pressure due to increased water scarcity in India and Pakistan and the environmental threat to the Indus River system. There has been heated debates on both sides to engage in diplomatic talks and on the other side, a call for the abrogation of the treaty and enter into Water Wars. Whereas on one hand, there has often been allegations on India of "stealing" Pakistani Water, on the other hand, the overflow of water has led to claims of India deliberately flooding the other side. Covering an area of 1.12 million square kilometres, the basin is shared by 300 million people. Glacial melt from the western Himalayas provides more than 40 per cent of the annual water flow into the basin. According to forecasts, in the next 50 years the number of glaciers will decrease leading to an increase in river flow. The depletion of glacial reserves will be followed by a 30–40 per cent decrease in

[7] Bhat, Rameez Mohd. "The Indus Waters Treaty: Climate Change And Its Growing Threat." World Affairs: The Journal of International Issues, vol. 24, no. 1, 2020, pp. 70–89. JSTOR, https://www.jstor.org/stable/48622908. Accessed 28 Nov. 2022.

water flow in the Indus River.[8]

4. PROXIMATE MODEL: THE MAHKALI RIVER TREATY [INDIA- NEPAL]

A proximate model to the Indus River Water Treaty could be the Makhali river treaty signed with Nepal. This treaty has received theoretical praise for its integrated basin development models. Various findings and reports submitted by the European Union's Water Framework Directive has emphasized that the treaty " is the best model to manage river water according to the natural geographical and hydrological unit, instead of according to the administrative or political boundaries"- which had been quite the trend at that period, most of the treaties which exist till date. With the praise accorded on one side, the empirical successes awarded to non-violated treaties on water– sharing models between hostile nations remains to be at a bare minimum - this itself would be a point of contention to compare the Indo- Nepalese treaty with that of Indo- Pakistan Water sharing treaties, however in recent times India and Nepal have had their own share of 'vexed bilateral relations'. There are stark differences between the Indus River Water Treaty and Mahkali Water Treaty. Nevertheless, the author in this paper propose that this lacuna in the Indus River Water Treaty that can be mitigated by the Mahkali Water Treaty.

First- the Mahkali Water Treaty envisions cooperation on a single river as compared to Indus River Water Treaty which focuses on the aggregate waters of the basin, despite the aggregate water sharing system had been deemed to be "a, technically feasible solution in an adversarial environment".[9]

Second- the Mahkali Water Treaty was designed specifically for the usage of the two countries, wherein the specific projects like the Sarada Barrage, Tanakpur Barrage and the Pacheshwar Dam Project and other specific projects like the projects for hydroelectric generation, storing monsoon runoff for irrigation and providing a buffer against flooding. Which contrasts the Indus River Water Treaty, wherein it proposes the *"wholesale division of waters irrespective of synergies or the relative strengths and needs of the countries."*

Third- The Mahkali Water Treaty assigns responsibilities and benefits based on the capacity of

[8] Mahe Zehra Husain. "The Indus Waters Treaty in Light of Climate Change". 2010, online at http://www.caee.utexas.edu and http://environmentportal.in Accessed 28 Nov. 2022
[9] Alam, Undala Z. "Questioning the Water Wars Rationale: A Case Study of the Indus Waters Treaty." The Geographical Journal 168, no. 4 (2002): 341–53. http://www.jstor.org/stable/3451476.

each country. The treaty also recognizes the importance of preserving the ecosystem by including explicit obligations on both countries to maintain a long-term stability of water supply. For Example, Art. 1 of the Mahkali Water Treaty requires India to maintain a minimum waterflow below the Sarada Barrage to ensure the maintenance and preservation of the eco-system of Mahakali.[10]

Fourth- an important aspect of the Mahkali Water Treaty is the collaborative cost imposed on both the parties, wherein they are both required to take unilateral obligations solely for the benefit of the other party- this has acted as an important confidence- building measure but also ensures accountability between the parties.

