

ARBITRATION PURSUANT TO
ARTICLE IX AND ANNEXURE G OF THE INDUS WATERS TREATY 1960

-between-

THE ISLAMIC REPUBLIC OF PAKISTAN

-and-

THE REPUBLIC OF INDIA

AMENDED REQUEST FOR ARBITRATION

JULY 28, 2023

[Submitted pursuant to paragraph 1.2 of Procedural Order No. 8]

I. Introduction

1. The Government of the Islamic Republic of Pakistan makes this Request for Arbitration to resolve certain Disputes pursuant to Article IX and Annexure G of the Indus Waters Treaty 1960 (*Treaty*) between the Republic of India and the Islamic Republic of Pakistan. The Treaty “fix[es] and delimit[s], in a spirit of goodwill and friendship, the rights and obligations of each [Pakistan and India] in relation to the other concerning the use of these waters [of the Indus system of rivers],” which originate in the Himalaya and flow through India, Pakistan, and the disputed territories of Jammu and Kashmir.¹ The Treaty provides “for the settlement, in a cooperative spirit,” of all questions that may arise regarding the interpretation or application of the Treaty.²
2. In light of the historical, political, and geographical realities of the Indus basin, the Treaty established a unique legal regime for dividing and managing flows of water from the Indus system of rivers. It assigned to India the unrestricted use of the waters of the Eastern Rivers (the Ravi, Sutlej, and Beas) and provided that, after a transition period, Pakistan would have no claim or right to releases by India of any of the waters of the Eastern Rivers.³ Concomitantly, it assigned to Pakistan unrestricted use of the waters of the Western Rivers (the Indus, Jhelum, and Chenab), except that India—the upstream riparian—may use these waters for limited purposes (essentially domestic, non-consumptive, agricultural, and hydroelectric generation purposes under clear design and operational constraints). The Disputes in this Amended Request concern India’s violation of the specific restrictions placed on its hydroelectric use of the Western Rivers and its attempt to design and construct plants that would impermissibly give it the ability to control and manipulate flows of water from those rivers where the Treaty contemplated that it would have no such capability.
3. Pursuant to Article III(2) of the Treaty, India is “under an obligation to let flow” and “not permit any interference with” the waters of the Western Rivers. The vulnerability of Pakistan as the downstream riparian and the need to minimize India’s ability to control and manipulate

¹ Indus Waters Treaty 1960, Preamble.

² *Id.*

³ Pakistan may use waters from the main stems of the Eastern Rivers in the reaches where these rivers flow in Pakistan and have not yet finally crossed into Pakistan for limited purposes (essentially domestic and non-consumptive uses). *See id.*, Article II(2). Pakistan is also allowed limited uses (domestic, non-consumptive, and agricultural) of waters of tributaries of the main stems of the Eastern Rivers that join the main stems before the main stems finally cross into Pakistan. *See id.*, Article II(3). Pakistan is allowed unrestricted use of the waters of the tributaries of the main stems of the Eastern Rivers which join the main stems after they have finally crossed into Pakistan. *See id.*, Article II(4).

the flow of waters of the Western Rivers are at the core of the Treaty. The fundamental importance of India’s “let flow” imperative stems from events in 1948 when the Indian state of East Punjab cut the flow of water to Pakistan’s province of Punjab shortly after Partition. That incident triggered protracted negotiations over the allocation and use of the rivers that, with the assistance of the World Bank, ultimately resulted in the conclusion of the Treaty in 1960.

4. Within the framework of the obligations in Article III of the Treaty, and under tight constraints, India is permitted to use the waters of the Western Rivers (*inter alia*) for hydroelectric power generation. That use is strictly limited and subject to various constraints on the design, construction, and operation of hydroelectric power plants. As explained by the Court of Arbitration in the *Kishenganga case (Kishenganga Court)*, empaneled under the Treaty’s dispute-resolution provision, “[t]he Treaty allocates the use of the waters of the Western Rivers . . . to Pakistan, curtailing, sometimes quite severely, India’s freedom to utilize the waters of the Western Rivers for the generation of hydroelectric power.”⁴ Critically, the Treaty imposes not only *operational* constraints, but also *design* constraints in order to prevent construction of works that “would enable” prohibited operations.⁵ Moreover, India is required to abide by these design constraints even if they do not reflect contemporary “best practices” or “state-of-the-art” concepts in hydroelectric power plant design.⁶ The Kishenganga Court established that “the optimal design and operation of a hydroelectric plant is that which can practically be achieved within the constraints imposed by the Treaty.”⁷
5. Disputes have arisen between Pakistan and India concerning the interpretation of various parts of the Treaty governing the design of run-of-river hydroelectric plants (***Run-of-River Plants*** or ***HEPs***) on the Indus, Jhelum, and Chenab rivers and their tributaries—collectively, the “Western Rivers,” as defined in the Treaty.⁸ The Parties’ disagreements have arisen specifically in the context of two hydroelectric projects, the Kishenganga Hydroelectric Plant (***KHEP*** or ***Kishenganga Plant***) on the Kishenganga/Neelum River (a tributary of the Jhelum River) and the Ratle Hydroelectric Plant (***RHEP*** or ***Ratle Plant***) on the Chenab River. India

⁴ Court of Arbitration, Partial Award dated 18 February 2013 (*Partial Award*), ¶ 418.

⁵ *Id.*, ¶ 506.

⁶ *Id.*, ¶¶ 516 n.722 & 522.

⁷ *Id.*, ¶ 522.

⁸ Indus Waters Treaty 1960, Article I(6).

is, however, developing many other Run-of-River Plants on the Western Rivers, giving greater significance to the resolution of the issues of Treaty interpretation raised here. As discussed in greater detail below, the principles established by this Court will apply not only to the KHEP and RHEP, but also *erga omnes* to future Run-of-River Plants.

6. These proceedings mark the third use of the Treaty's external dispute-resolution mechanism. The first proceeding was before a single Neutral Expert and concerned aspects of the Baglihar Hydroelectric Plant;⁹ the second proceeding, before the Kishenganga Court, involved distinct but related issues with respect to the Kishenganga Plant.¹⁰
7. This arbitration concerns the detailed design constraints of Annexure D to the Treaty, which govern India's qualified right to hydroelectric use of the Western Rivers for Run-of-River Plants subject to the overarching obligations in Article III of the Treaty.¹¹ Annexure D to the Treaty sets forth specific legal and technical parameters for India's design, construction, and operation of Run-of-River Plants. Whereas particular elements in design may vary, the basic concepts underlying Run-of-River Plants are relatively straightforward:
 - a. A Run-of-River Plant relies upon the *natural flow of the river* to generate electricity; in this respect, it is to be distinguished from a storage hydroelectric plant, which impounds potentially large volumes of water that can be released at the discretion of the dam operator.
 - b. Taking what the river naturally provides, a Himalayan Run-of-River Plant can typically operate at full power during the wet monsoon season (roughly May/June-September/October), when there is a sufficient volume of water to run the turbines at their design capacity for 24 hours each day. This is not the case during the dry winter months (roughly October/November-April/May), when the diminished water flow can power the turbines at only a fraction of their design capacity.
 - c. To best meet the fluctuating demand for electricity in the winter months, which usually peaks in the morning and evening, some Run-of-River Plants incorporate *Pondage*, which is a stored volume of water that can be released into the turbines at peak demand

⁹ See Baglihar Hydroelectric Plant Expert Determination dated 12 February 2007.

¹⁰ In addition to the Partial Award of the Kishenganga Court, the KHEP issued the following decisions: Order on the Interim Measures Application of Pakistan dated 23 September 2011; Final Award dated 20 December 2013; and Decision on India's Request for Clarification or Interpretation dated 20 December 2013.

¹¹ Unless indicated otherwise, all references to Annexure D are to Annexure D to the Indus Waters Treaty 1960.

(or load) times during a day. For instance, the river flow might be collected at the dam for 18 hours over the course of the day so that a greater volume of water can be released into the turbines for the remaining six hours. During those six hours, the plant will generate more electricity than the natural flow of the river would otherwise provide.

- d. Pondage is the volume of water in the **Operating Pool**, the portion of a Plant's water storage capacity located in the upper portion of the reservoir. The top of the Operating Pool, which is the water level in the reservoir corresponding to the Pondage provided in a Plant's design, is called the Full Pondage Level (**FPL**). The bottom of the Operating Pool is called the Dead Storage Level (or **DSL**). The volume of water below DSL is called Dead Storage, which is not to be used for operational purposes and cannot be depleted except in an unforeseen emergency. These concepts are illustrated below in Figure 1.

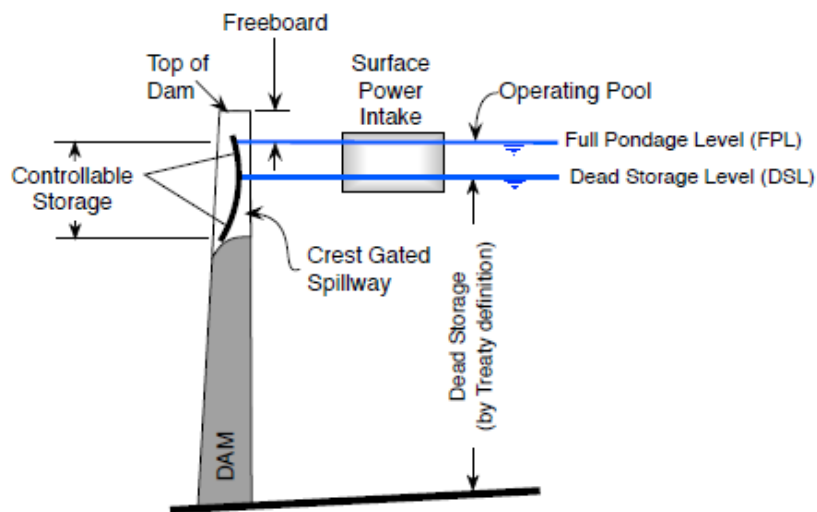


Figure 1: Diagram of a Run-of-River Plant with Crest Gated Spillway and Surface Power Intake

- e. Pondage is part of a dam's controllable storage. The greater the Pondage, the greater the amount of water that may be stored in the reservoir and thus the greater the amount of water that is controllable by the dam operator (India). Because the volume of Pondage is directly related to the dam operator's ability to interfere with the natural flow of waters of the Western Rivers and to control and manipulate the stored water, the Parties negotiated over how the volume of Pondage is to be calculated and set out that formula in Paragraph 8(c) of Annexure D to the Treaty. That provision fixes a limit on the maximum volume of Pondage (and therefore the size of the Operating Pool) for each

site. As discussed further below, India has calculated the size of the Pondage at the Kishenganga and Ratle Plants in a manner that violates Paragraph 8(c) and greatly exceeds the maximum volume of Pondage permitted under the Treaty. Of great significance in its own right because it improperly increases the amount of stored water controlled by India, this legal Dispute over Pondage also has knock-on consequences for other aspects of the Plants' design.

- f. Annexure D to the Treaty also regulates the size, placement, and type of spillways, power intakes, and sediment outlets in the dam in order to minimize India's ability to manipulate both Pondage and Dead Storage and thereby interfere with the natural flow of the Western Rivers. These design elements are needed in Run-of-River Plants to divert water into the power plant's turbines (through *intakes*), pass flood waters downstream of the dam (through *spillways*), and provide for sediment control (through *sediment outlets*). The addition of gates to spillways allows them to be opened or closed and gives the dam operator control over all of the water above the bottom level of the gates. The larger the size, and the lower the placement of such gates in the dam, the greater the volume of water under India's control, which it can either store or release. Consistent with India's obligation to "let flow" waters of the Western Rivers to Pakistan, the Treaty calls for: (i) spillways to be un-gated unless site conditions make gates necessary and to have the *highest* placement "consistent with sound and economical design and satisfactory construction and operation of the works"¹²; (ii) intakes to have the *highest* placement "consistent with satisfactory and economical construction and operation of the Plant as a Run-of-River Plant and with customary and accepted practice of design for the designated range of the Plant's operation"¹³; and (iii) no outlets to be placed below Dead Storage Level unless necessary for sediment control or any other technical purpose and for outlets to have the *highest* placement and be of the *minimum* size, "consistent with sound and economical design and satisfactory operation of the works."¹⁴
- g. Power intakes direct water into a tunnel or conduit which conveys the water to the turbines downstream of the dam. In Himalayan Run-of-River Plants, the intake is preferably placed at the highest level practicable to minimize the entrainment of sediment by the intake. Moreover, the Treaty requires power intakes to have the "highest

¹² Annexure D, Paragraph 8(e).

¹³ *Id.*, Paragraph 8(f).

¹⁴ *Id.*, Paragraph 8(d).

placement” in order to minimize India’s ability to control and manipulate stored water. Yet India has designed power intakes at the KHEP and RHEP that are submerged and impermissibly give it control over a greater volume of stored water.

- h. Dams may also contain outlets for sediment control. River flow invariably brings with it sand, pebbles, and other debris that can gradually accumulate upstream of the dam (in the reservoir) and interfere with the effective functioning of the Plant. Sediment can be managed in several ways. If sediment outlets are placed high in the dam (as the Treaty requires), sediment can be managed through *sluicing*, a method in which the reservoir’s water level is lowered to the Dead Storage Level during the wet monsoon, passing sediment-laden flood flow through the reservoir at a high velocity which scours and transports sediment through the length of the reservoir and downstream of the dam. Another approach is to place large sediment outlets near the bottom of the dam and to engage in *drawdown flushing*, a process by which the outlets are opened during high flow to create river-like conditions similar to those which existed prior to the construction of the dam. Under these conditions, the reservoir is emptied, and the high velocity river flow scours the accumulated sediment in the reservoir, carrying it downstream of the dam. This requires the shutdown of operations at the Plant for several days and is typically done only once a year, depending on site conditions.
- i. The Kishenganga Court, however, determined that in accordance with Paragraph 14 of Annexure D and Paragraphs 18 and 19 of Annexure E to the Treaty, the reservoir cannot be depleted below Dead Storage Level and that drawdown flushing is *not* permissible under the Treaty, as explained further below. India originally justified the low-level placement and the large size of its sediment outlets at the KHEP on the basis that they would be used for drawdown flushing. Notwithstanding the Kishenganga Court’s ruling that the reservoir cannot be depleted below Dead Storage Level and that drawdown flushing is prohibited by the Treaty, India has not altered its designs and has not raised the level or reduced the size of the sediment outlets at either the KHEP or RHEP.
- j. Dams need to be able to pass the design flood in order to prevent over-topping and damage to the dam structure. All Run-of-River Plants have spillways for that purpose, and the Treaty requires that they be un-gated unless otherwise necessitated by site

conditions.¹⁵ The most common industry practice is to place spillways at the top of the dam. This enables floating debris (such as logs) to be passed over the dam without causing damage, and it is also normally a more economical design choice. Un-gated spillways are always located at the top of the reservoir. If a Plant's site conditions necessitate gated spillways, the Treaty requires the gated spillway to have the "highest placement" in order to minimize India's ability to control and manipulate stored water and downstream flows. In its designs for both the Kishenganga and Ratle Plants, however, India has proposed (and, in the case of the KHEP, now implemented) large, submerged, and gated outlets deep in the reservoir that would be used for both sediment management and flood control, effectively merging its sediment outlets and spillways together.

- k. Disputes with respect to Pondage, intakes, sediment outlets, and spillways are present with respect to both the KHEP and RHEP, as discussed further below. There is also a Dispute about the height of *freeboard* at the Ratle Plant. The freeboard spans the distance between Full Pondage Level and the top of the dam (as illustrated in Figure 1). This buffer is typically established to prevent the overtopping of the dam caused by wind-driven waves, but if this buffer is larger than required, it can also be used to artificially raise the water above the Full Pondage Level by controlling gate operation, thereby effectively increasing the amount of water under India's control in violation of the Treaty. India has designed the Ratle Plant with freeboard that is excessive and that could impermissibly increase the amount of water India can store and control at the Ratle Plant.
8. The features of a Run-of-River Plant are inter-connected. The principle at the heart of each of the design elements in Paragraph 8 of Annexure D noted above is that they are all directed at controlling and limiting the storage of water on the Western Rivers in accordance with the overarching principles in Article III of the Treaty. At each turn, in respect of the Paragraph 8 elements, India has proposed legal interpretations of the Treaty,² and has made design choices at the KHEP and RHEP, that give or would give it the greatest amount of control over the largest volume of water—water that it has an obligation to "let flow" to Pakistan. Measured individually and cumulatively, India's proposals on Pondage, intakes, sediment outlets, spillways, and freeboard cannot be reconciled with the parameters of Article III, Annexure D and related provisions of the Treaty. India's approach marks a clear departure

¹⁵ *Id.*, Paragraph 8(e).

from the careful balance struck in the Treaty, which allows only restricted and circumscribed use of the waters of the Western Rivers so that Pakistan's rights on the waters of the Western Rivers, as enshrined in the Treaty, are not compromised. Water scarcity is a serious issue in the region, and India's ambitious agenda to build multiple HEPs similar to those proposed at Kishenganga and Ratle poses an existential threat to Pakistan's use of the Western Rivers and to the continued viability of the Treaty itself.

9. As formulated by Pakistan and placed before the Permanent Indus Commission (*PIC*) by reference to Article IX(1) of the Treaty, the Disputes are:

First, whether India's design for maximum Pondage of 7.55 million cubic meters of water (*MCM or Mm³*) for the Kishenganga Hydroelectric Plant is based on a method of calculations that contravenes the Treaty, particularly Paragraph 8(c) of Annexure D; and, relatedly, whether India's design for submerged power intakes at the Kishenganga Hydroelectric Plant contravenes the Treaty, particularly Paragraph 8(f) of Annexure D, because the intakes are not located at the highest level consistent with satisfactory and economical construction and operation of the Plant as a Run-of-River Plant and with customary and accepted practice of design?

Second, whether India's proposed design for maximum Pondage of 23.86 Mm³ for the Ratle Hydroelectric Plant is based on a method of calculations that contravenes the Treaty, particularly Paragraph 8(c) of Annexure D; and, relatedly, whether India's proposed design for submerged power intakes at the Ratle Hydroelectric Plant contravenes the Treaty, particularly Paragraph 8(f) of Annexure D, because the intakes are not located at the highest level consistent with satisfactory and economical construction and operation of the Plant as a Run-of-River Plant and with customary and accepted practice of design?

Third, whether India's design for low-level sediment outlets at the Kishenganga Hydroelectric Plant, in the form of a deep orifice spillway with three large, gated openings below Dead Storage Level and close to the reservoir bottom, contravenes the Treaty, particularly Paragraph 8(d) of Annexure D?

Fourth, whether India's proposed design for low-level sediment outlets at the Ratle Hydroelectric Plant, in the form of a deep orifice spillway with five large, gated openings

far below the Dead Storage Level and deep in the reservoir, contravenes the Treaty, particularly Paragraph 8(d) of Annexure D?

Fifth, whether India's design for gated spillways for flood control at the Kishenganga Hydroelectric Plant, with the bottom level of the gates in normal closed position located 14.5 meters below Dead Storage Level and close to the reservoir bottom, contravenes the Treaty, particularly Paragraph 8(e) of Annexure D?

Sixth, whether India's proposed design for gated spillways for flood control at the Ratle hydroelectric Plant, with the bottom level of the gates in normal closed position located approximately 31 meters below Dead Storage Level and deep in the reservoir, contravenes the Treaty, particularly Paragraph 8(e) Annexure D?

Seventh, whether India's proposed design for 2 meters of freeboard at the Ratle Hydroelectric Plant contravenes the Treaty, particularly Paragraph 8(a) of Annexure D?¹⁶

10. Consistent with Article IX(1) of the Treaty, these Disputes have been extensively examined over the course of years by the PIC, which has failed to resolve them by agreement. They were subsequently addressed in Government-level negotiations pursuant to Article IX(4) of the Treaty. However, no settlement of these Disputes was reached in either of these forums.
11. After the Introduction provided in this Part I, the balance of this Amended Request for Arbitration contains six parts. Part II addresses the Jurisdiction of this Court. Part III addresses the Procedural Background. Part IV addresses the Factual Background. Part V describes the Nature of the Disputes. Part VI sets forth the relief requested by Pakistan. And Part VII identifies the arbitrators appointed by Pakistan in accordance with the Treaty.
12. In its Request for Arbitration dated 19 August 2016, Pakistan requested interim measures (i) restraining India from proceeding further with planned diversions resulting from construction of the works that are the subject of the Disputes as well as (ii) restraining India from filling the KHEP's reservoir below the Dead Storage Level. These interim measures were sought in circumstances in which the Indian Commissioner for Indus Waters, on 12 August 2016, had sent to his Pakistani counterpart a letter indicating India's intent to begin filling the KHEP's reservoir below the Dead Storage Level beginning on 14 August 2016. The World

¹⁶ Pakistan has reordered the seven Disputes herein for ease of presentation, but these Disputes are the same as those raised in the Statement of Points of Dispute that Pakistan communicated to India on 25 February 2016.

Bank's delay in empaneling the Court, however, and its imposition of the Pause on 12 December 2016 (as detailed below in Part III.B), in breach of its ministerial obligations as a Party to the Treaty, allowed India (i) to complete construction of the KHEP and bring it into operation; and (ii) to commence construction at RHEP. These developments are described more fully below. While Pakistan reserves its right to make a further request for interim measures under paragraph 28 of Annexure G of the Treaty, if necessary, at a later stage, the highly prejudicial actions of the World Bank in imposing the Pause compel Pakistan to withdraw the interim measures request that was advanced in the Original Request for Arbitration.

II. The Competence of the Court

13. In its Award on the Competence of the Court of 6 July 2023 (*Award on Competence*), the Court affirmed its competence to address all of the questions raised in the Original Request for Arbitration.

III. Procedural Background

A. Events Prior to Communication of Pakistan's Original Request for Arbitration

14. The Parties' discussions over the KHEP design began around three decades ago. As indicated, two threshold disputes relating to the permissibility of drawdown flushing and diverting the Kishenganga/Neelum River were resolved in 2013 by the Kishenganga_Court. But disputes relating to the calculation of Pondage, the placement of the power intakes, and the design and height of both the sediment outlets and spillways (which had been discussed by the Parties extensively prior to 2013) remained unresolved. These disputes have been the subject of further but ultimately unsuccessful discussions between the Parties in the period 2013–2016.
15. India first disclosed its design for the RHEP to Pakistan in 2012, and Pakistan promptly objected to the various aspects of the design discussed therein. As with Pakistan's objections to the KHEP design, the Parties have discussed these points of dispute at multiple PIC meetings and in extensive correspondence without reaching a resolution. A procedural

history setting forth the discussion over Pakistan's objections to the KHEP and RHEP designs is included herewith as Appendix A.¹⁷

16. Although there are differences in the designs for the two HEPs owing to site-specific conditions, the two designs raise conceptually similar legal and technical questions under the Treaty. Both present questions concerning the method for calculating the maximum Pondage and for determining the design and placement of the power intakes, sediment outlets, and spillways for passage of floods. Additionally, in the case of the RHEP, the Parties disagree about the permissible scale of freeboard.
17. Questions regarding these issues were raised in the 108th Meeting of the PIC in March 2013, soon after the issuance of the Partial Award by the Kishenganga Court, which clarified relevant aspects of Treaty interpretation and reiterated certain design and operational constraints applicable to all HEP designs on the Western Rivers. Further discussions were held in the 109th, 110th, and 111th meetings of the PIC,¹⁸ but to no avail, as the Parties were unable to reach any agreement as to the interpretation of the Treaty and its application to the KHEP and RHEP. A series of written communications followed the meetings of the PIC. On 25 February 2016, Pakistan communicated the Statement of Points of Dispute to India, which was followed by further written communication and a Government-level meeting held on 14-15 July 2016 in New Delhi. But notwithstanding extensive written communications, in-person PIC meetings, and inter-governmental discussions, the Parties have been unable to resolve the Disputes. As set forth in greater detail in the attached Appendix A, at every turn in these negotiations, India's tactic has been to delay, request additional information that was already in its possession, and insist that, despite years of fruitless discussions, the Disputes at issue were still not ripe for resolution by a Neutral Expert or a Court of Arbitration.¹⁹
18. Pakistan could not verify the precise status of construction because, until the Parties' recent meeting in New Delhi on 14-15 July 2016, India refused to permit Pakistan's representatives to visit the KHEP or RHEP sites despite Pakistan's repeated requests for such visits pursuant

¹⁷ See The Procedural Background of the Disputes (attached as Appendix A to this Request).

¹⁸ The 112th PIC Meeting was held in New Delhi from 30-31 May 2015, but the Commissioners only reviewed the Annual Report for submission to both Governments and signed the minutes of the 111th PIC Meeting.

¹⁹ In a belated attempt to avoid adjudication by this Court, on 11 August 2016, the Indian Commissioner for Indus Waters acknowledged the existence of disputed points and—contradicting his previous stance—invited the Pakistan Commissioner for Indus Waters to prepare a joint report and indicated his intent to request that a Neutral Expert be appointed. See Appendix A, ¶¶ 48-53.

to Article VIII(4)(d) of the Treaty.²⁰ But all indications are that significant construction work has been undertaken on both the KHEP and RHEP, and the KHEP either has been completed or is nearing completion. In fact, India notified Pakistan on 12 August 2016 that India intended to fill the KHEP's Dead Storage by 20 August 2016. India's continued construction of the HEPs pending final resolution of the Disputes is governed by the "at own risk" principle of international law, with all attached consequences for India.²¹

19. India's actual and planned breaches of the Treaty pose a severe threat to Pakistan, whose agricultural sector is dependent upon the unobstructed flow of the Western Rivers. Time is of the essence and the Court needs to be empaneled as expeditiously as possible to resolve the Disputes in the present case.
20. With all avenues for resolution by the Parties themselves exhausted, Pakistan has instituted this proceeding under Article IX(5)(b) and requests that the seven Disputes be resolved by the Court of Arbitration established pursuant to the original Request for Arbitration in accordance with the terms of the Court's Award on Competence and its Procedural Order No. 6.

B. Events Following the Communication of Pakistan's Original Request for Arbitration

21. The Original Request for Arbitration was communicated by Pakistan to India under cover of *Note Verbale* on 19 August 2016.²² In accordance with Paragraph 3 of Annexure G,²³ and as recorded in Article 3 of the Court's Supplemental Rules of Procedure,²⁴ proceedings before the Court were deemed to have commenced on that date.

²⁰ See Appendix A, ¶¶ 22, 25, 47. Article VIII(4)(d) of the Treaty provides that the PIC shall "undertake promptly, at the request of either Commissioner, a tour of inspection of such works or sites on the Rivers as may be considered necessary by him for ascertaining the facts connected with those works or sites[.]"

²¹ As Pakistan has insisted previously, and as India accepted before the Kishenganga Court, any works completed in violation of the Treaty have been undertaken by India at its own risk. See Order on the Interim Measures Application of Pakistan dated September 23, 2011, ¶ 122 (noting India's acceptance of the "'proceed at own risk' principle"). Moreover, in light of India's apparent intent to imminently begin operations at the KHEP, Pakistan expressly invokes Article IV(14) of the Treaty which provides:

In the event that either Party should develop a use of the waters of the Rivers which is not in accordance with the provisions of this Treaty, that Party shall not acquire by reason of such use any right, by prescription or otherwise, to a continuance of such use.

²² An expanded account of the procedural history after 19 August 2016 can be found in Pakistan's pleadings for the Preliminary Phase on the Competence of the Court and the Operation of Article IX of the Treaty: Response of Pakistan, 23 March 2023, Appendix A, ¶ 55.

²³ Annexure G, Paragraph 3.

²⁴ Supplemental Rules of Procedure, 31 March 2023, Article 3.

22. On 4 October 2016, India transmitted to the World Bank a Request for Appointment of a Neutral Expert under Annexure F of the Treaty (*Neutral Expert Request*).²⁵ The scope of India’s Neutral Expert Request overlapped materially with the scope of Pakistan Request for Arbitration.²⁶
23. On 12 December 2016, the President of the World Bank wrote to the Parties noting that, in light of the “risk of endangering the Treaty” posed by parallel proceedings, he had “decided to pause the process of appointing the Chairman of the Court of Arbitration and the Neutral Expert” in order to “provide a window to further explore whether India and Pakistan can agree on a way forward . . . that is satisfactory to both countries” (*the Pause*).²⁷
24. The delay occasioned by the Pause was entirely to India’s advantage, and Pakistan’s detriment. In the intervening period, India was able to complete the KHEP and bring it into operation, and to commence construction of the RHEP.
25. Pakistan notes the Court’s observations on this matter at paragraphs 262 – 266 of its Award on Competence.

IV. Factual Background

A. The Kishenganga Hydroelectric Plant

26. The Kishenganga Plant is a Run-of-River Plant located on the Kishenganga River near the town of Gurez in Indian-administered Jammu and Kashmir. The Kishenganga is a tributary of the Jhelum, one of the three Western Rivers as defined in the Treaty. As shown in Map A below, the KHEP is approximately 12 kilometers upstream of where the Kishenganga crosses the Line of Control, downstream of which the Kishenganga is known as the Neelum River.

²⁵ Response of Pakistan, 23 March 2023, Appendix A, ¶ 62.

²⁶ Indus Waters Treaty 1960, Article IX(2)(a).

²⁷ *Id.*, ¶ 73.



Map A: Location of the KHEP and the RHEP

27. As currently designed by India, the KHEP will have an installed generating capacity of 330 MW. As depicted in Map A, this power will be generated by diverting the water of the Kishenganga/Neelum via a dam near Gurez through a 24 kilometer long tunnel to a powerhouse located near Bandipura. From the powerhouse, the water is discharged into the Bonar Nallah, another tributary of the Jhelum. From there, the water flows into Wular Lake and is then discharged into the Jhelum. The water diverted from the Kishenganga/Neelum at Gurez ultimately joins back with its own waters at the confluence of the Jhelum with the Kishenganga/Neelum at Muzaffarabad.
28. Under India's rendering, the KHEP consists of a 35 meter high concrete-faced rock-filled dam across the Kishenganga/Neelum and a reservoir with a designed Pondage of 7.55 Mm³. As shown in the attached Exhibit 1, the KHEP design provides for an orifice (or fully submerged) spillway consisting of three gated openings located on the left abutment of the dam. The invert (or bottom) of the orifice spillway, where the bottom of the gates rest in

their normal closed position, is 20 meters below the KHEP's Full Pondage Level and almost 15 meters below the KHEP's Dead Storage Level (as computed by India). The power intake for the KHEP is also submerged and is located on the left bank of the reservoir upstream of the gated orifice spillway and consists of two openings located nearly 6 meters below the KHEP's Dead Storage Level.

29. As is typical for Himalayan rivers, the river flow data for the Kishenganga/Neelum shows wide variations between years as well as very large variations between seasons. In general terms, the average monthly flow at Gurez during the winter season is approximately 18 to 50 cubic meters per second (*cumecs*), as compared to an average monthly flow of approximately 70 to 270 cumecs during the summer.

B. The Ratle Hydroelectric Plant

30. The Ratle HEP is a Run-of-River Plant being built by India on the Chenab River, another Western River as defined in the Treaty. As shown in Map A (above) the RHEP is located near the town of Drabshala in Indian-administered Jammu and Kashmir.
31. As currently designed by India, the RHEP will have an installed generating capacity of 850 MW, over twice that of the KHEP. This energy will be generated by constructing a 111 meter tall concrete dam on the Chenab at Drabshala and delivering water to a powerhouse just downstream of the dam. The RHEP's reservoir has a designed Pondage of approximately 24 Mm³. As shown in the attached Exhibit 2, the RHEP's design includes an orifice spillway consisting of five gated openings located in the dam. The invert (or bottom) of the orifice spillway, where the bottom of the gates rest in their normal closed position, is 44 meters below the RHEP's Full Pondage Level and over 30 meters below the RHEP's Dead Storage Level (as computed by India). The power intake for the RHEP is located 14 meters below the RHEP's Dead Storage Level. India's proposed design for the RHEP provides for 2 meters of freeboard between the Full Pondage Level and the top of the dam.
32. The river flow data for the Chenab near Drabshala also exhibits the wide variations between years and seasons typical of Himalayan rivers. The average monthly flow at the Premnagar gauging site (13 km downstream of the proposed dam site) during the winter season is approximately 110 to 250 cumecs, whereas it ranged from approximately 700 to 1,700 cumecs during the summer season.

C. Additional Indian Hydroelectric Plants Planned for the Western Rivers

33. In addition to the KHEP and the RHEP, India is planning to design and construct many additional Run-of-River Plants on the Western Rivers. Analysis conducted by the office of Pakistan's Commissioner for Indus Waters suggests that India plans to build perhaps a further 65 HEPs on the Western Rivers, 14 of them before 2030, quadrupling its present MW output. Pakistan anticipates that India intends to design and build many of these projects using the same approach employed at the KHEP and RHEP, in violation of the Treaty: excessive Pondage, submerged power intakes, deep orifice spillways with gated openings below Dead Storage Level, and excessive freeboard.

D. The Indus Waters Treaty 1960

34. In 1947, with its independence from British rule, India was partitioned into the Dominion of Pakistan (now the Islamic Republic of Pakistan and the People's Republic of Bangladesh) and the Union of India (now the Republic of India). After Partition, part or all of the upper reaches of the six rivers of the Indus system of rivers were located in India, with their downstream stretches flowing through Pakistan. Due to the arid conditions in the region, Pakistan is almost entirely dependent on irrigation water from the Indus system of rivers for food production.
35. In April 1948, East Punjab (then an Indian state) discontinued the flow of water in the canals leading to Punjab (a province of Pakistan). Although an agreement was reached between the two States and the flow of water in the canals was restored, the incident highlighted the vulnerability of the downstream riparian and the need for a treaty to fix and delimit the rights and obligations of the two States vis-à-vis each other regarding the waters of the Indus system of rivers.
36. A defining characteristic of the Treaty is the division and allocation between the Parties of the six main watercourses of the Indus system of rivers. As is relevant here, Pakistan has been allocated unrestricted use of waters of the three Western Rivers (the Indus, Jhelum, and Chenab) and their tributaries (including the Kishenganga/Neelum).²⁸ And the Treaty "curtail[s], sometimes quite severely, India's freedom to utilize the waters of the Western Rivers for the generation of hydroelectric power and limit[s], for the most part, the use of

²⁸ Indus Waters Treaty 1960, Article III(1).

these waters to certain agricultural uses, and to domestic and non-consumptive uses.”²⁹ Pursuant to Article III(2) of the Treaty, India is “under an obligation to let flow” and “not permit any interference with” the waters of the Western Rivers.³⁰

37. Although the Treaty allows India hydroelectric use of the waters of the Western Rivers, that use is highly restricted and subject to “regulatory . . . restraints on construction and operation.”³¹ As the Kishenganga Court held, “one of the primary objectives of the Treaty is to limit the storage of water by India on the Western Rivers” and to constrain India’s ability to control the flow of the waters downstream to Pakistan.³²
38. Annexures D and E to the Treaty address India’s ability to store and control the waters of the Western Rivers. Annexure D governs India’s Run-of-River Plants, which include the KHEP and the RHEP. A Run-of-River Plant is one that relies on the natural flow of the river for hydroelectric power generation, except as regulated by a limited volume of water impounded in the reservoir above Dead Storage Level, referred to as Pondage.³³ Given the need to protect the downstream riparian, the Treaty’s limitations on Pondage, as the Kishenganga Court observed, are “not generous.”³⁴
39. Annexure D also governs Dead Storage, which is all the impounded water between the reservoir bottom and the Operating Pool and that cannot be used for any purpose, including operational purposes. Although the Treaty does not restrict the volume of Dead Storage, it makes clear that such storage is meant to be “truly ‘dead’—an area to be filled once, and not thereafter subject to manipulation.”³⁵ Paragraph 2(a) of Annexure D prohibits Dead Storage from being used for operational purposes, and Paragraph 19 of Annexure E prohibits depletion of the reservoir below DSL except in an unforeseen emergency. In addition to operational constraints, the Treaty imposes design restrictions to prevent manipulation of Dead Storage. Thus, Paragraph 8(d) of Annexure D prohibits placement of *outlets* below Dead Storage Level “unless necessary for sediment control or any other technical purpose.” Even if necessary for such purposes, the low-level outlets must still be of the minimum size

²⁹ Partial Award, ¶ 418.

³⁰ Indus Waters Treaty 1960, Article III(2).

³¹ Partial Award, ¶ 522.

³² *Id.*, ¶ 504.

³³ See Annexure D, