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Geopolitics of Water in South Asia: A Case-Study of Indus Water Treaty as a Conflict Resolution Mechanism for Pakistan-India Water Security Dilemma

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ABSTRACT

Water resources are the lifeline to any country's economic growth and development. Water is a fundamental human right because it is indispensable for human existence. Pakistan and India both are water-scarce states. The discord of Indus Basin water started when Redcliff Award favoured India. Indus Water Treaty (1960), a trans-boundary treaty played an imperative in resolving the water conflict through its conflict resolution mechanism. Of late, Pakistan protested against India's construction of various dams, diverting the flow of western waters and violating the Indus Water Treaty. This study intends to explore the water security dilemma of Pakistan as a downstream riparian. This research concludes by presenting potential recommendations to help prevent future water crises. If harnessed properly, this treaty would help not only diffuse tensions between two nuclear neighbours but will extend peace and amity in the entire region.

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Introduction

Water has always been man's most essential natural resource (Solomon, 2010:3) and necessary for the sustained development of any economy. Over the last 50 years, global water use has tripled. As per the World Bank report, more than 2.8 billion people live in places with high water stress in 80 nations today. By 2030, this is anticipated to increase to 3.9 billion, or more than half of the population of the world in a 'business as usual'-scenario (Rasmussen, 2011 June 12). South Asia is

confronted with a severe water issue that endangers its ability to advance politically, economically, and environmentally (Chellaney, 2011). According to the UN, the South Asian region would experience complete water scarcity by the year 2025. Pakistan is reaching the point of water shortage. What's worse, the groundwater reserves, the last resort of water supply are swiftly depleting (Kundi, 2017). It is ranked third among countries in the world confronting acute water shortage (Haines, 2017).

From the beginning, the Indus River system has been serving the northwest of the Indian subcontinent. Problems of water distribution that emerged during British rule were internal because Punjab and Sindh came under the federal government (Ali, 2015). The Indus irrigation system is made up of the Indus River and its tributaries are one of the largest continuous irrigation systems in the world that plays a key role in Pakistan's agriculture production (Qureshi, Hussain & Nisa, 2014). During partition of the Sub-continent, the decision was made by the Punjab Boundary Commission where the Indus Basin water issue first began. According to the 1941 census, the district of Gurdaspur had a majority of Muslims, with only Pathankot's tehsils having a non-Muslim majority (77 percent). However, only Shakargarh succeeded Pakistan, and Gurdaspur, Batala, and Pathankot were allotted to India (Hussain, 2017).

After the partitioning of Pakistan and India as sovereign states in the sub-continent, water security has emerged as a reality between the two states. India, as an upper riparian halted the supply of water and Pakistan depended totally on the supply of the Indus basin for its survival (Ali, 2015). Pakistan's economy is agrarian and depends on a sole source, the Indus basin to meet its requirements (Asim et al., 2012). Pakistan, like many other countries of the region, is water stressed owing to the high population rate, rapid urbanization, and climatic changes (Akbar et al. 2021).

The discord between Pakistan and India was resolved through a conflict resolution mechanism proposed in Indus Water Treaty (IWT) 1960 which is the only internationally successful water-sharing endeavor. It has survived for more than six decades despite three major wars fought between Pakistan and India, by guaranteeing Pakistan sufficient water supply. After 6 years of negotiations, Pakistan's President Mohammad Ayub Khan and Indian Premier Jawaharlal Nehru signed the IWT. The WB was the third signatory (Cohen, 2013).

The treaty set a precedent of successful resolution of a water discord of international river basin with Under the treaty, India is allowed to use the water of the eastern rivers - Beas, Ravi, and Sutlej - for irrigation and other purposes, while Pakistan is allowed to utilize the water of the western rivers – Indus, Chenab and Jhelum - for similar purposes. It has survived the conflictual bilateral relations between Pakistan and India (Bhatti, Mustafa, & Waris, 2019).

