Water cooperation is essential for riparian states to equitably distribute and utilize their transboundary water resources. In South Asia, Pakistan and India are lower and upper riparian states, respectively, sharing the Indus Basin. The Indus Waters Treaty is a fundamental bilateral agreement, establishing a mechanism for them to cooperate over water. However, certain factors result in disrupting the cooperation, such as the continued construction of controversial Indian dams, Indian regional water hegemony policy, the existence of historic hostilities, and the discussion of the Kashmir issue in the bilateral peace dialogues. In addition to the IWT, international law includes obligations for states to cooperate in the use of shared transboundary watercourses. In this regard, the Law of Non-Navigational Uses of International Watercourses establishes a duty to cooperate for the equitable utilization and joint management of transboundary watercourses. The Berlin Rules recommend the establishment of water cooperation to riparian states for their mutual benefit. Moreover, other states have also cooperated over water; India and Pakistan can emulate them by establishing a persistent and symbiotic cooperation that would result in providing mutual benefits.


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I. INTRODUCTION

Water cooperation is an essential feature of managing international watercourses among riparian states. It requires riparian states to coordinate with one another through the sharing of information and the creation of joint cooperative mechanisms for the optimal utilization of water resources for mutual benefit. In this spirit, cooperation was established for the sharing of the Indus Basin between India and Pakistan with the signing of the Indus Waters Treaty (IWT) fifty-seven years ago. Both states acted upon the treaty and cooperated with each other through the formation of a joint body—the Permanent Indus Commission. However, over time this cooperation mechanism deteriorated owing to the initiation of controversial dams by India.

India did not act upon the legitimate concerns of Pakistan regarding the controversial dams, and this has been particularly so over the last two decades. Moreover, India has also given a recent official statement suggesting that it might revoke or modify the IWT, a decision that would completely terminate cooperation over the water of the Indus Basin. Such an action would also be against India’s international legal obligations, which require cooperation among riparian states. This paper explores these legal obligations.

2. *Id.* at 324.
6. *Id.* For details regarding the contentious dams of India, see Undala Alam, *India and Pakistan’s Truculent Cooperation: Can it Continue?, in International Law and Freshwater: The Multiple Challenges* 406, 416–18 (Laurence Boisson de Chazournes et al. eds., 2013) (explaining that a controversy from the late 90’s led to dispute resolution for the first time under the treaty terms).
7. See Iqbal, *supra* note 5.
The paper is divided into four sections. The first section includes an explanation of the term “water cooperation” and its significance at the international level. The contemporary situation of water cooperation in the Indus Basin is also discussed, along with the factors that have deteriorated cooperation. The second section of this paper assesses the cooperation mechanism enshrined in the IWT. The third section makes recommendations for international law regarding water cooperation, while the last and fourth section notes some examples of water cooperation among states.

II. WATER COOPERATION

Cooperation is an essential characteristic of international relations, as it plays a key role in maintaining the cordial nature of relations among states. It can be defined as a procedure by which two or more parties or states work together to accomplish mutual goals that could not be achieved by one state unilaterally. On a similar note, the term water cooperation implies an establishment of coordination among two or more parties or states over the distribution, utilization, and management of their shared water resources.

Water cooperation has gained significant attention in recent years because several countries are approaching water scarcity and because several disputes have emerged among states in recent history over the distribution of their common transboundary water resources, which have needed to be resolved through the establishment of cooperative
measures.\textsuperscript{13} Several states rely on freshwater for their agricultural subsistence and energy production.\textsuperscript{14}

When states own transboundary freshwater resources, they claim their ownership over it as a means of expressing their sovereign right over that water resource.\textsuperscript{15} If a common watercourse passes through two or more states and they are geographically the upper and lower riparian states, then this creates a problematic situation when the upper riparian state utilizes more than its share of water by diverting a significant quantity toward its own land for agricultural or any other purposes, subsequently resulting in a shortage of water in the basin of that water resource for the lower riparian state.\textsuperscript{16} Such exploitation is now prohibited by international law.\textsuperscript{17} However, in the event of violation or incomplete compliance of international law by the upper riparian state, the lower riparian state feels the need to resort to dialogue or some other cooperative measures to convey its concerns to the upper riparian state. Hence, this establishes a need for cooperation among riparian states. In this regard, international law also includes special provisions for maintaining efficient mechanisms of cooperation among riparian states.\textsuperscript{18} Through these cooperative measures, riparian states can avoid causing harm to one another by utilizing their shared transboundary water resource.\textsuperscript{19}

This paper will evaluate water cooperation in the Indus Basin, which is shared by India and Pakistan. The Indus Basin is the major source of

\begin{enumerate}
\item See \textit{The Multi-Governance of Water: Four Case Studies} 148 (Matthias Finger et al. eds., 2006).
\item \textit{Everyday Modernity in China} 312 (Madeleine Yue Dong & Joshua L. Goldstein eds., 2006); \textit{see also} Erika Weinthal, \textit{State Making and Environmental Cooperation: Linking Domestic and International Politics in Central Asia} 43 (2002).
\item \textit{Id.}
\item \textit{Id.; see also} G.A. Res. 51/229, annex, Convention on the Law of the Non-Navigational Uses of International Watercourses, art. 7(1) (May 21, 1997).
\end{enumerate}
water for Pakistan. It comprises the Indus River and its five tributaries, namely the Chenab, Jhelum, Beas, Ravi, and Sutlej rivers. The water in the Indus Basin reaches Pakistan after passing through India and certain parts of the Kashmir and Jammu Valleys, having originated in the Himalayan glaciers.

The Indus Basin holds key importance for Pakistan and India because its water irrigates a major crop area in both countries. Therefore, both states must cooperate to reap the collective benefits of the common basin. The efforts for water cooperation in the Indus Basin between India and Pakistan became successful historically in 1960 when the World Bank brokered the IWT. This treaty guides both states in utilizing Indus Basin water. Acting upon the principles of equitable utilization and justice, the treaty prescribes a simple formula for distributing the water of the basin and all of its tributaries, allotting the three eastern river tributaries of the Indus to India and the three western river tributaries to Pakistan. Furthermore, the treaty established the Permanent Indus Commission as a joint body responsible for resolving


24. See Adeel & Wirsing, supra note 13, at 12.


27. See McIntyre, supra note 8, at 196.

bilateral differences through cooperation. The treaty has successfully survived the tense years of conflicts, wars, and hostilities between the states and therefore holds key importance in maintaining the water cooperation between them.

However, recently India has indicated its intention to revoke or modify the IWT, as it is keen to acquire a larger share of the water in the western rivers: the Jhelum, Chenab, and Indus rivers. The revocation of the IWT will mean a total absence of cooperation over the Indus. This sense of noncooperation between India and Pakistan has not appeared suddenly; rather, its roots have strengthened over the last couple of decades with India’s failure to cooperate with Pakistan over certain provisions of the IWT: the sharing of accurate data on its present and upcoming water storage projects, non-consumptive use, and other issues related to its dams on the waters of the Pakistani western rivers. The absence of dialogues and repeated Indian government official statements endorsing a reconsideration of the IWT for its modification or revocation have created a sense of noncooperation and hostility between both states.

33. See The Impact of Asian Powers on Global Developments 84 (Erich Reiter & Peter Hazdra eds., 2004). This is because the Indus Waters Treaty is the only bilateral treaty that facilitates and recommends both states to establish water cooperation between them.
A. Reasons for the Failure of Persistent Water Cooperation in the Indus Basin

Certain reasons have contributed to disrupting the cooperation between the states on water utilization and several other issues. These reasons have been present throughout the history of their relations and have contributed to the absence of cooperation. The major factors and reasons are elucidated below.

