Historic Practice and Treaty Interpretation (second round)

Professor Philippa Webb

Indus Waters Western Rivers Arbitration (Pakistan v. India)
PCA Case No. 2023-01

Hearing for the Second Phase on the Merits

3 February 2026

Outline

1. Object and Purpose of the Treaty and constraints on India
2. Treaty framework and historic practice
3. Specific questions on the historic practice regarding the Northern Region grid

India's case

[Transcript 102:3-104:9]

1. The primary purpose of the Treaty is to obtain "the most **complete and satisfactory utilisation** of the waters of the Indus system"
2. "the existence of a regional grid encompassing many HEPs provides that no single HEP needs to conform to the regional grid requirements but rather to operate in tandem with the other HEPs, to give India **maximum flexibility** in meeting its anticipated loads".

The Court's General Issues Award,

¶ ¶ 427-428

PCA Case No. 2023-01

IN THE MATTER OF
THE INDUS WATERS WESTERN RIVERS ARBITRATION

- before -

THE COURT OF ARBITRATION CONSTITUTED
IN ACCORDANCE WITH THE INDUS WATERS TREATY 1960

- between -

THE ISLAMIC REPUBLIC OF PAKISTAN

- and -

THE REPUBLIC OF INDIA

AWARD ON ISSUES OF GENERAL INTERPRETATION
OF THE INDUS WATERS TREATY

COURT OF ARBITRATION:

Professor Sean D. Murphy (Chairman)
Professor Wouter Buytaert
Professor Jeffrey P. Minear
Judge Awn Shawkat Al-Khasawneh
Dr. Donald Blackmore

SECRETARIAT:

The Permanent Court of Arbitration

8 August 2025

427. The phrase "complete and satisfactory utilisation of the Indus system of rivers" identifies an element of the object and purpose of the Treaty, which is to allow both India and Pakistan to utilize the complete resources of the rivers in a particular geographic region, but to do so in a way that is satisfactory to both the upstream riparian (dominantly India) and downstream riparian (dominantly Pakistan).[675] Achieving that *raison d'être* of the Treaty requires "fixing and delimiting, in a spirit of goodwill and friendship, the rights and obligations of each in relation to the other concerning the use of these waters". Thus, a complete and satisfactory utilization of the waters of the Indus system of rivers is only possible by establishing a stable and well-defined set of rights and obligations of both riparians.

428. There is some value here in noting what is *not* the object and purpose of the Treaty. The Treaty does not provide for the maximum development of the resources of the Indus system of rivers by one Party or the other. To the contrary, the Preamble expresses an intent for both "complete" and "satisfactory" utilization, which is to be achieved through delimiting "in a spirit of goodwill and friendship" the rights and obligations of the two Parties. Thus, neither Party secures through the Treaty unilateral or exclusive rights to use or develop the Indus system of rivers. Indeed,

PLA-0001 [B.49]

Factors: ”Hypothetical” load curve

The calculation for the Operating Pool did not depict the actual variations through the Turbines (Lower Khelum HEP and Chinani-I HEP)

India does not appear to intend the operate the Plant as it proposes (Lower Jhelum HEP)

The expected power output is arbitrarily assumed – that is not in a reasonable relationship to the expected output of the Plant (Kishenganga HEP)

Arbitrary peaking schedule eg lack of clear basis for selecting timing of operations on various days of a week; lack of a basis for depletion of stored water (Kishenganga and Ratle HEPs)

Factors Contributing to a "Hypothetical" Load Curve

PCIW states that "the generation pattern has to be related to the Operating Pool provided at the site of the Plant. But in case of the Plant under reference calculations for the Operating Pool do not depict the actual variations through the turbines, which are proposed to be met with the pondage provided, and, therefore, appear to be hypothetical." (p. 1)

P-0649.0425 [A2.24] (Chinani-I HEP, 1979)

PCIW requests calculations for the MMD and clarification of "whether the operation of the Plant as proposed in Annexure V to your letter is a hypothetical one or it will be followed as proposed. In the past you have termed such operation (load curve) as hypothetical when those plants like LJHP [Lower Jhelum] came into operation. In case it is hypothetical one, a load curve to be actually followed may be given." (p. 5).

P-0649.0722 [A2.29] (Rajouri HEP, 1990)

"According to our calculations, pondage provided exceeds the value of maximum pondage permitted under the Treaty. You will be aware that "Firm Power" means the hydro-electric power corresponding to the minimum mean discharge at the site of a plant. However, the calculations for the "Pondage" supplied vide Annexure III to your letter under reference are based on the Plants operation which generates peak power by releasing turbine's rated discharge following a hypothetical load curve. Paragraph 8(c) restricts the maximum Pondage to twice the Pondage required to generate Firm Power, therefore, releasing turbine's rated discharge during the hypothetical peak demand hours (instead of continuous release of the Minimum Mean Discharge (MMD)) is a clear violation of an express provision of the Treaty." (p. 1).

P-0078 [A1.6] (Ratle HEP, 2012)

In the annexure to the letter, PCIW notes that "[t]he calculation for the Operating Pool […] do not depict the actual variations through the turbines which are proposed to be met with the pondage provided, and, therefore, appear to be hypothetical. (pp. 5-6)

P-0649.0342 [A2.22] (Lower Jhelum HEP, 1976)

"Without prejudice to Pakistan's position regarding the correct way of calculating Pondage required for Firm Power, even if it be assumed that India was entitled to calculate the "Pondage required for Firm Power" with reference to the expected power output of the Kishenganga Plant, the expected power output must not be arbitrarily assumed but must bear some reasonable relationship to the actual expected output of the Kishenganga Plant. In the instant case, the peaking timings noted by India. are completely arbitrary in that no peaking has been done on the mornings of Saturday, Sunday and Monday. The pondage of 7.55 MCM provided by India in its design of the Kishenganga Plant is therefore excessive and unjustifiable. In this respect too, the design of the Kishenganga Plant is in violation of Paragraph 8(c) of Annexure D to the Treaty." (pp. 5-6).

In response to the specific information provided on the calculations for the Operating Pool, PCIW noted that "In the calculation of Pondage at Annexure certain timings of operation on various days of a week have been given. How have these timings been selected? Similarly, the basis for depletion of stored water has also not been given. All this appears to be hypothetical and to have been used to achieve the maximum figure of Pondage. Such method is not relevant to the Treaty provisions to calculate the Pondage. Kindly refer to my accompanying letter in this regard." (p. 12).

P-0056 [A1.2] (Kishenganga HEP, 2006)

Form: Missing Information

Missing figure for minimum mean discharge (Dul Hasti HEP)

Missing calculations of actual operation of the HEP (Dul Hasti HEP)

Missing calculations for the capacity of Operating Pool as related to the actual load curve (Asthan Nallah HEP)

Lack of supporting basis for the calculations of Pondage in the computation method (Nimoo Bazgo HEP)

Missing Information Contributing to a "Hypothetical" Load Curve

PCIW notes that "figure of minimum mean discharge used for calculating the Operating Pool should have been indicated" and that India's calculations of the Operating Pool "are hypothetical [and therefore] the same be revised and calculations of actual operation of the Plant be supplied so that Pakistan know the actual variations in the supplies" (p. 4).

P-0649.0493 [A2.25] (Dul Hasti HEP, 1984)

PCIW requests calculations of minimum mean discharge and notes that "calculation for the Operating Pool is just hypothetical. The capacity of Operating Pool has to be calculated on the actual load curve. The required calculations and the load curve may please be supplied." (p. 3)

P-0649.0637 (Asthan Nallah HEP, 1994)

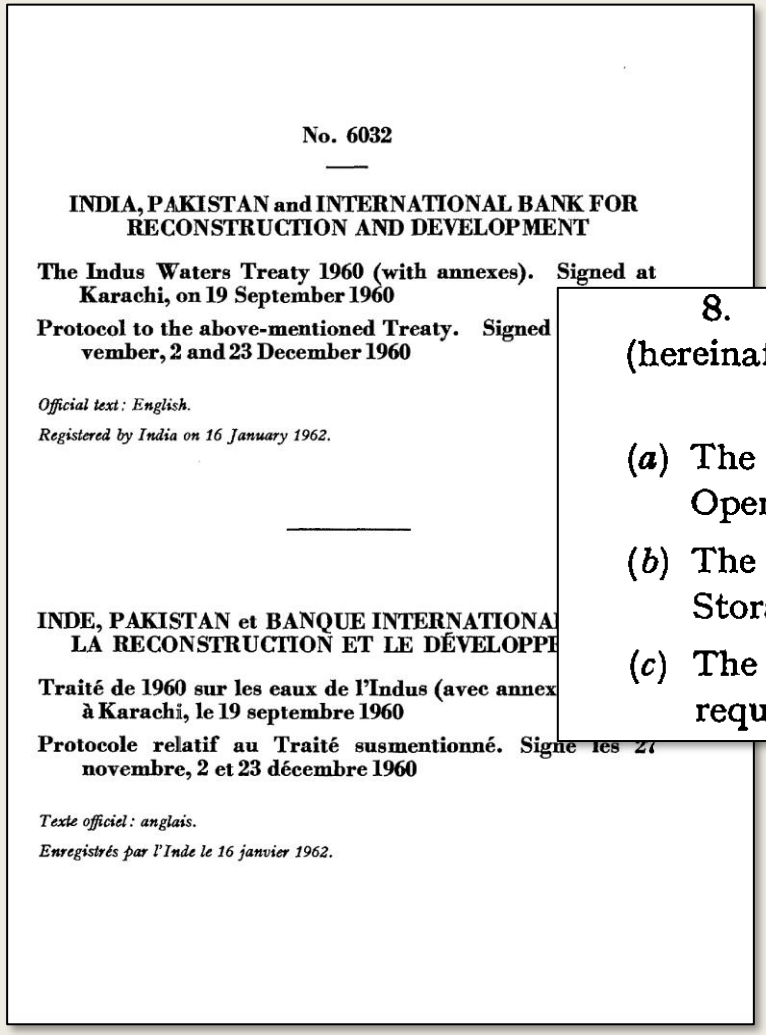
PCIW notes that he does not "agree with [ICIW's] contention that no provision exists in the Treaty for supply of calculations of minimum mean discharge" as this is "the first step for calculating the Operating Pool and is part of the calculation and is to be supplied". PCIW also states that "in view of what has been stated by you more details are required to see that the load curve is realistic and not hypothetical" (p. 4).

P-0649.0514 [A2.28] (Dul Hasti HEP, 1985)

PCIW objects to India's calculation of Pondage, stating that "the calculations for 'Pondage' [...] are based on a very hypothetical load curve, which has no supporting basis and also does not correspond to a Firm Power (13.3 MW). The perusal of the computation method provided as Annexure VII shows that Pondage has been estimated using provisions of Paragraph 15 only. It may be noted that Paragraph 15 refers to operation only i.e. operation criteria..." (p. 2)

P-0649.1072 (Nimoo Bazgo HEP, 2007)

Paragraphs 8(a), 8(b) and 8(c)



No. 6032

INDIA, PAKISTAN and INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

The Indus Waters Treaty 1960 (with annexes). Signed at Karachi, on 19 September 1960

Protocol to the above-mentioned Treaty. Signed ... vember, 2 and 23 December 1960

Official text: English.

Registered by India on 16 January 1962.

INDE, PAKISTAN et BANQUE INTERNATIONA... LA RECONSTRUCTION ET LE DÉVELOPPE...

Traité de 1960 sur les eaux de l'Indus (avec annex... à Karachi, le 19 septembre 1960

Protocole relatif au Traité susmentionné. Signé les 27 novembre, 2 et 23 décembre 1960

Texte officiel : anglais.

Enregistrés par l'Inde le 16 janvier 1962.

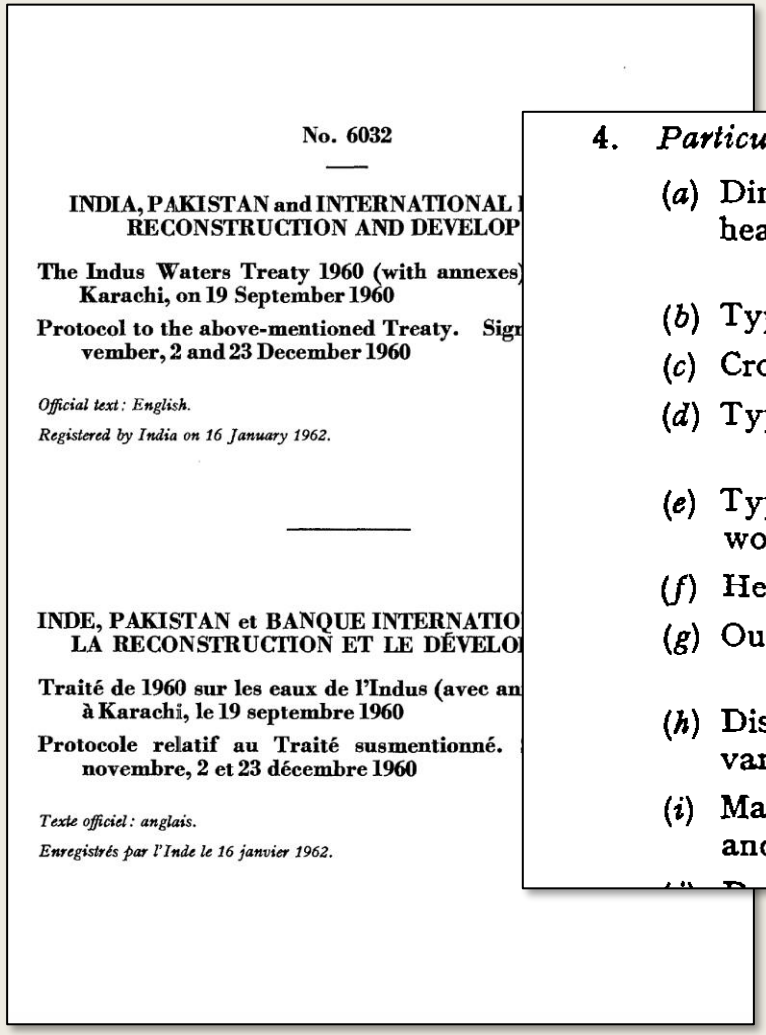
8. Except as provided in Paragraph 18, the design of any new Run-of-River Plant (hereinafter in this Part referred to as a Plant) shall conform to the following criteria :

(*a*) The works themselves shall not be capable of raising artificially the water level in the Operating Pool above the Full Pondage Level specified in the design.

(*b*) The design of the works shall take due account of the requirements of Surcharge Storage and of Secondary Power.

(*c*) The maximum Pondage in the Operating Pool shall not exceed twice the Pondage required for Firm Power.

Para 4(i)



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Enregistrés par l'Inde le 16 janvier 1962.

4. *Particulars of Design*

(*a*) Dimensioned plan showing dam, spillway, intake and outlet works, diversion works, head-race and forebay, powerhouse, tail-race and Regulating Basin.

(*b*) Type of dam, length and height above mean bed of river.

(*c*) Cross-section of the river at the site ; mean bed level.

(*d*) Type of spillway, length and crest level ; size, number and top level of spillway gates.

(*e*) Type of intake, maximum designed capacity, number and size, sill levels ; diversion works.

(*f*) Head-race and tail-race : length, size, maximum designed capacity.

(*g*) Outlet works : function, type, size, number, maximum designed capacity and sill levels.

(*h*) Discharge proposed to be passed through the Plant, initially and ultimately, and expected variations in the discharge on account of the daily and the weekly load fluctuations.

(*i*) Maximum aggregate capacity of power units (exclusive of standby units) for Firm Power and Secondary Power.

Baglihar NE Determination

5.9.5. STATEMENT S 9 relating to the volume of Pondage [point (b) of the difference referred by Pakistan]

Applying provisions of the Treaty, and based on the state of the art, the NE considers that the role of the pondage is to regulate the river flow to meet consumer demand. When the pondage is calculated on this basis, it can also be used to regulate fluctuations in the river inflow.

The pondage is the operating volume necessary to produce firm power corresponding to the minimum mean discharge at the site of the plant. The method of calculating this minimum mean discharge is clearly explained in the Treaty, and no difference of opinion has arisen between the Parties concerning the value of this discharge.

The pondage calculation presented by Pakistan is done with the objective of operating the plant at constant power, while regulating the fluctuations in the river flow. The NE cannot agree to this objective.

The pondage calculation presented by India is done with the objective of operating the plant with a constant river inflow, while regulating the fluctuations in power. The NE agrees with the principle, but not with the hypothesis concerning the time peak load hours on which the calculations should be based; this is not clearly justified.

Baglihar NE 2 October 2006

point of view, but I cannot agree with the
calculation because the peak loads hour which were
chosen by India are not very logical. And if I
come back to the graph, you see the peak load hours
are chosen to the largest pondage. Just suddenly
on Wednesday you are producing during some hours
and not during other hours. You obtain with this
diagram the largest as possible pondage just
because choosing the right hours of production.
And it is not acceptable. So the principle is
right but not the result of the calculation.

Baglihar NE 8 November 2006 (Indian representative)

17 These are the two statements. We don't

18 dispute the statements, but the way it is worded, I

19 think it shows us in a very, very bad light.

PLA-0002 / BR-0038, p. 209

Questions regarding the grid

ICIW notes that "Firm Power corresponds to the power generated when the river is carrying the minimum mean discharge" and that India's calculations are "not hypothetical. This plant would be required to be operated in the grid and has to provide necessary peaking capacity under the varying conditions of Hydro-thermal mix and system operating conditions at different points of time" (pp. 5-6).

P-0649.0513 [A2.27]

PCIW reiterates that "calculations for the pondage supplied previously has been based on a hypothetical load curve which did not take into consideration the Firm Power corresponding to the Minimum Mean Discharge" and "the load curve supplied for the calculation of pondage was a hypothetical one and has not been based on the actual operation of the Plant which would be grided nationwide" (pp. 2, 4).

P-0649.0833 [A3.37]

PCIW responds that it is "irrelevant in the context of design criteria laid down in Paragraph 8 of Annexure D […] the load demand curve supplied is hypothetical. This has been drawn only to achieve the maximum pondage. As per our calculations the pondage required for firm power is much lower than what has been worked out and actually provided in the design of the plant" (p. 2).

P-0649.0822 [A3.36]

ICIW reiterates his earlier response to Pakistan's "hypothetical load curve" objection, stating again that "in a grid of hydro-thermal mix, the load demand curve may assume any pattern which cannot be predicted […] [and that] it may also be seen from the pondage calculation that the provision, of 'firm power' has been based on Minimum Mean Discharge only" (p. 2).

P-0649.0850 [A3.38]

"ICIW reiterated that the provision of 9.72 MCM by India [complies with] the Treaty and any reduction … is not warranted. He further stated that in future, Ladakh region would be inter-connected to the Northern Regional Grid of India. Ladakh region has acute shortage of power and alternative power sources are also very limited. With winter temperatures reaching as low as -35 C, there is an immense necessity of power for the region." (p. 6).

P-0330 [A2.13]

ICIW responds to Pakistan's objection by stating: "your contention 'the calculations for the Pondage supplied previously was based on a very hypothetical load curve' is not clear. However, it may be mentioned that the power station has to operate in the grid and provide necessary peaking capacity under varying conditions of hydrothermal mix and system operating conditions at different points of time" (p. 2).

P-0649.0795 [A3.34]

ICIW disagrees with Pakistan's view that calculations for Pondage were based on a "very hypothetical load curve", stating that "in a grid of hydro-thermal mix, the load demand curve may assume any pattern which cannot be predicted unlike in case of an isolated distribution system" and that in the pondage calculation, the provision of 'firm power' "has been based on Minimum Mean Discharge only" (p. 2).

P-0649.0814 [A3.35]

ICIW notes that "[f]or the designed operation/role of the station in the grid, the Pondage has been worked out and supplied" (p. 20).

P-0650.1 [A3.44]

PCIW noted that "it was observed in India's Pondage computation that it was so much oriented towards maximizing pondage that even the load curve was not followed in true sense. No hydropower was generated for hours to maximize the difference between cumulative inflow and outflow then plant was operated at peak capacity for many hours to fulfill the criteria of Paragraph 15, and the real load curve of the area i.e. Northern Grid, was compromised. PCIW emphasized that this approach was not consistent with the provisions of the Treaty." (p. 10).

ICIW responded that "the consumption of energy by industrial or domestic consumers in an interconnected grid can vary could vary from day to day, season to season and from time to time throughout the life of the plant and with the development can assume different pattern in the time to come. With more and more capacity additions envisaged from renewable energy sources which supply variable and intermittent power, the need for balancing power for stabilizing the grid and for successful integration of the renewables, the role of hydro power is increasingly becoming important. As such, operation of hydro projects need more flexibility in operation in order to cater to the varying load demands." (p. 10).

P-0103 [A1.9]


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