



Indus Water Treaty between Pakistan and India

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Pakistan Institute of Legislative Development and Transparency - PILDAT
Head Office: No. 7, 9th Avenue, F-8/1, Islamabad, Pakistan
Lahore Office: 45-A, Sector XX, 2nd Floor, Phase III Commercial Area, DHA, Lahore
Tel: (+92-51) 111-123-345; Fax: (+92-51) 226-3078
E-mail: info@pildat.org; Web: www.pildat.org

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PREFACE

The Position Paper on **Indus Water Treaty between Pakistan and India** has been authored by **Mr. Arshad H. Abbasi**, for the benefit of Pakistani and Indian Parliamentarians joining the Pakistan-India Parliamentarians Dialogue-III, being facilitated by PILDAT.

The paper aims to explore various prospects of the Indus Water Treaty between India and Pakistan, its implications and a possible way forward. There should be a better political will for normalising India-Pak water disputes but to enhance it for the benefit of public of both sides, and promote peaceful relations.

As an independent Pakistani think-tank, PILDAT believes that while diplomatic channels for Dialogue must continue, Parliamentarians from both countries should be facilitated on both sides for a greater interaction and developing a better understanding for resolving issues that should lead diplomatic initiatives. It is for this objective that PILDAT has been facilitating Parliamentarians Dialogues.

Disclaimer

The views expressed in the paper belong to the author and are not necessarily shared by PILDAT.

Islamabad
January 2012

PROFILE OF THE AUTHOR

Arshad H Abbasi is Water and Energy Specialist. He holds a B.S. in Engineering from Engineering University -Lahore and Masters Engineering Management from the Center for Advanced Studies in Engineering. Mr. Abbasi served in various public sector organizations including Planning Commission of Pakistan. He had served in various International Organizations such as ILO, WWF, USAID, IUCN and USAID as consultant. Transboundary Water Governance and Energy management is his major areas of interest

Abbreviations and Acronyms

CBM	Confidence Building Measures
EIA	Environmental Impact Assessment
EU	European Union
HPP	Hydroelectric Power Plant
ICJ	International Court of Justice
ICOLD	International Commission on Large Dams
IHK	Indian Held Kashmir
KHEP	Kishanganga Hydroelectric Power Plant
LOC	Line of Control
MAF	Million Acre-Feet
MW	Mega Watt
TEIA	Transboundary Environmental Information Agency
UNFCCC	United Nations Framework Convention on Climate Change
UNEP	United Nations Environment Programme

Introduction

The Indus river system, which is the lifeline of Pakistan and western India, comprises the river Indus and its five (5) main tributaries namely Jhelum, Chenab, Ravi, Beas and Sutlej. Division of the subcontinent in 1947 created a new international boundary, which cut across the Indus river system unevenly between India and Pakistan.

After years of mounting tension, India and Pakistan signed the *Indus Water Treaty* on September 19, 1960 which consists of 12 articles and 8 appendices. The Treaty defines the principles for sharing water of the Indus river system between the two countries.