1. Indian Regional Water Hegemony

In South Asia, India has the geographical position of being an upper riparian state to Bangladesh and Pakistan.35 This position gives India an advantage over both states to exploit its utilization of shared river basins.36 Pakistan is not the only country that has water-related issues with India, for Bangladesh is also affected by inequitable Indian utilization of shared transboundary river waters.37 India and Bangladesh share fifty-four rivers.38 There is also a treaty between both states—the Ganges River Treaty39—however, Bangladesh still has issues with India over the distribution of Ganges River water.40 Historically, India has continued to release large amounts of Ganges River water to Bangladesh to protect its own regions around the Ganges from inundation during the rainy season.41 However, the diversion at Farakka Barrage, located in the Indian State of West Bengal, has resulted in devastating floods in

According to Bangladesh’s government authorities, such an inundation of its territory has resulted in significant losses related to the devastation of crops, the death of livestock, damage to public and private property, damage to forestry and fisheries, hazards to health and environment, and losses to the economy.43

On the other hand, another dispute is raised by Bangladesh over the distribution of water of the Teesta River.44 Bangladesh demands equitable water apportionment in this river and has also requested that India sign a treaty agreeing to allocate Bangladesh its due share of Teesta river water.45 The Indian government initially agreed to do so; however, at the very last moment before signing the treaty the former Indian prime minister Manmohan Singh backed off the agreement and did not sign it during his short visit to Bangladesh in 2011.46 Political and administrative circles in Bangladesh have criticized India’s U-turn.47 They accuse India of establishing regional water hegemony over Bangladesh.48 The case is similar for the Barak River, on which India is constructing a hydropower project, which Bangladesh views as a threat to the water supply available in downstream Bangladesh.49

This situation is similar to India’s water management issues with Pakistan, as Pakistan has also repeatedly accused India of inequitable and unjustified utilization of western river waters within Indian territory.50 Pakistan maintains that the Indian water storage projects over the western rivers have the capacity to deprive a large community in Pakistan of their due share of western river waters because the capacities of Indian dams

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42. Kawser & Samad, supra note 41, at 6.
44. Arjit Mazumdar, Indian Foreign Policy in Transition: Relations with South Asia 94 (2014).
47. Id.
are tremendously high. Pakistan has also alleged that India has adopted a hegemonic regional water policy through depriving Pakistan of its due share of water in the river basins. Such a situation also creates a lack of trust between both states and any invitation from one side that includes suggestions for cooperation over water is deemed suspicious by the other side, which inhibits the cooperation between them.

It is in the core interests of both India and Pakistan to establish sustainable cooperation for the development of the Indus Basin to achieve mutual benefits from the efficient use of the water of the basin. Both nations are emerging economies that depend largely on agriculture, which is reliant on river water for irrigation. Therefore, it is in the interests of both to initiate cooperation for the better utilization and management of their shared water resources.

2. Controversial Indian Water Storage Projects

India is continuing the construction of the water storage projects to which the Pakistani government has expressed its reservations. As per the official stance of the government of Pakistan, these water storage projects have the potential to cause significant harm to Pakistan in terms of substantially decreasing the flow of water to its rivers. Pertinently, Pakistan has shared its concerns over twenty-seven Indian water storage

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51. See Kristina Roic et al., The Ebb and Flow of Water Conflicts: A Case Study of India and Pakistan, in IMAGINING INDUSTAN: OVERCOMING WATER INSECURITY IN THE INDUS BASIN, supra note 13, at 49, 54; see also Adeel & Wirsing, supra note 13, at 10.
52. See AHMED ABUKHATER, WATER AS A CATALYST FOR PEACE: TRANSBOUNDARY WATER MANAGEMENT AND CONFLICT RESOLUTION 13 (2016).
57. Id. For a detailed stance on the Baglehar Dam, see Ariel Dinar et al., BRIDGES OVER WATER: UNDERSTANDING TRANSBOUNDARY WATER CONFLICT, NEGOTIATION AND COOPERATION 332 (2013). For Pakistan’s stance on the Kishanganga Dam, see Rai & Patnaik, supra note 35, at 124. For further details, see Alam, supra note 6, at 416–17.
projects and dams.\textsuperscript{58} However, no special progress has been made by India in hearing the concerns of Pakistan and providing accurate data to Pakistan related to its water storage projects.\textsuperscript{59}

The most prominent of the controversial Indian water storage works are 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 Chenab River, and the Dul Husti power project on the Chenab River.\textsuperscript{60} Additionally there are several other, smaller water storage projects.\textsuperscript{61} According to Pakistani authorities, these dams and hydropower projects can significantly affect the natural flow of water in the western rivers;\textsuperscript{62} thus, they present a threat to Pakistan’s irrigation system, which is naturally vulnerable to changes in the flow of the western rivers.\textsuperscript{63} For instance, the Kishanganga Dam, one of the aforementioned water storage projects of India, is liable to create drought in the Neelum Valley in the Azad Kashmir State of Pakistan.\textsuperscript{64} This is because India is constructing the Kishanganga Dam by diverting the Neelum River away from the Neelum Valley,\textsuperscript{65} which will result in a decrease of flow of water in the valley.\textsuperscript{66} This beautiful valley depends entirely on the water of the Neelum River for the drinking, domestic, and agrarian needs of its people.\textsuperscript{67} Therefore, a lack of water in the Neelum River in this valley can result in severe problems, including drought.\textsuperscript{68} Similar threats are carried by the other Indian water storage projects.

\textsuperscript{58} See Akhtar, \textit{supra} note 50, at 15.
\textsuperscript{59} Hossain & Jones, \textit{supra} note 34, at 36.
\textsuperscript{60} See Akhtar, \textit{supra} note 50, at 30; see also Mubarak Zeb Khan, \textit{India Asked to Stop Work on Kishanganga and Ratle Projects}, DAWN (Jan. 21, 2017), https://www.dawn.com/news/1309767.
\textsuperscript{61} See id. at 28–29.
\textsuperscript{62} \textit{Id.} at 30.
\textsuperscript{63} See generally id.
\textsuperscript{64} See Bjørn-Oliver Magsig, \textit{The Indus Waters Treaty: Modernizing the Normative Pillars to Build a More Resilient Future}, in \textit{IMAGINING INDUSTAN: OVERCOMING WATER INSECURITY IN THE INDUS BASIN}, \textit{supra} note 13, at 69, 79; see also Rai & Patnaik, \textit{supra} note 35, at 124–25.
\textsuperscript{65} See Magsig, \textit{supra} note 64, at 79.
\textsuperscript{66} \textit{Id.}
\textsuperscript{67} See id. at 80.
\textsuperscript{68} See Magsig, \textit{supra} note 64, at 79.
3. Failure of Dialogues and Cooperative Peace Processes

Although peace dialogues have been held between both states and under different governments, these dialogues have often concluded in failure and have never facilitated perpetual cooperation and a sense of friendship between the states. The major reason for the failure of dialogue between India and Pakistan has been the Kashmir issue. Neither state is willing to negotiate or soften its stance over Kashmir. Consequently, deadlock occurs in the dialogue, which leads to failure of the discussions and spoils the initiatives already taken for peace and cooperation.