Fifth- whereas the Indus River Water Treaty has been consistently praised for its dispute resolution mechanism, the Mahkali Water Treaty contains within itself a unique perspective. Wherein the Mahakali Model forces both parties, in good faith consider the objections raised. This becomes a necessity because the projects are to be jointly approved. By forcing the required development to be a collaborative process, the treaty has, to a certain extent mitigated the dangers of misinformation with regard to intent of the country proposing the project.[11]

Sixth-the Mahkali Water Treaty provides for water utilization in favour of Nepal, this is presumed by academicians to be a concession to the Nepalese who were at that time still suspicious of Indian motivations. Despite having a large population and still largely relying on agriculture, India does have access to a better irrigation infrastructure and water shed projects given that it has access to the Gandak, Ganges, Kosi and Mahakali rivers. Maybe by granting a similar access to Pakistan like Nepal, especially considering the Pakistani agrarian economy and the reliance it has on the Indus River, India could reassure Pakistan of its intentions in negotiating a new or amend the existing water-sharing treaty.

While there have been several criticism placed against the Mahkali Water Treaty, the treaty does emphasize on cooperation, mutual investment and joint development which has been beneficial in improving the bilateral relationship between the two countries. One could hope that maybe a similar result could be achieved w.r.t the Indus River Water Treaty as well.

[10] Treaty Concerning the Integrated Development of the Mahakali River, Art. 1, India- Nepal, Feb. 12, 1996, http://jalshakti-dowr.gov.in/sites/default/files/MAHAKALI_TREATY_19961.pdf
[11] Bhatnagar, Manav. "Reconsidering the Indus Waters Treaty." Tulane Environmental Law Journal 22, no. 2 (2009): 271–313. http://www.jstor.org/stable/43294064.

5. A WAY FORWARD: JOINT BASIN DEVELOPMENT

By incorporating the basic tenets of the Mahkali Water Treaty, the infirmities that ails the Indus River Water Treaty can be mitigated to a certain extent. This can be alleviated by replacing the existing adversarial structure of the treaty and replacing it with a water-sharing regime emphasising on joint development and integrated basin management.

This would mean that both India and Pakistan would be required to jointly administer the integrated basin approach which would in turn ensure a 'confidence- building measure' encouraging cooperation and rapprochement between the two countries. This joint development would require "the shifting from a primary focus on the allocation of waste to a wider focus on sharing the benefits from the use of water"[12] - there by facilitating optimal utilization of the resource. As explained by Salman M.A., "The comparative advantages of each of the riparian differences in typography, climate, or other resource used effectively to generate synergies. For example, one be better endowed to use the shared river for power another riparian state may have better soil, climate, and irrigation. This optimization of the use of the shared benefits shared by all the riparian states."[13]

This type of a joint development water-sharing regime can be used as a confidence building mechanism, to alleviate tensions, combat misinformation and also actively strengthen bilateral relations between adversarial countries. Kraska in his article had stated that, negotiation of transboundary river water agreements can be used to widen political participation, build political stability and spread confidence between basin states. He also stated that "the very process of reaching an accommodation and developing a bilateral resource and an environmental mechanism for cooperation would create a more stable and a transparent atmosphere"[14]

[12] Salman, Salman M.A. "Dams, International Rivers, and Riparian States: An Analysis of the Recommendations of the World Commission on Dams." American University International Law Review 16, no. 6 (2001): 1477-1505. https://digitalcommons.wcl.american.edu/cgi/viewcontent.cgi?article=1255&context=auilr

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[14] Kraska, James. Sustainable Development is Security: The Role of Transboundary River Agreements as a Confidence Building Measure (CBM) in South Asia. Yale journal of International Law. 2003 https://openyls.law.yale.edu/bitstream/20.500.13051/6465/2/21_28YaleJIntlL465_2003_.pdf

6. CONCLUSION

The Indus River Water Treaty is riddled with both conceptual and practical flaws that have been exposed time and again by the ever-changing water politics in South Asia especially in the light of climate change impact. The changes required to be made in the Indus River Water Treaty need to mitigate the decreasing water availability, flooding and its corresponding impacts. This can only be done by ensuring flexible allocation strategies to accommodate climate change via joint management of the basin. The author in this article have tried establishing the significance of the changes required and have also attempted to propose changes to the water sharing regime that is not only desirable in a normative sense but also from the perspective of the political changes that may be rendered in the near future due to the increasing demand for water and the rising dissatisfaction between both the countries. Acknowledging and understanding the strained relationship existing between both the countries, especially in relation to the prevailing public opinion, the author propose that any renegotiation w.r.t the treaty could be conducted in the presence of a neutral international organization to ensure negotiations in good faith over the costs and burdens of the urgently required new regime.

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