INDUS BASIN WATER TREATY IN THE EYES OF INTERNATIONAL LAW

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Abstract

Because of the increasing global scarcity of water, international watercourse management has become a major global concern. For both India and Pakistan, the Indus River Basin presents a particularly serious challenge in dealing with this issue. The water from the Indus Basin is used for a wide range of purposes, including irrigation, hydropower generation, and many more. Water flow in Pakistan's western rivers and streams are being severely restricted by various Indian water management projects. These initiatives might jeopardise Pakistan's current water management infrastructure. As a result, the Indus Waters Treaty offers guidance to both countries on how to effectively manage the Indus Rivers. In addition, international law has a number of principles and protocols that address the management of transboundary watercourses. India and Pakistan, for example, can follow these principles to ensure that watercourse basins are not depleted or polluted and that they do not cause harm to neighbouring states. They can also utilise these principles to implement specialised water management techniques.

Keywords: Global Security of Water, India, Pakistan, Indus River.

Introduction

The most important issue we face now is a lack of water. As a result, Pakistan is currently water-stressed and on the verge of running out of water. As a result, efficient management of Pakistan's water resources is essential. (Biswas, 1992) As a result of the Indus River and its tributaries, Pakistan's agricultural and general economy is aided by irrigation. India is also a part of the Indus Basin. The Indus Waters Treaty oversees the usage of water from the Indus Basin between Pakistan and India. The agreement contains water conservation recommendations for both states. (Hashmi, 2022) A further set of international obligations for state governments includes those governing transboundary water resources, such as the Indus Waters Treaty. As part of a shared river basin's management plan, there are a number of legal instruments that can be consulted: the United Nations Watercourses Convention, the Berlin Rules, and the Johannesburg Declaration. (Akhter, 2015) In this work, we make recommendations for managing the Indus Basin and its surface waterways, but not for managing groundwater or any other type of water resource.

The second half of this paper provides further information about water management in the Indus Basin area of Pakistan. (Irfan, 2019) The total water demand in the Indus Basin is examined, together with the average annual flow of water in its tributaries and the variables that affect this flow. The primary elements influencing the natural flow and management of water in Pakistan's Indus Basin are Indian water storage projects and severe weather changes, which will be explored at the end of the first part. (Khurshid, 2020) This article's latter part discusses the obligations of the Indus Waters Treaty, which pushes Pakistan to construct water management infrastructure.

The last part outlines international legal treaties and norms that provide riparian governments with guidelines for managing international watercourses. (Maryam, 2019) A section on water management practices in the Indus Basin by India and Pakistan, such as environmental impacts, the duty not to harm other states by continuing water management projects, sustainable management and development of watercourses, and basin-wide cooperation in watercourse management are all discussed in this section. (Kamran, 2021) The conclusion is provided in a succinct manner at the end of this work.

Background

Countries of China, Afghanistan, Pakistan and India all have a stake in the Indus Basin. In spite of this, the Indus Water Treaty (IWT), which was signed by India and Pakistan and governs the sharing of transboundary water resources, is the primary governing document

for the Basin. (Kalair, 2019) It establishes a governance framework for the Indus Basin, encompassing the nations' shares of transboundary water resources as well as the duties of state parties and the method for dispute settlement among the parties concerned. (Hashmi, 2022)

According to international law, groundwater is considered to be one of the most important natural resources because of its status as a supply of potable water. As a result of the development of more efficient methods for water extraction, it is currently used as a source of fresh water on a global scale. (Akhter, 2015) The international law that governs these water resources were mostly formed in the twenty-first century, in contrast to the law that governs rivers that flow over international borders. This aspect of international law has had a nonlinear history of development and is currently in the process of developing.

Since the Indus Basin is a heavily populated region that is jointly owned by India and Pakistan, the topic of water stress and the exponential exploitation of "transboundary groundwaters" has been a common topic of conversation in this region. (Miner, 2009) Concerns have been expressed regarding the regulatory structure that is in place under the IWT and international law as a result of this exploitation. (Biswas, 1992) It has been argued that the majority of international accords on water resources, including the Indus Treaty, do not adequately include transboundary groundwater. One such example is the Rio Convention.