However, disagreements regarding the operationalization of agreement between Pakistan and India the building of hydroelectric power projects by India that is building a 'chain of dams' and reservoirs spree on the western rivers that will decrease the water supply to Pakistan. India rejects the claims that these ventures are in accordance with the provisions of the agreement (Munir, Khalid & Shahrukh, 2021). India adopted an ideology of absolute sovereignty over water; the claim that an upstream power has complete ownership of the water that flows through its

borders and is free to use the water whenever it desires. A downstream state has the right to continue receiving water that it was used to receive (frequently stated in provisions of the agreement of established usage of water) such as for hydropower, industry, human consumption, irrigation, and of late to maintain riverine ecosystems and other purposes. Pakistan, a downstream and vulnerable state, proposed the principle known as territorial integrity (Haines, 2017). Despite these disagreements, the treaty remains in force and continues to regulate the use of the Indus waters by India and Pakistan. The current research work attempts to answer the following questions.

1. How IWT has resolved the water-sharing issue of the trans-boundary Indus Basin and water-scarce Pakistan?
2. How India currently violates the provisions of IWT by constructing hydroelectric plants on western rivers?
3. How can the better operationalization of the treaty be ensured for the sustainable development of Pakistan and India?

1. Literature Review

The disputes over the Indus waters started long before the autonomy of Pakistan and India. Frequent conflicts occurred but were resolved through local means. When the partition of Pakistan and India came into effect, the allocation of water was not decided. The dispute emerged as an international agenda between India's East Punjab and Pakistan's West Punjab. The political boundaries between Pakistan and India were drawn all across the Indus Basin, positioning Pakistan as the downstream riparian and India as the upstream riparian on five of the six Indus Basin rivers. The water system was meant to bifurcate in a way that the head works remained in India while the canal system ran in Pakistan. Therefore, India was given the sway to withhold crucial irrigation tracts from agricultural land in West Pakistan. Right from independence, the hydraulic economy of Pakistan faced huge challenges (Alam, 2002).

Later on, India on April 1, 1948, began to withhold water from canals that flow into Pakistan. The supplies of water have been restored after the restoration of the ceasefire between Pakistan and India. In 1951, Pakistan took the discord to the United Nations blaming India for cutting the water supply to varied regions of Pakistan (Haines, 2014). On recommendations of the UN, after a long period of deliberations, the World Bank submitted a proposal in 1954 but the stalemate continued. India claimed the proprietary rights over the waters of Eastern Rivers and requested to allocate the complete amount of water in the Indus Basin to two nations based on their 'needs'. The working party found it difficult to proceed because Pakistan and India could not agree to a common basis of discussion. Pakistan requested that the working party split the surplus waters between the two nations after reducing the portion needed to support the current uses of its eastern rivers and exclude the three western rivers from its deliberations. The boundaries of the Indus Basin were another point of disagreement between the two nations. As per Pakistan's standing, it has an 'inherent right' to all tributaries Indus of Basin. India again disagreed that the prior sharing of water cannot regulate the future distribution (Hussain, 2017). The treaty was meant to fix and delimit the rights and obligations of both countries regarding the use of water from the Indus River. Eventually, in

1960, the two countries reached an agreement that was Indus Water Treaty (Bauer, 2022, Sep. 12).

2. Water Scarcity: A Non-traditional Security Threat

The idea of security has traditionally been understood as safeguarding the national interests in Foreign Policy or the defence of territorial boundaries against external attack. It was more relevant to states rather than people (Hirsch, Dijstelbloem & Goede, 2020). Traditional security was understood as averting threats emanating from foreign powers, arising from outside of its borders that require a militaristic response (Baral, 2006). Military doctrine relies heavily on force and a state-centric approach.

The term National Security has now gained broader overtones. It is not only reliant on using hard power. To attain comprehensive national security that includes addressing non-traditional security challenges. Barry Buzan delineates that "the concept of security binds together individuals, states and international systems so closely that it demands to be treated in a holistic perspective." The traditional concept of security has increasingly broadened, intricate and entwined with the "new security dilemma" (Buzan, 1987). Karyotis defined security is not a "static or fixed" unit rather "it is created through a process of securitization" (Oni, 2012). Without the concept of security, the concepts of peace, human rights and economic development would remain meaningless. Security studies from a broader perspective take a holistic approach to peace-building by managing a country's military strategy, and economic, political and cultural, relationships within a "total strategy" to minimize risks and threats to human peace and development. The two fundamentals of human security are "freedom from fear and freedom from want" (Hirsch, Dijstelbloem & Goede, 2020).