Terrorists and nonstate actors also play their role in disrupting the peace process, dialogues, and cooperation. As evident from history, whenever a severe terrorist incident has taken place in either of the two states, the affected state has blamed the other of being involved. For instance, after the 2008 Mumbai attacks, India blamed Pakistan, without

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72. See Habibullah, supra note 71.


evidence, for sponsoring the attacks.\textsuperscript{76} Unfortunately, the attacks wrecked the peace and cooperation process at that time.\textsuperscript{77}

Notably, a couple of days before the Mumbai attacks, the then President of Pakistan, Mr. Asif Ali Zardari, said in his speech that Pakistan’s relations with India should be improved to achieve mutual economic growth through bilateral cooperation, leaving aside Kashmir to be resolved by future generations.\textsuperscript{78} Peace dialogues between the Indian and Pakistani officials were being held at that time, in which collective economic goals were the main subject of discussion.\textsuperscript{79} However, soon after the Mumbai attacks, the talks were canceled by India, which instigated a sense of conflict, animosity, and geopolitical rift between India and Pakistan.\textsuperscript{80}

4. Historic Factors

In addition to the factors listed above, there are some historic factors that have resulted in creating a sense of hostility and noncooperation between India and Pakistan, generally on geopolitical terrain and specifically on Indus water.

a. Hostile History of Wars

India and Pakistan have an antagonistic common history as archrivals since their creation.\textsuperscript{81} They have fought four major wars within the last seventy years: the 1947 war on Kashmir issue, the 1965 war on the status of the State of Jammu and Kashmir, the 1971 war when Pakistan lost its


\textsuperscript{77} New Dimensions of Politics in India: The United Progressive Alliance in Power 140 (Lawrence Sáez & Gurharpal Singh eds., 2012) [hereinafter New Dimensions of Politics in India].


\textsuperscript{79} Id.

\textsuperscript{80} See New Dimensions of Politics in India, supra note 77, at 140.

Eastern wing, and the 1998 war on Kargil issue.\textsuperscript{82} These wars caused significant damage to the economies and all related sectors of both states, changing the attitudes of both nations toward each other as they started to see the other as their constant foe.\textsuperscript{83} Therefore, any special stance by one state regarding the utilization of Indus water or any other issue is generally viewed with a suspicious eye by the other.

b. The Kashmir Issue

The Kashmir issue has appeared to be the major contention.\textsuperscript{84} Kashmir is located at the northeast of Pakistan and the northwest of India.\textsuperscript{85} Several important river tributaries flow through or originate from this land, pass through India, and reach Pakistan.\textsuperscript{86} For this reason, Kashmir occupies a strategically important geographical location that is crucial for India and Pakistan in order to own the rivers as an upper riparian state.\textsuperscript{87} Both nations claim ideological rights over Kashmir.\textsuperscript{88} Pakistan owns 33%
of Kashmir and has named it Azad Kashmir.89 The remaining territory of Kashmir, and where the tributaries of major rivers originate, is in the possession of India and is named the occupied territory of Jammu and Kashmir.90

Since 1947, Pakistan has demanded a United Nations (UN) administered plebiscite in the Jammu and Kashmir Valley on the allegiance of Kashmir to either India or Pakistan.91 Despite initially being agreed in 1948 that a plebiscite would be held in occupied Kashmir, the Indian authorities never facilitated it.92 Since then, Kashmir has generated a geopolitical and strategic rivalry between Pakistan and India.93 This issue has caused the failure of the cooperation and peace process dialogue that has taken place between both states at any moment in their history.94

III. THE INDUS WATERS TREATY MECHANISM FOR WATER COOPERATION

The IWT is a fine example of cooperation between India and Pakistan.95 This cooperation was initiated in 1960 for distributing the shared Indus Basin between India and Pakistan. The IWT recommends a framework for bilateral cooperation, as set out below.

89. 1 Barbara A. West, Encyclopedia of the Peoples of Asia and Oceania 372 (2010).
90. Id.
91. See Aparna Pande, Explaining Pakistan’s Foreign Policy: Escaping India 39 (2011).
92. See Habibullah, supra note 71, at 5.
94. See Habibullah, supra note 71, at 4; see also Singh, supra note 73, at 53–54.
95. The impact of Asian Powers on Global Developments 84 (Erich Reiter & Peter Hazdra eds., 2004).
A. Information Sharing Mechanism—Article VI

The IWT recommends that both states share data related to the flow of water on a daily and monthly basis.96 For instance, Article VI of the IWT suggests that both states should share data related to:

I. Daily gauge . . . and discharge data relating to flow of the rivers at all observation sites. II. Daily extractions for or releases from reservoirs. III. Daily withdrawals at the heads of all canals operated by government or by a government agency . . . IV. Daily escapages from all canals, including link canals. [and] V. Daily deliveries from link canals.97

Article VI of the IWT further states that data must be shared at the end of each calendar month and, in any event, with delays of no more than three months.98 Furthermore, the IWT makes it obligatory for both states to share data with the other with no exceptions.99 In addition to this, information related to storage works initiated by a state should also be shared with the other.100 For instance, the design of the dam and its storage capacity, pondage level, tributary discharge, etc. should be shared with the other state.101 If either state asks for additional data, then this should be provided, but the cost of collecting and sharing it should be reimbursed.102

B. Duty to Cooperate—Article VII

The IWT includes recommendations for both states to cooperate for the development of the Indus Basin as well as for the implementation of

97. Id.
98. Id. art. 6(1).
99. Id. art. 6(2).
100. See id. art. 6(1)(II)–(III).
101. See id.
102. Id. art. 6(1)
engineering works for better water management.\footnote{See \textit{Environmental Peacemaking} 81–82 (Ken Conca & Geoffrey Dabelko eds., 2002); see also Shlomi Dinar \& Ariel Dinar, \textit{International Water Scarcity and Variability: Managing Resource Use Across Political Boundaries} 24 (2017).} Paragraph 1 of Article VII of the IWT states:

The two Parties recognize that they have a common interest in the optimum development of the Rivers, and, to that end, they declare their intention to co-operate, by mutual agreement, to the fullest possible extent . . . At the request of either Party, the two Parties may, by mutual agreement, co-operate in undertaking engineering works on the Rivers.\footnote{Indus Waters Treaty, \textit{supra} note 97, art. 7(1)(c).}

Engineering works are required by both states for the effective management of their shared water resources because both need sufficient water for their agricultural sector.\footnote{Handbook on Food: Demand, Supply, Sustainability and Security 449 (Raghbendra Jha et al. eds., 2014).} Both states are agrarian communities and therefore adequate water storage facilities for both are necessary.\footnote{Roic et al., \textit{supra} note 51, at 63.}

Furthermore, both nations have an electricity shortage, which is causing their people to face load-shedding.\footnote{Maldives: Doing Business in Maldives for Everyone Guide – Practical Information and Contracts 124 (2012); see also Daniel S. Markey, \textit{No Exit from Pakistan: America’s Tortured Relationship with Islamabad} 35 (2013).} Both rely on the production of hydropower energy, because this is a relatively cheap and easy way of producing electricity.\footnote{See Adeel \& Wirsing, \textit{supra} note 24, at 11.} Hence, they also require new dams and water storage projects to be used for hydropower generation as well as to meet their agrarian demands.\footnote{Andrew A. Keller et al., \textit{Water Scarcity and the Role of Storage in Development} 3 (2000); Markey, \textit{supra} note 107, at 230.} This indicates that the water-related needs of both states are of equal nature; however, owing to a lack of cooperation between the states, the fulfillment of water needs of one state has resulted in the exploitation of the other state. For instance, as mentioned earlier, India is constructing dams and large storage works for the production of hydropower to meet the demand for electricity of its ever-increasing population.\footnote{See Akhtar, \textit{supra} note 50, at 60.} The construction of these dams is threatening...
the availability of adequate water in the Pakistani rivers. However, cooperation between the states as per the true spirit of the IWT will not only result in a mitigation of the national grievances that exist but will also create a symbiotic relationship between them in terms of satiating their needs related to river waters, as they can construct water works that benefit both of them instead of harming one state.