Indus Basin and its Development

As a water source for the Indus River in Tibet (China), the Singikabad spring is located at a height of 5,494 m, 16 kilometres north of Lake Mansarovar. The Indus River drains an area of 450,000 square miles and transports 90 X 106 acre-feet of water from Tibet to the Arabian Sea. Pakistan, India, China, and Afghanistan all share the Indus River Basin, however, India and Pakistan control the vast majority of the basin's land. (Irfan, 2019) Pakistan benefits the most, taking up 61% of the basin's entire land area, while India takes up 29% of the basin's total land area. More than 8 per cent of this territory is jointly occupied by China and Afghanistan. With the Indus Basin providing 90% of Pakistan's food supply, the bulk of Pakistan's people is dependent on it. (Akhter, 2015)

Beginning in Punjab in 1880, the British were able to irrigate large dry regions (literally meaning land of five rivers). The majority of the Indus Basin in British India was located in Punjab, which was home to the five eastern tributaries of the Indus. (Khurshid, 2020) Irrigation systems in Punjab were established by the British through the construction of a network of perennial, year-round canals and the installation of weirs on rivers to regulate

water flow. Interprovincial water disputes arose as a result of Punjab's superior irrigation system in British India, particularly between Punjab, Sindh, Bahawalpur, and Bekanir (now Rajhastan). The British had already made a number of measures to solve water shortages across all of India prior to Partition. (Miner, 2009) To monitor the impact of Punjab withdrawals on the Indus before it left Punjab, the Discharge Committee was established in 1921 Adopting a water allocation plan agreed upon by the parties was the recommendation of a commission established in 1935. A dam planned by India's governor-office general raised concerns in Sindh in 1939. (Kalair, 2019) Consequently, when Pakistan and India attained independence, the Rau Commission did not examine the issue of Punjab and Sindh.

The 1960 Indus Basin Water Treaty

Due to the 1947 partition of Punjab between India and Pakistan, little thought was given to the distribution of water between the two newly established provinces. A panel was tasked with establishing a boundary between the Pakistani and Indian Punjabs in order to carry out the Partition in practice. (Maryam, 2019) The Radcliffe Award was presented to the Punjab Division Commission. In British Punjab, the irrigation system was established as a single administrative entity. On communal lines, the Boundary Commission had to divide Punjab's irrigation system into two different systems.

As a result, India had complete control over the water flow into Pakistani Punjab thanks to the location of the headworks on the Indian side of Punjab. First, a bilateral agreement had been agreed upon, guaranteeing that water would not be withheld until Pakistan had been given the opportunity to develop alternate sources of water. (Biswas, 1992) The scenario may have devolved into a global conflict between the two newly independent nations, but the IWT, signed in 1960, prevented that. The World Bank volunteered to mediate between the two countries in their disagreement. In addition to a water resource sharing agreement, the two countries also agreed to a dispute resolution framework and other commitments. (Wolf, 2008) According to Salman et al., who cited other academic studies, the IWT just "reaffirms each state's territorial sovereignty on the different watercourses" because it doesn't specify how much water each state will receive.

Six decades and three wars fought between nuclear-armed countries have not been enough to bring the Indus Treaty to its knees. The Treaty has also been subjected to rigorous examination within the scholarly community. (Qureshi, 2017) The fact that the Treaty does not contain any mechanism for controlling transboundary groundwater in the Indus Basin has been brought to people's attention.

Management in Pakistan

In this section of the paper, water management practices in Pakistan's Indus Basin are examined. Pakistan's requirement for Indus Basin water and its annual flow or supply are described. Only the Indus Basin provides Pakistan with a large volume of water; this water is used for industrial enterprises, agriculture, hydropower generation, and urban use. The Indus Basin is crucial to the water management of Pakistan. (Zawahri, 2018) It has long been the principal source of irrigation in the Punjab province of Pakistan. The five rivers Jhelum, Chenab, Beas, Ravi, and Sutlej drain into the five-basin Indus Basin. (Irfan, 2019) The Indus Waters Treaty awarded Pakistan the Indus, Jhelum, and Chenab rivers. In addition to the Indus River, a number of tributaries irrigate vast portions of Pakistan's agricultural land. The development of canals and barrages that utilise water from the Indus River and its tributaries has also made crop irrigation possible. Concerns have been made, however, concerning the effectiveness of Pakistan's present water management system.

As was mentioned earlier, the Indus Basin, which receives its water supply from the Indus River and the rivers that flow into it as tributaries, is an extremely important source of water for agriculture and other uses in Pakistan. The vast majority of agricultural land in the nation is irrigated by these canals. (Khurshid, 2020) Barrages have also been built in several areas of the Indus Basin, in addition to the canals. Thirteen of the Indus River's barrages are utilised to irrigate crops. Pakistan has one of the world's largest irrigation systems because of its canals and barrages. In addition, Pakistan has three major dams and a number of smaller ones in operation. Just as a refresher, the three largest dams are Tarbela (9 million acre-feet), Mangla (6 million acre-feet), and Chashma (0.8 million acre-feet). (Abas, 2019) But due to sedimentation, its storage capacity is declining each year, and the three largest dams together contain just 13.1 MAF of Pakistan's annual river flow. For the most part, the water that has been stored will be put to use in the production of hydroelectric power. Moreover, a third of the country's electricity requirements are met by the hydropower generated by these dams. In addition to dams and rivers, Pakistan has a number of lakes, both constructed and natural. There are many people who live near these lakes who rely on the water for everything from drinking to irrigation, especially in the Baluchistan area, where the Indus River does not flow. (Ali, 2021) When there is a lot of rain in these areas, the water levels in these lakes increase significantly. Located in Sindh Province, Pakistan's Manchar Lake is the country's largest lake. During the wet season, Manchar Lake covers an area of around 520 square kilometres, whereas, during the dry season, it covers an area of about 350 kms^2. (Miner, 2009) There is still enough water in the lake for drinking, home use, and agricultural use by the residents.

Managing water resources, preventing flooding, and mitigating the negative consequences of anomalous rises or declines in river watercourses are all topics covered by federal and provincial legislation in Pakistan. A national flood control policy is likewise regulated and monitored by these regulations. Some of these laws were adopted under the British colonial administration in Pakistan. (Maryam, 2019) These laws include the NWFP Canal and Drainage Act of 1873, the Punjab Irrigation Act of 1873, and the Punjab Canal and Drainage Act of 1873. Others include the Sindh Irrigation Act of 1879 and the Punjab Canal and Drainage Act of 1879. The Punjab Soil Reclamation Act was passed in 1952, the Indus River System Authority Act was passed in 1992, the Water and Power Development Authority Act was passed in 1958, the Water Users Association Ordinances were passed in 1981, and the Baluchistan Ordinance was passed in 1980, the Provincial Irrigation and Drainage Authority Act was passed in 1997, and the Environment Protection Act was passed in 1997. (Biswas, 1992) These are just some of the additional laws that have been passed in Pakistan. Both surplus water management and flood damage prevention are the goals of this legislation. In addition, these rules offer aid to those living in flood-prone areas. However, despite the fact that Pakistan has a number of laws and institutions in place to regulate the distribution of water, an exact framework or regulation for doing so is absent in the country. (Zawahri, 2018) Particularly in flood control, Pakistan does not have a specific policy; however, the laws stated above give certain rules for flood management indirectly. The adoption of flood prevention structural solutions has been the foundation of current flood management. Examples of flood prevention measures include the building of flood barriers, dams, embankments, spurs, diversion structures, and bypass structures. The development of embankments is being closely monitored in this respect, as embankments have been built on all of the important rivers. (Hashmi, 2022) As a result, Pakistan implements structural measures for flood control, despite the lack of a unified framework or legislative strategy for flood management in Pakistan.

Management Under the Indus Basin Water Treaty

The Indus Waters Treaty provides India and Pakistan with detailed recommendations about the administration of water resources in the basin of the Indus River. In accordance with the conditions of the treaty, India was given responsibility for the management of five rivers that are tributaries of the Indus River. These rivers include the Ravi, Sutlej, and Beas rivers in eastern India, as well as the Indus, Jhelum, and Chenab rivers in western Pakistan. (Zawahri, 2018) According to Articles II, III, IV, and VII, both Pakistan and India are responsible for the management of the water that comes from the Indus River.

Article IV of the Indus Water Treaty stipulates the establishment of accords about the facilities for water management. It provides Pakistan with guidance on how it might

improve the management of its water resources. According to the information presented in this article, Pakistan should construct a brand-new water-management infrastructure over its western rivers in order to reduce or eliminate its reliance on the country's eastern rivers. India enjoys unrestricted access to all of the rivers in the eastern region. (Miner, 2009) According to the first paragraph of Article IV, Pakistan is required to make every effort to construct and put into operation, with due regard for expediency and economy, that portion of a system of works that will accomplish the replacement of water supplies for irrigation canals in Pakistan from the Western Rivers and other sources, which were dependent on water supplies from the Eastern Rivers in Pakistan on August 15, 1947. This portion of the system of works will accomplish the replacement of water supplies for irrigation canals in Pakistan from the Eastern Rivers in Pakistan. Additionally, a variety of water management measures for drainage, cleanliness, the preservation of soil, and the removal of sand from river beds are specified in paragraph 3 of Article IV. (Abas, 2019) It forbids Pakistan and India from carrying out any programmes that might be harmful to the other country or lead to the use of water in the rivers that are apportioned to the other country. In accordance with the provisions of paragraph 3 of Article IV, each party is obligated to take all precautions necessary to protect the other Party from suffering a substantial injury.

Barrages, dams, and irrigation canals are all specifically specified in the treaty, and both governments are obligated to avoid harming each other in the process of implementing any of these water-management projects. Because India has built various water-storage projects on the western tributaries of these rivers, this clause of the treaty is being challenged by India's use of these rivers. (Qureshi, 2017) The controversial water storage projects Kishanganga Dam, Baglihar Dam, Salal Dam and Ratle Dam began construction in India a decade ago. According to the preceding section, the average annual flow of these rivers has declined by more than half since then. With the current agricultural infrastructure in Pakistan so largely dependent on this water, the yearly drop in average water flow poses a serious concern. (Alam, 2002) Indian water-management facilities are harming Pakistan, which shows that India is not adhering to the spirit of the Indus Waters Treaty, which is a violation of the treaty.

The Indus Waters Treaty protects each state along the river from the damage that floods can cause. As was said above, this means that new ways can be found to handle excess water resources and keep floods from happening. However, the treaty also mandates that each state avoid causing harm to the other while establishing any flood prevention or water management project or project. (Haines, 2017) Because it is a higher riparian state, India has a greater duty to safeguard its own land from flooding during rainy seasons by diverting river flows toward Pakistan. Since the Indus Waters treaty clearly encourages India to prevent any harm to Pakistan while undertaking its flood-control activities, this is

why. With Article III, India will be prohibited from diverting water from the Western Rivers for any reason other than flood protection on Indian soil. As water shortages or floods are possible during seasons of extremely high rainfall, India's diversion of western rivers for its own usage is viewed as an act of hostility against Pakistan. In spite of India's restrictions on the use of Western Rivers water, India has proceeded to build more hydroelectric and water storage dams on the rivers inside its borders. Indian use of Western Rivers resources has frequently been a subject of concern for Pakistan. On the Jhelum and Neelum rivers, India has attempted to build Wullar Barrage and Kishanganga Dam.

As a result of this omission, India's water-management engineering projects are never disclosed to Pakistan in accordance with the Indus Waters Treaty rules. India initiates the construction of large-capacity dams, hydroelectric projects, and barrages without consulting Pakistan. As a result of the storage facility's problematic design and operation, Pakistan and India are now at odds over the Indian water storage project. Several of India's water management engineering projects, including some of the country's largest dams and barrages, have suffered from this problem. Twenty-seven divisive Indian water management projects remain unanswered in Pakistan, despite repeated requests. (Alam, 2002) They show that Pakistan and India want the terms of the Indus Waters Treaty to guide how they handle water. India and Pakistan have only kept one deal, the Indus Waters Treaty because they keep fighting with each other. This treaty lays out a plan and a framework for how the two countries will share the flows of their shared transboundary rivers in a fair way. So, it's hard to say enough about how important this agreement is for the two people involved. This agreement is an example of an international agreement that encourages states to not only share and use their transboundary river flows but also manage them well by working together to manage the shared river basin.

Management under International Law

Riparian nations are guided by international law to manage water optimally so that both upper and lower riparian states can profit from this management. Declarations and conventions that most countries have approved and adopted contain these rules. An important aspect of the role of international law is to guarantee that transboundary waterways do not become the private property of a single country. (Kamran, 2021) For this reason, governments that share transboundary international watercourses must follow international water rules and principles to ensure that international water resources are shared and used in an equitable manner that does not cause harm or injustice to other states.

Maintaining river basin water quality is a priority under international law. States are also urged to conduct environmental evaluations of their water resources as part of this directive.

In addition to preventing pollution, these new laws mandate that states clean up hazardous substances that have already been discharged into waterways. "States shall adopt water quality standards sufficient to preserve public health," states Article 28 of the Clean Water Act. State governments must also conduct an environmental impact assessment of their water-management projects. (Wolf, 2008) Article 31 of the Berlin Rules says that a water-management project should be evaluated in terms of how it will affect waterways, ecosystems, habitats, ecology, human health, and other activities. Furthermore, Article 29 mandates that governments conduct evaluations of their waterways. According to Berlin Rules Article 8: "Minimization of Environmental Harm," governments are prohibited in their water-management efforts from inflicting environmental harm or damage. According to the law, states are required to "take all reasonable steps to prevent or reduce environmental damage." (Haines, 2017) As a result, India will need to put in place safeguards to avoid or minimise environmental damage in the Indus River Basin. It is important to note that India's Kishanganga Dam puts the Neelum Valley's aquatic environment and agricultural area in peril by diverting water from the Neelum River, which runs through Pakistan's Azad Kashmir region.

All riparian governments have an obligation to protect the ecology. The UN Watercourses Convention, in addition to the Berlin Rules, supports the conservation of ecosystems and the species they support. Article 20 of the UNWC states: "The Watercourse States should safeguard and maintain the ecosystems of international watercourses, individually and, when appropriate, collectively." As a result, all countries are bound to maintain and conserve the natural environment that is intertwined with international waterways. Indian officials, on the other hand, are working to finish the contentious Kishanganga Dam despite the fact that it appears to go against the spirit of this guiding principle. (Alam, 2002) Kishanganda Dam's construction harmed the Neelum Valley's natural environment, hence the UN Watercourses Convention, which promotes the conservation of international watercourses' natural environments, might be considered a breach. The Kishanganga Dam's environmental impact on the Neelum Valley must be examined in accordance with Article 20 of the United Nations Convention on the Law of the Rivers. This sort of examination may be done by India and Pakistan jointly. (Kalair, 2019) It's possible that Pakistan might give guidance on how to minimise the effects of the Neelum Valley region's Kishanganga Dam.

Article 1 of the Belgrade Rules says that states should make sure that developing and using water resources in the territory of other states doesn't harm the environment in those other states in a big way. In Article IV of the Helsinki Rules, there is a similar clause that says states can't hurt or damage other states or their ecosystems in a big way. (Qureshi, 2017) This is to stop states from hurting or damaging other states or their ecosystems in a big way. Indian projects to store water on western rivers, on the other hand, haven't followed these rules. As a result, Pakistan isn't getting its fair share of the water from western rivers. These three rivers' yearly average flows have already decreased significantly as described in the paper's introduction. (Ali, 2021) The average annual flow of water in the western rivers would decrease further if the controversial Indian projects now under development are finished, putting Pakistan's agricultural infrastructure at risk. Agricultural output, which accounts for a large portion of Pakistan's GDP and growth rate, would suffer significantly as a result of such damage.

The natural environment and resources are supported by the Johannesburg Declaration. Achieving sustainable development in all areas is explained here. A better quality of life may be achieved through sustainable development, according to the statement. (Kamran, 2021) Additional to this, it is vital to ensure the long-term preservation and conservation of resources, such as the preservation of water resources and their protection against pollution and deterioration. It is possible to sustainably develop a water resource by taking certain steps. Both India and Pakistan must adopt these steps to ensure the long-term viability of the Indus Basin's development and sustainability. (Abas, 2019) The Indus Basin must be safeguarded against depletion in order to ensure sustainable development and the preservation of its natural resources for the benefit of both governments.

Conclusion

Pakistan's agriculture depends a lot on how well water is managed. Climate change and Indian projects to store water are having an effect on how Pakistan manages water. Pakistan wants to build more places to store water, but new projects in India are making Pakistan's projects more expensive. India's Kishanganga Dam has pushed Pakistan to finish its Neelum–Jhelum power project so it can use Neelum River water before India does. The prior-appropriation rule says that the country that uses a water resource first owns it. The water supplies for Neelum Valley and the Neelum–Jhelum project are in danger because of the Kishanganga Dam. Several Indian projects to store water, like the Kishanganga Dam, could hurt Pakistan's farming and water management by reducing the flow of rivers. Pakistan's rivers flow less on average each year. The Mangla, Chashma, Tarbela and other smaller dams can't hold as much water as they used to. This complicates Pakistan's water-management efforts. Pakistan has asked India to examine its new water-storage projects

because they might impact Pakistan's water flows, agriculture, and ecology. India has mainly ignored Pakistan's concerns. Negative agriculture impacts Pakistan's economy. Agriculture is the foundation of Pakistan's economy since it accounts for the most GDP. Legally, India cannot affect another country's environment while managing its water resources. UN Watercourses Convention and Belgrade Rules Article 1 both state that governments must not harm others.

Water management strategies must be evaluated for their environmental impact both within a country's borders and across state borders under the Berlin Rules, the UN Watercourses Convention, and the Pollution Rules Supplement. Indian water storage projects appear to be non-compliant with these accords and norms of international law since they have not analysed the negative environmental and water habitat impacts of these projects. The agreement between India and Pakistan, the Indus Waters Treaty, prohibits the Indian government from damaging Pakistan's water management initiatives. It's impossible for India to get water from the western rivers. Indian water management projects on western rivers, according to Pakistan, have breached the Indus Waters Treaty since they divert water from rivers. By damming the Jhelum River with the Kishanganga Dam, the river's natural flow will be disrupted, which is against the terms of the Indus Waters Treaty.

The Indus Waters Treaty establishes guidelines and procedures for water management between the two countries. It is recommended that India and Pakistan construct water management engineering projects to properly utilise and benefit from the Indus Basin after it has been divided equally between the two countries. It recommends that both states frequently exchange information on river flow and water-storage projects under progress, as well as those that have already been completed. There must be transparency in water management operations in the Indus Basin as a condition of the Indus Water Treaty. India and Pakistan may be able to work together on basin-wide water management if India starts adhering to international agreements and water standards. Agricultural, power, drinking, and residential usage all rely on river water from each state's respective rivers. According to the Indian media, India has vowed to renegotiate the Indus Waters Treaty in order to gain a larger share of the Indus Basin's water. Taking Pakistan's fair share of water from the Indus Basin and endangering its current and future water management plans are both possible outcomes.

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