The concept of traditional security has undergone a complete transformation by inducting human security, individual security, economic security, political security and environmental security leading toward a comprehensive security perspective. The conception of traditional security needs to be transformed in two ways by stressing the need for people's security than exclusively on territorial security and maintaining sustainable human development. The UN delineates water security as "…to safeguard sustainable access to water for livelihoods, human well-being, and socio-economic development…." (Stakhiv, Werick, & Brumbaugh, 2016).

The 21st century is entangled with non-traditional challenges that are internal. Human security has become a comprehensive and widely contested concept. As a result of globalization, the idea of security has been amplified and it is now generally opined that threats are not merely of military nature. Currently, global issues are mainly cross borders, organized crimes, terrorism, disagreements over natural resources, overflow of displaced persons, unlawful migration, poverty and starvation have gotten to be dangers for people and appear as critical as the traditional military resistance. The emergent food and water resource crisis has immediate implications for regional and global security. Previously, people, their lives, their rights, their needs and their development have been partially or completely overlooked. Water scarcity and management have emerged as major challenges for the South Asian region especially Pakistan that serves as a critical reminder of the evolving nature of the concept of national security. It has been faced with non-traditional security issues and environmental degradation, shortage of

food and water scarcity are among the most acute challenges that have hampered its political stability, progress, and economic development.

3. Topography of the Indus Basin

China, India, Pakistan and Afghanistan make up to form Indus Basin (Kondapalli, 2017). The Indus River is one of the most significant rivers in the world that is located between Northwest India and Pakistan. The Indus, the system's principal river, drains an area of 450,000 square miles from its source in the Himalayan Snow Belt to its mouth in the Arabian Sea. Originating from Tibet, China's southwest, it flows for nearly 200 miles, beginning near Lake Mansarovar, before entering Kashmir at a height of 14,000 feet in the southeast and traveling through the contentious region of Kashmir. It is skirting Leh in Ladakh (Indian occupied territories) before entering Gilgit, Pakistan and the Arabian Sea. Indus covers a total area of around 350,000 square miles. At the time of partition, a significant share of the Indus basin remained in Pakistan. Out of 37 million acres getting irrigation water, 31 million acres were in Pakistan. The boundaries between the two states were drawn disregarding the irrigational works. The Kabul and the Kurram rise in Afghanistan, which together total more than 700 kilometers in length, are its western tributaries. The five major tributaries from East, Sutlej, Beas, Jhelum, Ravi, and Chenab have a combined length of more than 2,800 miles (Miner, Patankar, Gamkhar & Eaton, 2009).

Source: https://propakistani.pk/2019/10/19/pakistan-warns-india-against-halting-its-share-of-water-under-indus-water-treaty/

1. Provisions of Indus Water Treaty 1960

"Anyone who can solve the problems of water will be worthy of two Nobel prizes - one for peace and one for science." (United Nations, 2006 August 9) Indus Basin system also got dividends with the partition of the sub-continent making water a key fault line between two immediate often-hostile neighbours. A Treaty regulating the utilization of Indus Basin Rivers, given the title of 'The Indus Waters Treaty' was signed on 19th September 1960 by Pakistan's President Muhammad Ayub Khan and Indian Premier Nehru. On behalf of the International Bank for Reconstruction and Development, the Treaty was signed by Mr. W. A. B. Illiff but only in respect

of Articles V and X and Annexures F, G and H (Jawed, 2017). "The IWT put an end to the long-standing dispute between India and Pakistan over the use of waters from the Indus River systems for irrigation and hydropower under the supervision and mediation of the World Bank." (Salman & Uprety, 2002).

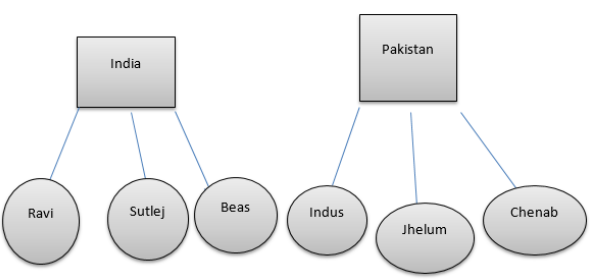
Table 1: Provisions of Indus Water Treaty 1960

"Articles in IWT	**Annexures in IWT**
Article I: Definitions	Annexure A: Exchange of Notes between Pakistan and India
Article II: Provisions regarding Eastern Rivers	Annexure B: Agricultural use by Pakistan from certain tributaries of the Ravi
Article III: Provisions regarding Western Rivers	Annexure C: Agricultural use by India from the Western Rivers
Article IV: Provisions regarding Eastern and Western Rivers	Annexure D: Generation of Hydro-electric power by India on the Western Rivers
Article V: Financial Provisions	Annexure E: Storage of Waters by India on the Western Rivers
Article VI: Exchange of data	Annexure F: Neutral Expert
Article VII: Future Cooperation	Annexure G: Court of Arbitration
Article VIII: Permanent Indus Commission	Annexure H: Transitional Arrangements
Article IX: Settlement of Differences and Disputes	
Article X; Emergency Provisions	
Article XI: General Provisions	
Article XII: Final Provisions"	

Source: Data in the table are taken from Indus Water Treaty 1960 document.

- According to Article II of IWT, the waters of three eastern rivers, Ravi, Sutlej and Beas were allocated to India. As per Article V of the treaty, Pakistan was given western rivers Indus, Jhelum, and Chenab (Qureshi, 2017). According to the agreement, India is given exclusive water rights to use the eastern rivers after Pakistan is allowed to use them for specified purposes and before they cross into Pakistan. Similar to India, Pakistan is the only country with exclusive access to water from western rivers.

Fig. 1. *Division of Eastern and Western Rivers in IWT*



- Article III of the treaty bound India to maintain the natural flow of western rivers except for
- 1. Non-consumptive needs like irrigation, 2. domestic use 3. agricultural use 4. electricity generation.
- According to Article IV of the IWT, to use the water from the western rivers, Pakistan had to develop a canal system in the transition time of ten years during which India was obligated to supply Pakistan with water from its eastern rivers (Annexure-H). Article V stated that Pakistan will be given one-time financial compensation for the stoppage of water from Eastern Rivers (Chaturvedi, 2018). On western rivers, Pakistan constructed an alternative system of two dams, six barrages and nine link canals to compensate season change and irrigation water. The WB established a Indus Development Fund with the amount of $ 900 million in which India contributed $174 million. After the completion, India and Pakistan will have their independent control on the supplies of eastern and western rivers respectively.

The resolution of the treaty brought an end to a conflict between Pakistan and India through the equitable share of the Indus basin. The well-being of millions of people depends on the successful implementation of the treaty. Instead of sharing their waters, the agreement led to the division of rivers between Pakistan and India.

5.1 Conflict Resolution Mechanism of IWT

- The trans-boundary water treaty, cosigned and brokered by WB provides a comprehensive multilevel framework to resolve disputes both bilaterally and through international arbitration. As stated in Article VIII, both conflicting parties are required to communicate and work together on issues related to the agreement by establishing a Permanent Indus Waters Commission (PIC) to decide future conflicts over the distribution of water. The Commission was required to meet annually to observe potential conflict and cooperative plans. The provision of Article IX of the Treaty is concerned with the “Settlement of Differences and Disputes” and provides a conflict resolution mechanism. If a "question" is not determined, mechanisms include exchange of PIC, and if it becomes a "difference", resolution should be made through a Neutral Expert (Annexure F) whose verdict on all emerging disputes as a competent authority is “final and binding”. If the “difference” endures and is considered as a “dispute”, a Court of Arbitration (Annexure G) is established (Akhtar, 2010).

The appointment of two Commissioners as representatives of their respective governments under Article VIII of the Treaty serves as a regular means of exchange on all issues about the operationalization of the Treaty and conflict resolution through inspection, information exchange, and visits. The commission has endured three major wars between Pakistan and India. Moreover, the contribution of WB remains more procedural in appointing the neutral expert and establishing the COA (Akhtar, 2010).

5.2 Provisions for Future Cooperation in IWT

- In Article VI and VII, the treaty lays down the norms that is related to "exchange of data" and "future cooperation," respectively. This required the regular exchange of data to each other about the flow and use of water of the rivers including: “a) daily gauge and discharge data relating to the flow of the rivers at all observation sites; b) daily extractions for or releases from reservoirs; c) daily withdrawals at the heads of all canals operated by the government or any other agency thereof, including link canals; d) daily escapades from all canals, including link canals; and e) daily deliveries from link canals” to be communicated on regular basis by both sides, but if such data are “necessary for operational purposes”, it shall be “supplied daily or at less frequent intervals, as may be requested” (Akhtar, 2010).
- It was a pre-requisite for India to share information on its storage and hydropower plants.

If any party aims to build any engineering work causing interference with the waters will inform the other party and share information related to the work and notify other party about the nature, magnitude and effect of the work (Akhtar, 2010).

5.3 Change in the provision of the Treaty

No party can withdraw from the treaty unilaterally. The provisions of the treaty may be modified in the future and duly ratified by both governments (Article XII). Recently, India halted the water in the aftermath of the Uri attack in 2016 allegedly accusing Pakistan of its backing without any investigation. Indian premier says, "blood and water cannot flow together" and halted the meetings between Indus Water Commissioners of both sides (Wirén, 2019) which is India's explicit violation of IWT. Afterwards, India upped the ante to modify the IWT after Pakistan’s objected on the Construction of Kishanganga and Ratle hydroelectric projects which divert the flow of western waters in Court of Arbitration (CoA) in Hague (Sen & Dilawar, 2023 January, 27). Moreover, India has not only boycotted the arbitration but issued notice to Pakistan but India cannot amend or withdraw the Treaty unilaterally.

4. India’s Construction of Dams on Western Rivers

Currently, India disregards the criteria specified in IWT by building a chain of hydropower projects on the western rivers which is alarming for water-intense Pakistan because it will divert the water flow of the western rivers.

6.1 India’s Construction of the Kishanganga Dam

An $860 million dam is a run-of-the-river hydropower project (330 MW) designed to redirect a significant amount of water from the Kishanganga Dam in Indian Illegally Occupied Jammu & Kashmir (IIOJ&K) to a power plant in the Jhelum River basin and do measurable harm to Pakistan's agricultural industry. India's clear violation of IWT has created a critical water situation in Pakistan. To redress its concerns, Pakistan protested before the Indus Commission and then via international tribunals and attempted to halt India from the construction of a dam. Construction of the plan began in 2007 but was temporarily halted in 2011 by Hague's Permanent CoA owing to Pakistan's protest that the Kishanganga Dam would affect the flow of

water to Pakistan because its 80 percent of the irrigated agriculture depends on Indus Water and its tributaries. The CoA in 2013 gave a ruling India may drain water from the Kishanganga to generate electricity. Then Pakistan approached the World Bank in 2016 as it is governing body acting as the arbitrator by making the immediate countries abide by the IWT. Pakistan protests that India is acting against the terms of IWT and that this hydroelectric plant will reduce Pakistan's share of water. However, The Bank declared that it had halted the appointment of the CoA or a neutral expert and begun the arbitration process. India was permitted to construct hydropower plants on western rivers subject to the conditions indicated in the Annexure of the treaty. India agreed to appoint a neutral expert to address concerns of Pakistan that are not contentious but technical. The WB gave consent to construct Kishanganga hydroelectric project after a secretary-level meeting between Pakistan and India. Afterward, Indian premier Modi inaugurated the Kishanganga hydroelectric project on the 19th of May, 2018 which is a fast-tracked project in an IIOJ&K amid a hostile environment between the nuclear-armed rivals (Mirza, 2016).

6.2 India's Construction of Rattle Dam

The Rattle hydroelectric project (850 MW) is the under-construction run-of-the-river power plant in the IIOJ&K, located downstream of the village of Rattle on the Chenab River. Two power plants and a gravity dam that is 133 meters (436 feet) adjacent to each other will be directed through four intake tunnels. In 2013, Indian Premier Manmohan Singh initiated the dam. Pakistan has frequently alleged this violation is a direct contravention of IWT. Pakistan objected and rushed to the WB. The WB permitted India to construct the dam and in 2019 construction of the dam started (Zaafir, 2019 Dec 15).

6.3 India's Construction of Multitudes of Dams

In the Kishtwar area, a second 540-megawatt Kwar power hydropower project would be built across the Chenab River. India completed the Baghliar dam which is also a run-of-the-river hydroelectric project in IIOJ&K, with a storage capacity of 0.321 MAF. The permanent Indus Commission could not address Pakistan's issues. India constructed the Wuller Barrage/ Tulbul Navigation project on River Jhelum. This project would help India to store water for six months in the wet season. Pakistan protested and India suspended the construction therefore Pakistan did not take the issue to CoA. The proposed Burser Dam near Kishtwar in IIOJ&K is built on Chenab and Jhelum with a storage capacity of 2.2 MAF. Dul Hasti is a hydroelectric project in the Kishtwar district of Jammu built on the Chenab River. Salala hydroelectric project is built on the Chenab River (Ahmad, 2011). Pakistan is now raising questions, about India stealing water. Pakal Dul (1000 MW), Lower Kalnai (48 MW47), and Tulbul Navigation Projects on Jhelum in independent Kashmir are underway project. India now is rapidly working on Sawalkot, Pakal Dul and Bursar projects. On July 29, 2004, the dialogue between the Baglihar dam and the Wuller barrage started in Lahore. It was indicated by Pakistan that it would not seek WB arbitration if the issue was resolved through bilateral talks (Wolf, & Newton, 2008).

5. Issue of Water Management in Pakistan

There is no comprehensive national policy for water administration in Pakistan. As a largely agricultural country, to fulfill its irrigation needs and 80 percent of population needs, Pakistan is critically dependent on Indus Basin. Due to scarce water supplies, people in Pakistan are compelled to exploit unregulated groundwater supplies. The governance of both ground and surface water is critical for the sustainability of Pakistan.

Pakistan is categorized six most populated countries in the world that is estimated to increase by 220 million by 2025 will result in rising food and energy insecurity. The upward demand and access gap and lack of storage capacity are compelling water a base of confrontation amid its provinces. Droughts have become a serious problem in Sindh. Baluchistan and KP provinces have not been able to use their due apportion of water. Baluchistan also arraigns Sindh for stealing its water. Punjab is allocated slightly higher water, however, it has double-cropped areas than Sindh. There is a need for a proper mechanism to distribute water between provinces (Janjua, Hassan, Muhammad, Ahmed, & Ahmed, 2021).

Climate change has the worst effects on the water supply. Glaciers supply water and fulfill human needs for agriculture and domestic use. Glaciers in Pakistan are melting due to increasing temperatures. When the glacier melts, there is a surge of water that ultimately shrinks and creates a problem in near future. In this regard, Pakistan has always adopted ad-hoc policies. To address these atmospheric concerns, there is a need to implement water conservation policies by constructing new water reservoirs and managing the allocation of water resources efficiently.

Conclusion

The partition between Pakistan and India brought with it miseries. It divided land and divided rivers too. As the upper riparian state, India emerged as a sovereign state to regulate the canal headwork supplying water to Pakistan. With the mediation of the WB, Pakistan and India reached a settlement that is IWT in 1960 after a prolonged negotiated settlement. In an atmosphere of a high level of distrust, negative public perceptions, and history of a violent past, moving ahead without any political wisdom and with a rigid approach can never resolve the issues amicably. There should be a paradigm change between Pakistan and India from conflict to cooperation, and distributing water to distributing other gains, and India must halt its hegemonic attitudes of an upper riparian due to its geographical contours. Both countries are water stressed and this treaty has the potential for future cooperation and collective management of water for the common good and prosperity of the people on both sides of the border and then the entire region.

Recommendations

The following recommendations are made in the light of findings of the study:

- Pakistan needs to construct new reservoirs, flood canals and dams swiftly including the Kalabagh Dam, and Diamer Bhasha Dam both sited at the Indus River, and the Mohmand Dam sited at the Swat River, KP to save the water of rainfall, floods and release of water from the Indian side. Since, Kalabagh dam is deemed as the solution for all issues with water availability, preventing floods, having enough storage space, and

producing electricity. It is believed to be an Irrigation Dam from which canals would be taken out to irrigate lands located in Punjab and KP plains. Some consider it extremely harmful. All the provinces in Pakistan have continued to be ignorant of the acute water shortage they are causing for the coming generations. In the atmosphere of mistrust and suspicion, it is apprehended that The Government of Pakistan and WAPDA have started construction over Diamer Basha Dam and Mohmand Dam.

- The successful resolution of the Kashmir issue through a referendum under the auspices of the United Nations is the only way forward to resolve all other bilateral issues including water scarcity between Pakistan and India.
- The continuity of the dialogue process in itself is a success story in ties between Pakistan and India. The worsening water crisis must be dealt by negotiated settlement between Pakistan and India under the umbrella of international forums such as the World Bank and the International Court of Arbitration.
- India is constructing the Kishanganga dam on the Jhelum River and the Rattle dam on the Chenab River which is a serious violation of IWT. In this regard, Pakistan should approach international forums to stop India from building more and more dams.

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