The text of the Treaty very clearly defines the level and

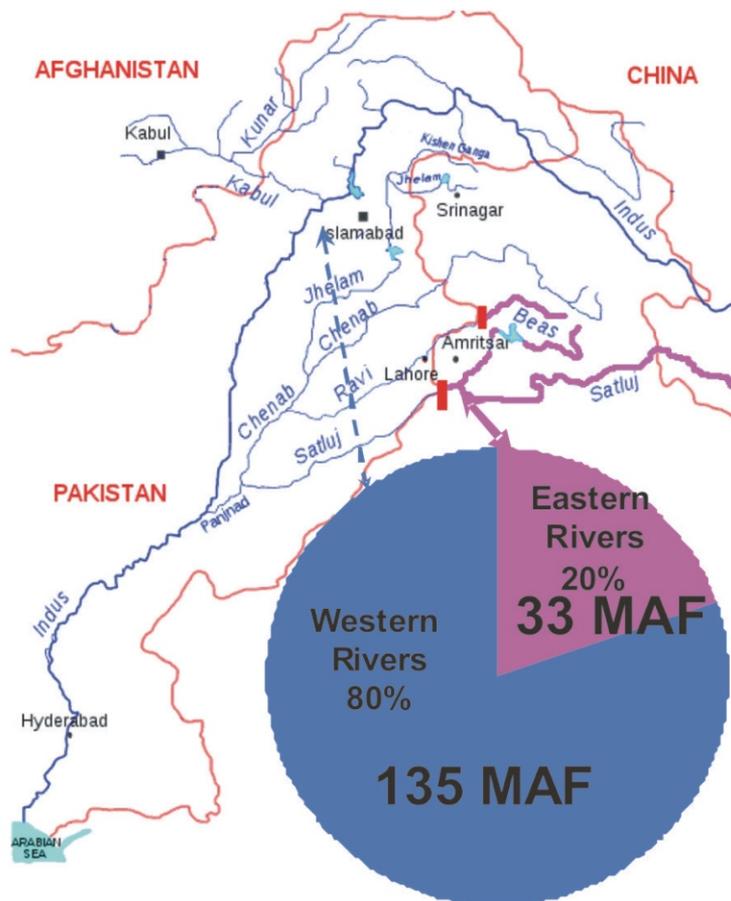
Table 1: Water Storage Capacity of Pakistan

Storage Capacity	Indus	Jhelum	Chenab
MAF	0.35	1.5	1.7

extent of water sharing for efficient use of the water from Indus river system. Further the Treaty clearly indicates the rights and obligations of both Pakistan and India. According to the Treaty the waters of the western rivers (Indus, Jhelum and Chenab) are available to Pakistan, while that of the eastern river (Sutlej, Ravi and Beas) are available for unrestricted use by India.

In the treaty, India has permitted Pakistan to create storages up to the limits shown in Table 1 on the Western Rivers for hydropower generation and flood storages which amount to total permissible storage of 3.6 MAF for

Figure 1: Water Distribution chart



non-consumptive use.

The conditions have been illustrated in Annexure 'D' and 'E' of the Treaty. The design of the hydropower plants and maximum reservoir capacity for firm power is explicitly defined in sub-clauses (a) (c) (e) and (f) of Paragraph 8 of Annexure D of the Treaty. Annexure 'C' of the Treaty also allows India to irrigate crop area of 13,43,477 acres using waters of western rivers. So far it has only been irrigating 7,92,426 acres of the land.¹

The well defined characteristics of the Treaty set a precedent of cooperation between the two countries. It is an emblem of confidence building measure as it is the only treaty to have survived three wars and other hostilities between the two countries. India developed different Hydroelectric Power Projects (HPP), with the cross installed capacity of 2456.20² MW after signing Indus treaty,³ however the total electricity demand of IHK⁴ is 1589⁵ MW, as shown in Table 2.

India has also developed several run-of-the-river projects. Moreover, other four projects, MW Uri-II, 120 Sewa-II, 45 MW Nimo Bazgo and 44 MW Chutak Hydroelectric Project are likely to be completed in early 2012.

To date, Pakistan has only raised objections on the construction of Baglihar HPP. Baglihar HPP is a run-of-the-river power project on the Chenab and was conceived in 1992. After construction began in 1999, Pakistan claimed that some of the design parameters were too lax than were needed for feasible power generation hence enabling India to accelerate, decelerate or block flow of the river. This gives India a strategic leverage in times of political tension

or war.

During 1999-2004, India and Pakistan held several rounds of talks on the design of the projects but could not reach an agreement. After failure of the talks on January 18, 2005, Pakistan raised six objections to the World Bank (a broker and signatory of Indus Water Treaty). India continuously denied the objections of Pakistan and claimed that the design was inline with the provisions of the Treaty. To solve this controversy, Pakistan sent a formal request to the World Bank in April 2005 to appoint a Neutral Expert in order to peacefully resolve the differences arising between India and Pakistan under Article IX (2) of the Treaty, in relevance to the Baglihar Project. The World Bank constituted a technical and legal team, headed by an expert, Raymond Lafitte on May 12, 2005 for adjudication. The expert delivered his final judgment on February 12, 2007, upholding India's stance regarding design of the dam, with minor modifications.

Interpretation of Treaty after Baglihar Dam Judgement:

This judgment set a precedence to be followed in future if the need for the interpretation of the treaty arises. Raymond Lafitte applied the Vienna Convention on the laws of treaties (1969) and referred to the latest bulletins of ICOLD⁶ rules of science and the state of the art practices. The need to incorporate state of the art knowledge of science in the interpretation of the treaty was emphasized by Raymond. The verdict of the court was made while using emerging knowledge of hydraulic, environmental science, climate change and contemporary research on dams. The judgment of the court, which is

Table 2: Electricity Demand

Basin	Jhelum River Basin							Chenab Basin						Indus Basin	
Name & Location HE-Plants	Lower Jhelum	Upper Sindh-I	Ganderal	Upper Sindh-II	Pahalgam	Karnah	Uri -I	Chenani-I	Chennai-II	Chenani-III	Bhaderwah	Baglihar	Salal HEP	Dul-Hasti	Nine HEP
Capacity (MW)	105	23	1	105	3	2	480	23	2	7	1	450	690	390	13.3

1. Ministry of Water, Government of India
2. &K Government Order NO.205(Power Development Department) DATED 07.07.2011
3. Before treaty only Ganderal HEP was developed in 1955, all other had completed after signing of treaty in 1960
4. Indian Held Kashmir
5. J& K Electricity Statistics
6. The International Commission on Large Dams, or ICOLD, founded in 1928. Pakistan and India both are members of ICOLD

now set as precedence and integral part of treaty, had indubitably said that rights and obligations of both the countries should be read in the light of new technical norms and new standards as provided for by the Treaty.

During the two years of hearing, India in its counter memorial⁷ appended the verdict of International Court of Justice (ICJ)⁸ in the case of Gabčíkovo– Nagymaros dam dispute between Slovakia and Hungary on the Danube River. In this case, the ICJ declared that new norms of international environmental law are relevant for implementation of any Water sharing Treaty.

Water Situation and Hydropower Development in Pakistan

Pakistan is at the brink of water stress level and it is feared that by 2020 per capita water availability may fall to 800 cubic meters. Pakistan has a capacity to store water for 30 days as compared to India's capacity of 120-200 days of water storage. India has utilized 33 MAF of the allocated share of the Indus basin wisely for irrigation and power-generation purposes. Moreover India has also successfully developed Dams with gross storage capacity of 17 MAF and power generation of 12700 MW on eastern rivers but unfortunately Pakistan has only been able to install 6717 MW of hydropower so far.

Recent Controversies

The 330 MW Kishanganga HEP is a run-of-the-river hydro-electric scheme that is designed to divert water from the Kishanganga River - known as Neelum River in Pakistan to a power plant in the Jhelum River basin. Construction on the project began in 2007 and is expected to complete in 2016.

The waters of the Kishanganga River are to be diverted through a 24-kilometre-long tunnel for power production. The remaining water flow will join the Wullar Lake and ultimately run through Jhelum to Muzaffarabad, evading 213 KM long Neelum River.

The Kishanganga HEP is another example of serious violation of Article – IV (3), C of the Treaty and especially Paragraph (5) and Article VII (1) (b). The provision of these articles clearly restricts India to increase the catchment

area of any natural or artificial drainage and drain, beyond the area on the Effective Date. The diversion will increase the catchment area hence resulting into violation of Treaty under the above mentioned articles:

- i. By diverting the flow of Kishanganga River, upstream at Gurez, the catchment area of River Jhelum (tributary of main Jhelum) will be increased, which will cause enormous material damage in Neelum Valley due to adverse effects of non-availability/reduction of water.
- ii. The catchment area of River Jhelum tributary will increase the flow in tributary that will cause material damage and will increase likelihood of floods resulting in erosion of agriculture land along both sides of River Jhelum tributary.

If KHEP is successfully implemented, it will result in a shortfall of almost 61 % of Neelum River at LoC and inflow for the NHJEP. This will reduce the project's much needed energy generation by 35% in winter season. Consequently, Pakistan will be left to suffer over 141.3 USD Million dollars annually. This will also jeopardise the execution of already planned agricultural development activities in the area with a loss of 421 million rupees loss. Owing to the protest by Pakistan against the resultant multifarious effects of the construction of the dam, the construction was halted by the Hague's Permanent Court of Arbitration in October 2011.

Illegal Carbon Credits for Nimoo-Bazgo and Chutak HEP Projects

As per 37 clauses (b) of the United Nations Framework Convention on Climate Change (UNFCCC) rules business,⁹ it was mandatory for India to ratify Environmental Assessment Report (EIA) of both the aforementioned projects from Pakistan to earn carbon credits. India was awarded carbon credit for the above mentioned projects by UNFCCC on August 11, 2008. ***These carbon credits were illegally won by India with the connivance of some officials of the Ministry of Water & Power (GOP).***

New Multipurpose Hydropower Projects in IHK

India has announced hydro development plan under the 12th five year plan (2012-2017) in which 74 dams with a

7. A legal document based on an answer admitting, denying, or commenting on charges in international court of law

8. ICJ Case -1997

9. (FCCC/KP/CMP/2005/8/Add.1 dated 30 March 2006)

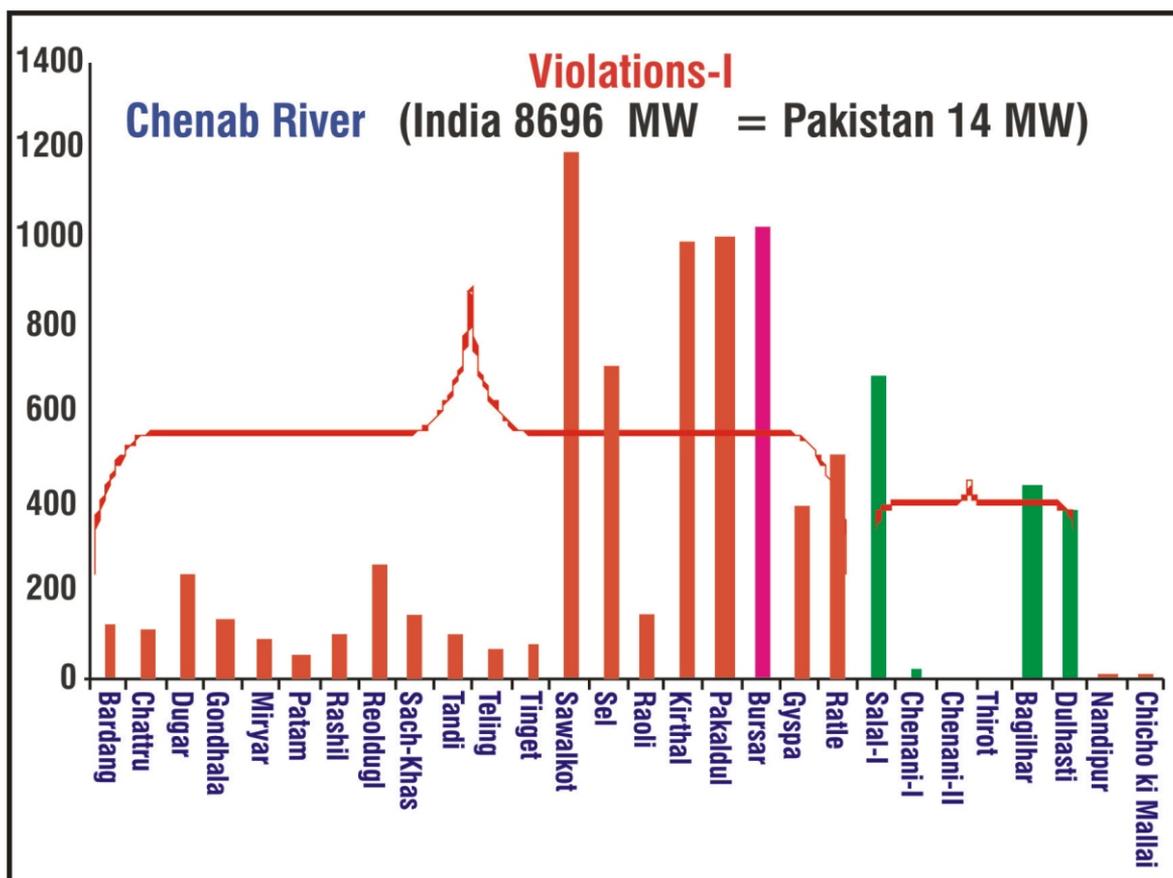
capacity of 15208 MW are planned. Work on some of these Dams has already started. India's main argument for the construction of these hydro projects is power generation. These Dams have been repeatedly questioned, especially dams on Chenab River such as:

- i. The Bursar Hydroelectric Project is a storage project in which the flow of water can be regulated not only to benefit this project but all downstream projects, i.e., Pakal Dul, Dul Hasti, Rattle, Baglihar, Sawalkot and Salal Hydroelectric Projects. These projects will enhance the potential of all downstream schemes. The storage provided is intended to be used for additional power generation during lean flow months and releasing regulated flow in the downstream. The storage capacity of dam will be around 2.2 MAF, while the permissible limit on Chenab River is only 1.7 MAF.
- ii. The detail engineering design of all project, especially

mega power project such as 1000 MW Pakaldul, 780 MW Rattle, 990 MW Kirthal and 715 MW Seli 1020 MW of Sawalkot HP have not been shared with Pakistan.¹⁰

- iii. Government of Jammu & Kashmir has announced to develop of another seven dams for hydroelectricity on main Indus River and two projects on Suru and Drass rivers having an estimated capacity of 1055 MW
- iv. Article VI of the treaty explicitly elaborates the need and compulsion to exchange information and data related to the projects to be installed on the Indus River. Besides the parameters defined in the Treaty, India and Pakistan are bound to exchange such information/data under the obligation of the Commission on Large Dams (ICOLD) as members of the ICOLD. According to the ICOLD, dams having height more than 15 metres are defined as Large Dam therefore all such dams are to be registered with the

Figure 2: Comparison of Live Storage of Pakistan and India



Source: Detail Design and Tender Documents

10. The details of these nine projects having an estimated capacity of 1055 MW is given in Table 3

commission for dam safety. The judgment passed over Baglihar dam was based on the latest ICOLD bulletin of the Commission on Large Dams (ICOLD) while deciding the design of the spillways.

- v. India has been planning to start more than 67 Dams for hydropower generation since long and all these Dams fall under the category of large dams. Unfortunately, India's dam-failure record has been worst, as nine of its dams have so far collapsed. J&K area is earthquake prone hence a minor failure can result into a catastrophe for the downstream areas. Therefore it is mandatory and important to setup dam safety measures in consultation with Pakistan.
- vi. After this decision, India is obligated to design all large dams in line with ICOLD bulletins, No. 120, 121 and 123. Being Lower riparian area of the Indus Basin, this is highly important for the safety of infrastructure in Pakistan.
- vii. The decision of Baglihar dam legally dictates the obligation to environmental laws and ICJ decisions. Although it is mandatory to share Environmental Impact Assessment (EIA) report of all dams in succession with ICJ decisions and ICOLD Bulletins, India has not shared EIA report of any dam with Pakistan to evaluate transboundary impacts.

Cumulative Impact of Live Storages

Pakistan's dispute with India over the construction of an array of hydro-electric projects on the Chenab and the

Jhelum rivers is turning into a source of serious tension between the two countries. Almost all Indian projects on Jhelum, Chenab and Indus are classified as run of river projects but they will entail serious consequences for downstream areas both individually and accumulatively if treaty will not be followed in letter and spirit. Pakistan fears that accumulative live storage of these projects would have adverse impact both in terms of causing floods and running Chenab and Jhelum Rivers dry in the lean period, when Pakistan meets the demands of water from these rivers.

Bangladesh is already experiencing similar tensions with India regarding the sharing of Ganges waters. India has built Farrakha barrage, by diverting waters had cause serious problem in Bangladesh including 85% groundwater contamination annually causing financial loss more than 500 Million USD to country's economy other than enormous flooding in monsoon season and drought in dry season.

Wullar Barrage/Tulbul Navigation Project

Wullar Barrage, referred to as Tulbul Navigation project by India, was the second Indian project that became controversial and still remains unresolved. Wullar Barrage is located on Jhelum River some 30 km north of Srinagar. India wants to build a barrage on the mouth of the Wullar Lake where it meets the Jhelum River in Jammu and Kashmir with a storage capacity of 300,000 acres feet.¹¹ The storage capacity of project would surpass the permissible limit, specified in annexure 'D' of the treaty.

Table 3: Estimated Capacity of Projects

Project On Indus	Height of Dam (Feet)	River	Capacity MW
Ulitopp HEP	132	Indus	85
Khaltsi HEP	66	Indus	90
Dumkhar HEP	66	Indus	70
Achinathang- Sanjak HEP	132	Indus	220
Sunit HEP	66	Indus	295
Parkachik-Panikher HEP	198	Drass – Suru	100
Kirkit	99	Drass – Suru	100
Drass- Suru HEP -I	82	Drass – Suru	35
Drass- Suru HEP - II	66	Drass – Suru	60

11. Source-office of Indus Water Commissioner-Pakistan

Way Forward

The Article VII of the treaty focuses on future co-operation between the two countries by mutual agreement to the fullest possible extent. To further translate this into the best practices in managing shared water and the Baglihar Dam Judgment are the guiding principles for the author to develop consensus to make treaty 100% transparent in order to avert any potential conflict and pitch a win-win solution for both countries.

In this regards after efforts of three years and in-depth discussion and deliberation with Indian water and energy experts, intelligentsia, environmentalists and other experts during series of various dialogues held at New Delhi, Islamabad, Bangkok and Dubai, following recommendations have been unanimously reached that offer win-win doable, practical solutions, already replicated in Nile and Danube River Basins:

1. Recognizing that Indus Water Treaty is evidently the most successful Confidence Buildings Measure (CBM) between the two countries, India has the right to use provisions granted in annexure 'D' and 'E' nevertheless there is a need to make treaty more transparent by using state-of-art information communication technology tools.
2. To remove mistrust on data exchange, instal satellite based real-time telemetry system in IHK Kashmir at a minimum 100 loctions for monitoring water quality and quantity.
3. There is a need to setup an independent office of Indus Water Commission(IWC) comprising neutral experts outside of South Asian region, having unblemished record and integrity. This may also include experts from various international agencies such as the World Bank, the UNEP and the EU, etc. This independent commission of experts shall work directly under the UN to monitor and promote sustainable development in Kashmir and HP.
4. The Independent IWC will also arrange real time data of miner, major tributaries and at all head-works, dams, etc. by website including three dimensional models of dams, three-dimensional model to represent of geometric data of dams (flood storage+ Run of River Hydropower projects) for clarity for the global community.
5. It was agreed that environmental threats do not respect national borders. During last three decades, the watershed in IHK is badly degraded. To rehabilitate watershed in IHK and Himachal Pradesh (HP), both countries are to take initiative for joint watershed management in these two states.
6. To rehabilitate watershed in IHK and HP, an environmental impact assessment is the best instrument to assess the possible negative impact that a proposed project may have on the indigenous environment, together with water flow in rivers . The United Nations Economic Commission for Europe's Convention on Environmental Impact Assessment in a Transboundary Context provides the best legal framework for Transboundary EIA for sustainable flow in Indus Rivers System, so that India should share TEIA before physical execution of any project including hydropower.
7. Glaciers are important and major source of Indus Rivers System. To preserve these glaciers, there is immediate need to declare all Himalayan Glaciers as "Protected Area" including immediate demilitarization from Siachen to preserve this second longest glacier of planet to fall in the watershed of the Indus River.



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Head Office: No. 7, 9th Avenue, F-8/1, Islamabad, Pakistan
Lahore Office: 45-A, Sector XX, 2nd Floor, Phase III Commercial Area, DHA, Lahore
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