Article VII of the IWT has provisions similar to the “duty to cooperate” recommended by the International Law of Non-Navigational Uses of International Watercourses. Article 8 of this law is specifically oriented toward the duty to cooperate, and it recommends that states cooperate in good faith and on the basis of equality and integrity to acquire the mutual benefits of sharing an international watercourse. They can also make joint mechanisms for facilitating cooperation and for taking collective measures for the construction of engineering works. The duty to cooperate is elaborated in detail in the next section.

C. Resolution of Differences—the Permanent Indus Commission

Furthermore, in the event of any differences, both states can resolve them through the Permanent Indus Commission, which comprises the officials nominated by both states and has the role of resolving differences by maintaining cooperation related to water management and utilization. If the Commission is unable to reach to a solution, then there is a proper mechanism for dispute resolution defined in Articles VIII and IX of the IWT, which can be referred to by both states to resolve conflicts related to water management. This indicates that a
proper operation of the IWT can not only maintain cooperation between India and Pakistan but also resolve disputes and differences between them. Furthermore, this can also result in effective water cooperation and water management practices in the region, which will result in benefits for both states.

D. Adverse Climate Change—Article IV

Furthermore, the IWT also provides guidance in the event of adverse climate effects, i.e., flooding, such that each country must inform the other beforehand if it has any information or confirmation of excessive flows of water in the river basins owing to abnormal rainfall or similar climate change. This is noted in Paragraph 8 of Article IV of the IWT, which states, “Each Party agrees to communicate to the other Party, as far in advance as practicable, any information it may have in regard to such extraordinary discharges of water from reservoirs and flood flows as may affect the other Party.”

If such communication starts to take place between India and Pakistan, then both states may avoid the floods as, for instance, each can provide early information to the other so as to take emergency measures and protect the local community and livestock. For this purpose, swift, trustworthy, and effective cooperation between both states is required.

117. Amitendu Palit and Gloria Spittel explain the Indus Waters Treaty as an example of a fine illustration of cooperation between India and Pakistan in the past, and then they explain the need to further establish cooperation over climate change between both states. See SOUTH ASIA IN THE NEW DECADE: CHALLENGES AND PROSPECTS 129–31 (Amitendu Palit & Gloria Spittel eds., 2013). On the other hand, Natalie Nax argues in another way by maintaining an argument that although the Indus Waters Treaty has been helpful in providing support to India and Pakistan for situations of adverse climate change. See Natalie A. Nax, Looking to the Future: The Indus Waters Treaty and Climate Change (June 2016) (unpublished M.S. thesis, University of Oregon) (on file with the University of Oregon Graduate School). However, the nature of this support needs to be updated, improved and advanced further in order to tackle the problems of the contemporary changes in the climate that are of very adverse nature. See id.

118. Indus Waters Treaty, supra note 97, art. 4(8).


120. See Nax, supra note 117, at 15.
The above provisions of the IWT describe the objective of the treaty to establish persistent and long-term water cooperation between India and Pakistan in utilizing the Indus Basin. Both states need to comply completely with the treaty. In particular, India should reconsider its contentious water storage projects to bring them into line with the IWT.

IV. WATER COOPERATION FROM THE PERSPECTIVE OF INTERNATIONAL WATER LAW

Cooperation between riparian states is essential for the management of transboundary rivers. Therefore, international law ratifies cooperation as a duty for riparian states. The principle of the equitable utilization of transboundary river waters is a fine example of cooperation for water management because each riparian state shares an equitable portion of water resources with mutual consent and coordination. In this regard, the IWT is the best illustration of the implementation of the equitable utilization principle.


A. The Law of Non-Navigational Uses of International Watercourses

The International Law Commission (ILC)\textsuperscript{125} of the UN has also endorsed cooperation between riparian states for effective water management.\textsuperscript{126} The ILC presented the draft of the Law of Non-Navigational Uses of International Watercourses in 1994, and this is considered the fundamental legal principles of international water law.\textsuperscript{127} The draft of this law includes several articles and provisions that were added by the UN General Assembly in the UN Convention on the Law of Non-Navigational Uses of International Watercourses (the UN Watercourses Convention) in 1997.\textsuperscript{128}

1. Cooperation for Equitable Utilization

Several articles of the Law of Non-Navigational Uses of International Watercourses endorsed in the UN Watercourses Convention advocate cooperation between riparian states by explicitly mentioning it.\textsuperscript{129} For instance, the text of the second paragraph of Article 5 of the Convention reads, “Watercourse States shall participate in the use, development and protection of an international watercourse in an equitable and reasonable manner.”

\textsuperscript{125} See Linda A. Malone, International Law 82 (2008); The International Commission (ILC) is an independent international legal body that was created by the General Assembly of the United Nations in 1947–48. Id.; The main role of the ILC is to stimulate the progressive development of the international law, particularly the charter of the United Nations, and its codifications at the international level. Id.; see also Trevor Buck, International Child Law 67 (3rd ed. 2014); See also William A. Schabas, Accountability for International Crimes – Special Tribunals and Referrals to the International Criminal Court, in The United Nations Security Council in the Age of Human Rights 173, 175 (Jared Genser & Bruno Stagno Ugarte eds., 2014).

\textsuperscript{126} See generally Mary Crock, The Protection of Vulnerable Groups, in Research Handbook on Disasters and International Law 383, 403 (Susan C. Breau & Katja L.H. Samuel eds., 2016).

\textsuperscript{127} See generally Robert Mršić, Challenges of Environmental Protection in Times of Armed Conflict, in Environmental Security in South-Eastern Europe: International Agreements and their Implementation 119, 134 (NATO Science for Peace and Security Ser. C: Environmental Security, Massimiliano Montini & Slavko Bogdanovic eds., 2011); see also LEB, supra note 10, at 62.

\textsuperscript{128} See Mršić, supra note 127, at 134.

\textsuperscript{129} Vollmer, supra note 112, at 5.
manner. Such participation includes both the right to utilize the watercourse and the duty to cooperate in the protection and development thereof, as provided in the present Convention.”

Hence, it requires an equitable and reasonable utilization of shared transboundary river waters with the necessity of cooperation between the states sharing the water resource. Doing so will not only protect and guarantee their right to water but can also result in the development of the shared river basins. This further implies that India and Pakistan have an obligation to cooperate for the development and protection of the Indus Basin as well as for equitably distributing and utilizing its waters.

Furthermore, in a commentary to the UN Watercourses Convention and in response to criticism by certain states against Articles 5 and 7 of the UN Watercourses Convention, the World Bank also endorsed cooperation between riparian states. Its official policy statement reads, “The Bank recognizes that the cooperation and goodwill of riparians is essential for the efficient use and protection of the waterway. Therefore, it attaches great importance to riparians making appropriate agreements or arrangements for these purposes for the entire waterway of any part thereof.”

The World Bank also endorsed cooperative water management practices between riparian states and also offered to provide loans and technical assistance related to consultancy and sponsorship for the completion of the water management projects implemented after the fulfillment of the equitable water utilization principle for each riparian

130. See G.A. Res. 51/229, supra note 19, art. 4.
132. Leb, supra note 10, at 85.
The main intention of this policy statement was to enhance cooperation between riparian states and to encourage them to manage shared water resources by developing their river basins cooperatively so as to maintain the principle of equitable utilization. This policy statement was issued by Ibrahim Shihata, who was then general counsel of the World Bank. He commented on the World Bank policy, “The fictitious dichotomy of the principles of equitable sharing of waters and of the need to avoid causing appreciable harm to any riparian state need not stand in the way of such cooperative management for the optimal and sustainable uses of international waterways.”

Mr. Shihata issued this statement after Articles 5 and 7 of the UN Watercourses Convention were criticized by some states for noting the duty not to cause significant harm to the lower riparian states and the principle of equitable utilization as obligations for upper riparian states. In response to the criticisms, Mr. Shihata, in endorsing the policy statement of the World Bank, encouraged cooperation between riparian states whether or not they accepted Articles 5 and 7.

2. The Duty to Cooperate

Alongside Articles 5 and 7, Article 8 of the UN Watercourses Convention defines cooperation, “Watercourses States shall cooperate on the basis of sovereign equality, territorial integrity, mutual benefit and good faith in order to attain optimal utilization and adequate protection of an international watercourse.”

As the title of Article 8 of the UN Watercourses Convention, “General obligation to cooperate,” indicates, this article makes it mandatory for states to cooperate, not only for the distribution and utilization of watercourses but also for making sure that the utilization is optimal and generates mutual benefits for both states on an equal basis.
Furthermore, cooperation is also necessary to ensure the preservation of the watercourses.\footnote{144}{Id.} This duty also applies to India and Pakistan. Pakistan has been fulfilling this obligation throughout the history of water cooperation brokered by the IWT; nonetheless, India has often shown inadequacies in maintaining this cooperation. For instance, it failed to hear and act upon the concerns of Pakistan regarding the Baglihar Dam, which led to the failure of dialogue between the states in 2004.\footnote{145}{DINAR ET AL., supra note 57, at 332.} Similarly, it also ignored Pakistan’s reservations to the Kishanganga and Ratle Dams.\footnote{146}{Mubarak Zeb Khan, \textit{India Asked to Stop Work on Kishanganga and Ratle Projects}, DAWN, https://www.dawn.com/news/1309767 (last updated Jan. 21, 2017).} The bilateral talks also failed owing to India’s inflexible stance on continuing the construction of these dams without making any changes to their designs.\footnote{147}{INDIA AND THE AGE OF CRISIS: THE LOCAL POLITICS OF GLOBAL ECONOMIC AND ECOLOGICAL FRAGILITY 95 (Michael Gillan & Rob Lambert eds., 2016).} Ultimately, the case of the Kishanganga Dam was brought to the Court of Arbitration in The Hague, which gave its verdict in the partial favor of both states.\footnote{148}{See Water Insecurity in the Indus Basin: The Costs of Noncooperation, supra note 20, at 40. The verdict by the court favored India’s stance to continue to the construction of the Kishanganga Dam, but it also gave the decision in favor of Pakistan to slightly change the design of the dam. Id.} On the other hand, the decision for the Baglihar Dam was given by the neutral expert, Mr. Raymond Lafitte in favor of India.\footnote{149}{Id.; see also DINAR & DINAR, supra note 103, at 332 (discussing the details of the final decision given by the neutral expert Mr. Raymond Lafitte, appointed by the World Bank).} The failures of bilateral dialogue on these three Indian water storage projects in the last fifteen years has damaged water cooperation.

This lack of cooperation is making the region geopolitically tense.\footnote{150}{SOUTH ASIA’S WEAK STATES: UNDERSTANDING THE REGIONAL INSECURITY PREDICAMENT 108 (T.V. Paul ed., 2010).} Similarly, the persistence of conflict between India and Pakistan is hindering regional cooperation in South Asia.\footnote{151}{See MARIO TELÒ, REGIONALISM IN HARD TIMES (2016). For instance, the regional cooperative organization, SAARC, becomes ineffective in establishing regional economic cooperation owing to the bilateral conflicts and sense of hostilities between two of its major players, India and Pakistan. Id.} Both states now resort to
the third party more often than deciding a certain difference bilaterally through mutual cooperation.\textsuperscript{152} For instance, the recent threats of India to revoke or modify the IWT has also resulted in both states seeking either the assistance of the Court of Arbitration (by Pakistan) or the neutral expert (by India), as both have sidestepped the bilateral cooperation processes between them.\textsuperscript{153} Pakistan’s resort to the Court of Arbitration is because India has not listened to Pakistan’s concerns over its controversial water storage projects in the last two decades.\textsuperscript{154} India is constructing several dams in its territory over the Pakistani western rivers and Pakistan has serious reservations to such dams, which India has repeatedly ignored.\textsuperscript{155} On the other hand, India’s resort to the neutral expert is probably because it is not keen on maintaining bilateral water cooperation with Pakistan. As a result, it is not interested in any bilateral talks that may include a discussion of Pakistan’s concerns or that may compel it to establish water cooperation over the Indus Basin’s resources. Such Indian motives are against the true spirit of the general obligation to cooperate, which is applicable to both states.\textsuperscript{156}

3. Cooperation for Joint Management of Watercourses

The second paragraph of Article 8 of the UN Watercourses Convention also explains the methods through which this cooperation can be achieved. This article reads, “in determining the manner of such cooperation, watercourse States may consider the establishment of joint mechanisms or commissions, as deemed necessary by them.”\textsuperscript{157}

Furthermore, with the ever-growing demands of the rapidly increasing population of states, it is likely that conflicts may arise between the states during the utilization of water resources or during the construction of

\textsuperscript{152} See e.g., SUMIT GANGULY, CONFLICT UNENDING: INDIA-PAKISTAN TENSIONS SINCE 1947 41 (2001); see also Gayarthri Lakshminarayan, U.S. Mediation in the Kashmir Conflict: Mediation vs. Conflict Management, in PERSPECTIVES ON SOUTH ASIAN SECURITY 189 (Shanthie Mariet D’Souza & Rajshree Jetly eds., 2013) (regarding India’s eagerness to approach third party for disputes with Pakistan).
\textsuperscript{153} See Iqbal, supra note 5.
\textsuperscript{154} See id.
\textsuperscript{155} See Akhtar, supra note 50.
\textsuperscript{156} See G.A. Res. 51/229, supra note 19, art. 8.
\textsuperscript{157} Id.
integrated water management works. Therefore, cooperation between the states is the only way through which differences and conflicts can be resolved bilaterally, as is evident from state practice.

In addition, Articles 20 to 25 of the UN Watercourses Convention relate to the “preservation, protection, and management of the international transboundary watercourses.” These articles also endorse cooperation between riparian states and ratify the cooperation as essential for the proper management of shared watercourses.

In the case of the riparian states in South Asia, India and Pakistan, the IWT establishes a joint body for cooperation. The Permanent Indus Commission works to maintain sustainable bilateral cooperation over the utilization of the Indus Basin. The Commission comprises officials from both states, and it is also responsible for resolving any differences or issues related to the interpretations and implementations of the IWT. However, with the recent airing of official statements from the Indian government regarding revocation of the IWT, a sense of hostility has emerged between the states, which has nullified the effectiveness of the Permanent Indus Commission for resolving differences over the utilization of Indus water. In the event that the IWT is revoked, the Permanent Indus Commission will automatically terminate, which will create a vacuum for water cooperation between both states.


159. Aaron T. Wolf, Middle East Water Conflicts and Directions for Conflict Resolution, 12 INT’L FOOD POL’Y RES. INST. 20 (1996).

160. See G.A. Res. 51/229, supra note 19, at arts. 20–25.

161. Id.

162. See DINAR ET AL., supra note 57, at 207.

163. ZENTNER, supra note 29, at 137–38.

164. THE WORLD BANK, supra note 124, at 70.


167. See GUPTA, supra note 4, at 260 (explaining details about the legal basis for working and existence of the Permanent Indus Commission). This is because the Permanent Indus Commission was created as per the Article VIII of the Indus Waters Treaty and therefore, it is the Indus Waters Treaty that provides the basis for formulation
B. The Berlin Rules

In addition to the UN Watercourses Convention, the Helsinki and Berlin Rules also endorse cooperation and management of international water resources. The Berlin Rules replaced the Helsinki Rules in 2004.

1. Cooperation for Mutual Benefit

To endorse water cooperation, Article 11 of the Berlin Rules exclusively directs riparian states that share one or more common river basins to cooperate for mutual benefit. Article 11 reads, “Basin States shall cooperate in good faith in the management of waters of an international drainage basin for the mutual benefit of the participating States.”

However, in the Indus Basin, the mutual benefits for India and Pakistan may not be a possible outcome of resorting to third-party arbitration of issues. The mutual benefits can only be acquired through strong, trustworthy, and persistent bilateral cooperation over the distribution of the Indus Basin as well as for the development and functioning of the Permanent Indus Commission as a joint body for cooperation between both states over the Indus basin’s water. Id. Without the Indus Waters Treaty, the implementation of the Article VIII would itself remain null and void and therefore, the fundamental legal basis for existence of Permanent Indus Commission will no longer be present. Id. See also DINAR ET. AL., supra note 57, at 207.

168. Muhammad Mizanur Rahaman, Principles of Transboundary Water Resources Management and the Frontier Watercourses Agreement Between Finland and Russia, in 2 SOVEREIGNTY AND INTERNATIONAL WATER LAW 449, supra note 123, at 447, 449; see also SUBRAMANIAN ET. AL, supra note 134, at 100.


171. Id.
upgrading of the basin.\textsuperscript{172} In such bilateral cooperation over watercourses, each state shares its intentions regarding utilization and management of the Basin. Furthermore, each state also discusses its own concerns as well as the concerns of the other parties related to any water management project. Therefore, India and Pakistan can not only share their plans for managing the watercourses but can also improve them through improved bilateral discussions that would involve suggestions and recommendations from both sides to improve mutual water management activities. This would also result in sustainable development and integrated management of the Indus Basin, which is necessary for the preservation and development of the Basin’s natural environment.\textsuperscript{173} The preservation of the Basin is in the interest of both states because both want to utilize the Indus Basin for a longer period of time owing to their dependence on it.

2. Cooperation for Drought and Flood Control

Articles 34 and 35 of the Berlin Rules give guidelines for riparian states in the event of any floods and droughts, respectively.\textsuperscript{174} Articles 34 and 35 also endorse maintaining effective cooperation and exchange of

\begin{footnotes}
\item[172] Inst. for Reg’l Studies of the Californias, Borders and Border Regions in Europe and North America 130 (Paul Ganster et. al eds., 1997); see also Dennis E. Mithaug, Equal Opportunity Theory 20 (1996).
\item[173] See Promoting Equity, Cooperation and Innovation in the Fields of Transboundary Waters and Natural Resources Management: The Legacy of Dr. David J.H. Phillips 381 (Steven McCaffrey et. al eds., 2017) (The book discusses the beneficial aspects of implementing an Integrated Water Resource Management (IWRM) approach which ratifies a river basin as a single unit. Therefore, inferring from this argument, the Indus River Basin ought to be considered as a single water resource unit if the IWRM approach is implemented in the basin. The book also provides certain examples of transboundary river water apportionment among riparian states in which the failure resulted in effectively managing the shared water resources due to the absence of the cooperation among riparian states and due to a lack of implementation of an Integrated Water Resource Management approach. Thus, establishment of the IWRM approach and cooperation among the upper and lower riparian states, India and Pakistan, respectively, is essentially required in the region if both states want to utilize the Indus River water resource in an optimal and mutually beneficial manner).
\item[174] See Int’l Law Ass’n, supra note 170, art. 34–35.
\end{footnotes}
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data between riparian states to avert floods and droughts, as stated below:175

Article 34: States shall cooperate in developing and implementing measures for flood control, having due regard to the interests of other States likely to be affected by the flooding.176

Article 35: States shall cooperate in the management of waters to prevent, control, or mitigate droughts, having due regard to the interests of other basin States.177

Sharing of accurate and up-to-date data with the other riparian states related to water quality, quantity, and threats of floods, droughts, significant changes in expected rainfalls, consequent flows of water in the river basins, etc., is mandatory for riparian states.178 For this purpose, riparian states must acquire accurate data on a regular basis. An accurate and immediate exchange of information will help both states in their water management endeavors.179 Article 56 of the Berlin Rules relates to the exchange of information among riparian states for utilizing their shared river basins.180 The language of Article 56 recommends that riparian states cooperate with one another to provide accurate and up-to-date information regarding the basin in their territories as well as regarding their planned water management works.181 Furthermore, Article 56 also makes it obligatory to gather data related to the basin on a regular basis.182

However, for the Indus Basin, India has shown hesitation in providing up-to-date and accurate information to Pakistan regarding its water storage projects.183 Most of the time, India delays sharing any data for

175. Id.
176. Id. art. 34.
177. See id. art. 35.
178. Id.
179. See ENVIRONMENTAL INFORMATION IN EUROPEAN TRANSBOUNDARY WATER MANAGEMENT 32 (Jos G. Timmerman & Sindre Langaas eds., 2003); see also HANDBOOK OF ENGINEERING HYDROLOGY: ENVIRONMENTAL HYDROLOGY AND WATER MANAGEMENT 308 (Saeid Eslamian ed., 2014).
180. See Int’l Law Ass’n, supra note 170, art. 56.
181. Id.
182. Id.
183. See HOSSAIN & JONES, supra note 34, at 36.
several months, and sometimes several years, related to either its water management works or its future plans of utilization of the basin.\textsuperscript{184} This raises suspicions against India’s planned water storage projects, which Pakistan has raised concerns over.\textsuperscript{185}

Nonetheless, if India starts sharing information related to its water projects on regular basis, then this would end the ongoing sense of hostility, doubts, and suspicions that are damaging water cooperation between the states. Therefore, the bilateral, regular exchange of information holds significant importance in maintaining trustworthy and sustainable water cooperation.

C. The Convention on the Protection and Use of Transboundary Watercourses and International Lakes

The Convention on the Protection and Use of Transboundary Watercourses and International Lakes, drafted by the United Nations Economic Commission on Europe (UNECE), gives guidelines for establishing cooperation between riparian states and formulating mechanisms for information sharing and transboundary water resource monitoring.\textsuperscript{186} This convention was also called the Helsinki Convention because it was drafted in Helsinki.\textsuperscript{187}

\textit{1. Joint Basin Monitoring Mechanisms}

Notably, according to this convention, the formulation of joint independent bodies can enhance cooperation between riparian states for their transboundary river waters.\textsuperscript{188} Article 9 of this convention recommends the formation of independent joint bodies, which should be unbiased in their arrangements, reflecting their bilateral nature.\textsuperscript{189} It also

\textsuperscript{185}. \textit{See id.}
\textsuperscript{186}. Kerstin Mechlem & Stefano Burchi, \textit{Groundwater in International Law: Compilation of Treaties and Other Legal Instruments} 521 (2005).
\textsuperscript{187}. Water Resources System Operation 517 (Vijay P. Singh & Ram Narayan Yadava eds., 2003).
\textsuperscript{188}. \textit{See Mechlem & Burchi, supra} note 186, at 522.
\textsuperscript{189}. \textit{See Water Resources System Operation, supra} note 187, at 517.
formulates mechanisms for the functioning of such joint bodies.\textsuperscript{190} It asserts that the work of the joint bodies will involve several measures, such as the collection and exchange of data related to pollution and other transboundary impacts, the administration of joint monitoring programs related to assessing the quality and quantity of water and elaboration of limits of flows of water, and to evaluate the wastage of water.\textsuperscript{191} Furthermore, their responsibilities will also include the communication of emergency warnings related to the quality and quantity of water to both states.\textsuperscript{192}

Article 9 of the Helsinki Convention further requires that the joint bodies should also have the role of promoting the implementation of environmental measures under the obligation of international regulations and enhancing cooperation between states sharing water resources at all possible levels related to the watercourses.\textsuperscript{193} Furthermore, Article 10 of the convention supports mutual consultation between riparian states over all aspects related to the management of their shared water resources.\textsuperscript{194} Article 11 of the convention endorses joint monitoring and assessments of the shared watercourses and quality of water in the river basins.\textsuperscript{195} Article 12 of the convention supports the establishment of joint research and development mechanisms between riparian states for the better management of their shared water resources.\textsuperscript{196}

However, in the Indus Basin, there are no joint monitoring mechanisms working at present. With the current wave of hostility between the states, deterioration in the functioning of the Permanent Indus Commission has taken place, which has further diminished the possibility of any joint monitoring and assessment mechanisms over the Indus Basin. Nonetheless, it is pertinent to mention here that an

\textsuperscript{190} Id.
\textsuperscript{191} Id.
\textsuperscript{194} \textit{WATER RESOURCES SYSTEM OPERATION, supra} note 187, at 517.
\textsuperscript{195} Id.
\textsuperscript{196} Id.
implementation of such mechanisms can facilitate stronger water cooperation between the states because such mechanisms will share accurate and complete information related to the water management endeavors of both states, which will end bilateral suspicion and distrust.

The above discussion illustrates that international law has a strong support for maintaining cooperation among riparian states.\(^{197}\) It even applies a general obligation on states to establish cooperation for the distribution, utilization, preservation, sustainable management, development, and upgrading of their shared transboundary watercourses and river basins.\(^{198}\) This further implies a stronger application of the obligation to cooperate to both the upper and lower riparian states of India and Pakistan, respectively. Bilateral cooperation over the shared Indus Basin can lead to mutual benefits that will be enough for both states to meet the rapidly escalating water-related needs of their ever-growing populations.

V. EXAMPLES OF INTERNATIONAL WATERCOURSE COOPERATION

The IWT is the finest example of cooperation between states over the utilization and management of their transboundary shared river basins, as mentioned earlier.\(^{199}\) However, there are other examples.

A. Agreement on Cooperation in the Management, Utilization and Protection of Interstate Water Resources

In 1992, five Central Asian republics – Kyrgyzstan, Kazakhstan, Tajikistan, Turkmenistan, and Uzbekistan – signed the Agreement on Cooperation in the Management, Utilization and Protection of Interstate Water Resources.\(^{200}\) This agreement endorses cooperation among the states for the joint management of their shared transboundary

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\(^{197}\) Wouters & Leb, supra note 122, at 293.

\(^{198}\) del Castillo-Laborde, supra note 123, at 361.

\(^{199}\) See THE IMPACT OF ASIAN POWERS ON GLOBAL DEVELOPMENTS, supra note 95, at 84.

\(^{200}\) Patricia Wouters, Universal and Regional Approaches to Resolving International Water Disputes: A Special Emphasis on Institutional Mechanisms, in THE PERMANENT COURT OF ARBITRATION/PEACE PALACE PAPERS: RESOLUTION OF INTERNATIONAL WATER DISPUTES, supra note 133, at 111, 133.
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B. Agreement on Cooperation for Sustainable Development of the Mekong River

Another example is the distribution and management of the Mekong River basin. This transboundary river originates in Tibet and flows through China, Myanmar, Cambodia, Thailand, Laos, and Vietnam before reaching the sea. In 1995, an agreement was signed by the countries sharing the Mekong River: the Agreement on Cooperation for Sustainable Development of the Mekong River. As is apparent from its title, this agreement has the core goal of establishing cooperation among the states sharing the river for the better utilization and management of the Mekong River water as well as for the development and upgrading of the Mekong River basin. The Mekong River Committee, established in 1957, comprises the ministerial-level officials of the states sharing the Mekong River. It is the supreme body for deciding any issues that arise among the states. This committee ensures a proper mechanism for cooperation among the states and for the management of the Mekong River water. Information sharing has also been approved by China, which shares information related to the quantity...
of water and any changes in the flow of water in the Mekong River with the other riparian countries. The information sharing agreement was signed by China with the Mekong River Committee in April 2002, which suggests that, over time, cooperation for water management has been enhanced among the Mekong River sharing states.

C. International Boundary Waters Treaty

Similar practices of cooperation are also practiced in Europe, where the Helsinki and Berlin Rules are followed, as well as in North America, where local laws and principles are implemented between Canada and the U.S. as well as between Mexico and the U.S. For instance, the 1909 Boundary Waters Treaty provides guidance on transboundary water sharing between Canada and the U.S. It also mandates cooperation between the states and provides a dispute resolution mechanism, which automatically instigates cooperation between Canada and the U.S. over the utilization and management of their shared transboundary watercourses.

On a similar note, the 1944 International Boundary Waters Treaty is a bilateral treaty that provides rules for the utilization and management of shared transboundary watercourses between the U.S. and Mexico. An International Boundary Waters Commission was also established under the rules of this treaty, which requires cooperation from the U.S. and Mexico over the management and distribution of their shared watercourses.

This indicates that cooperation for water management has been generally accepted by states and is adopted for the development and management of their shared river basins. It further suggests that cooperation for shared water management is, in fact, fundamental state practice for the utilization, distribution, and management of transboundary water resources. In consequence, India and Pakistan should also maintain effective bilateral cooperation for better utilization

210. Id. at 137.
211. See id.
212. See id. at 146.
213. Id. at 147.
214. Id. at 149.
215. Id. at 149–51.
and management of the Indus Basin. This will eventually enable them to realize collective goals related to meeting demands for, e.g., generation of electricity, as well as the utilization of river waters for irrigation for their ever-increasing population.

VI. CONCLUSION

Water cooperation is a term involving collaboration among states for the distribution of shared transboundary watercourses and for the optimal utilization of these watercourses.\textsuperscript{216} The establishment of effective cooperation among riparian states can help them in communicating their concerns related to planned water utilization projects.\textsuperscript{217} In turn, lower riparian states can no longer be adversely affected by the water storage projects of upper riparian states. In this regard, water cooperation among riparian states also necessitates the emergence of joint bodies that comprise officials of both lower and upper riparian states.\textsuperscript{218} The joint body will also be responsible for the exchange of data related to the water storage capacities and utilizations of water by each state as well as for the sharing of any information related to the probable threat of floods in the shared river basins.\textsuperscript{219} Such an exchange of information through mutual cooperation can protect states from the adverse effects of floods, as the states can make arrangements to mitigate the risks and dangers of floods.

In this regard, the IWT is an example of an international agreement that establishes cooperation between two hostile states, India and Pakistan, for the distribution and utilization of the Indus River and its five tributaries. The signing of the treaty was facilitated by the World Bank in 1960.\textsuperscript{220} It allocated the three eastern river tributaries of the Indus Basin to India and the three western river tributaries to Pakistan.\textsuperscript{221}

\begin{itemize}
  \item \textsuperscript{216} LEB, \textit{supra} note 10, at 1–2.
  \item \textsuperscript{217} PETER LYON, \textit{CONFLICT BETWEEN INDIA AND PAKISTAN: AN ENCYCLOPEDIA} 79, 84 (2008).
  \item \textsuperscript{218} See Hollaender, \textit{supra} note 1, at 325–26.
  \item \textsuperscript{219} Id.; see also Convention on the Protection and Use of Boundary Watercourses and International Lakes, \textit{supra} note 192, art. 9.
  \item \textsuperscript{220} GARMESTANI & ALLEN, \textit{supra} note 26, 185.
  \item \textsuperscript{221} LUDWIK A. TECLAFF, \textit{THE RIVER BASIN IN HISTORY AND LAW} 163–64 (1967).
\end{itemize}
Both states were allowed unrestricted use of their own river tributaries but were allowed only nonconsumptive use of each other’s tributaries.\(^{222}\)

Disputes have been raised over several Indian water storage projects as these projects make consumptive use of the Pakistani western rivers.\(^{223}\) Consumptive use of another state’s rivers is a violation of the IWT.\(^{224}\) It is necessary that both states should facilitate bilateral talks and dialogues, cooperating with each other to discuss contentious water storage projects on the Indus Basin. Solid and persistent cooperation between them can enable them to resolve their bilateral water disputes and can also improve the hostile nature of the relations between them. The IWT provides a mechanism for sustaining such cooperation by offering provisions of water cooperation.\(^{225}\) For instance, Article VI of the IWT requires that both states regularly share data related to their water storage projects.\(^{226}\) Similarly, Article VIII provides the basis for the establishment of Permanent Indus Commission, which not only is responsible for resolving their differences related to water storage works but also facilitates the exchange of information.\(^{227}\)

Cooperation in the Law of Transboundary Water Resources

Similarly, Article IV of the IWT makes it mandatory for each state to inform the other of the possibilities of adverse climate change that may result in abnormal increases or decreases in the flow of river waters in the near future, causing inundation or drought in the regions surrounding the shared Indus Basin.\(^{228}\) Such communication cannot take place without immediate and effective bilateral cooperation between the states. Therefore, water cooperation between India and Pakistan is essential for proper implementation of the IWT and for the better utilization of their shared Indus Basin.\(^{229}\) A trustworthy cooperation between India and Pakistan will enable both the countries to give heed to their bilateral

\(^{222}\) Indus Waters Treaty, supra note 97, art. 2.
\(^{223}\) See Water Insecurity in the Indus Basin: The Costs of Noncooperation, supra note 20, at 40.
\(^{225}\) SINGH, supra note 3, at 151.
\(^{226}\) Indus Waters Treaty, supra note 97, art. 6.
\(^{227}\) Id. art. 8; see also WATER CRISIS IN INDIA, supra note 4, at 260.
\(^{228}\) Indus Waters Treaty, supra note 97, art. 4.
\(^{229}\) SCOTT BARRETT, THE WORLD BANK, CONFLICT AND COOPERATION IN MANAGING INTERNATIONAL WATER RESOURCES 8, 12 (1994).
concerns, especially those concerns that are related to the Indus basin. 230 Both states can establish joint engineering works to manage the waters properly for better utilization in agriculture and hydropower generation. 231

In addition to the IWT, other provisions of international law also carry certain obligations for maintaining effective cooperation between riparian states. 232 Article 8 of the Law of Non-Navigational Uses of International Watercourses includes a duty to cooperate for the distribution, utilization, and management of their transboundary watercourses. 233 Similarly, the Berlin Rules also recommend cooperation between upper and lower riparian states. 234 In addition, the UNECE Convention has also provided several recommendations related to the establishment of joint cooperation mechanisms and groups for maintaining sustainable cooperation between riparian states for the environmental protection of the watercourses as well as for information sharing and optimal utilization of the watercourses. 235

Being members of the international community and the United Nations, an exceptional duty is borne by both India and Pakistan to establish the cooperation with each other necessary for the utilization of their shared Indus Basin and to avoid causing any harm to each other. However, certain Indian water storage works are harming the availability of water and, consequently, the agrarian infrastructure of Pakistan. This is because Pakistan’s agricultural sector is heavily dependent on an adequate flow of water in the Indus Basin, 236 but the water in the Indus Basin reaches Pakistan after passing through Indian territory. 237

230. See Peter Lyon, supra note 217, at 79.
231. See generally id.
232. See, e.g., McIntyre, supra note 8, at 69–70.
233. See G.A. Res. 51/229, supra note 19, art. 8.
234. Subramanian, supra note 134, at 100.
237. Tiwari & Joshi, supra note 23, at 73.
Bilateral water cooperation is in the interests of both states because their water-related needs are of an equivalent nature\(^\text{238}\) which can be met mutually in a better way.\(^\text{239}\) Both can share the recommendations related to the optimal utilization of the Indus Basin’s water with each other and can work together to devise joint strategies relating to the optimal utilization of their water resources. For this purpose, the integrated water management schemes will prove beneficial for meeting the water-related needs of both states.\(^\text{240}\)

In addition to the IWT, the International Boundary Waters Treaty is another treaty that endorses cooperation among states.\(^\text{241}\) It is in effect in North America for water cooperation between the U.S. and Canada as well as between Mexico and the U.S.\(^\text{242}\) Water cooperation has been established among several other riparian states. For instance, the Agreement on Cooperation in the Management, Utilization and Protection of Interstate Water Resources established long-term cooperation among the Central Asian republics.\(^\text{243}\) Similarly, excellent water cooperation has been established among the states that share the Mekong River basin, China, Thailand, Laos, Vietnam, Myanmar, and Cambodia.\(^\text{244}\) These states are utilizing the water of the Mekong River to meet their needs.\(^\text{245}\) Moreover, the persistence of water cooperation among them has prevented water-related disputes among them. On a similar note, water cooperation is in effect in Europe among different European Union states in accordance with the Helsinki Rules, superseded by the Berlin Rules and the UN Watercourses Convention.\(^\text{246}\)

\(^\text{238. }\) Amit Gupta, Global Security Watch: India 48 (2012).
\(^\text{239. }\) Nurit Kliot, Water Resources and Conflict in the Middle East 11 (1994) (detailing the principle of mutual benefits).
\(^\text{241. }\) See Wouters, supra note 200, at 149.
\(^\text{242. }\) Id. at 146.
\(^\text{243. }\) Id. at 133.
\(^\text{244. }\) Islam & Suiskind, supra note 203, at 129.
\(^\text{245. }\) Politics and Development in a Transboundary Watershed, supra note 203, at 10.
\(^\text{246. }\) See Wouters, supra note 200, at 146.
The instances of water cooperation listed above are generating mutual benefits.\textsuperscript{247} These states are meeting their needs related to the common watercourses without harming the other parties. Therefore, on a parallel note, there is also a need to maintain cooperation between India and Pakistan, in accordance with the spirit of the IWT and the legal principles and obligations of international law. Pakistan has showed a keen interest in establishing and maintaining such cooperation for the long term, as is evident from the history of dialogues between the states. Therefore, India also needs to provide an equal response by taking concrete steps to maintain cooperation.

\textsuperscript{247.} Id. at 153.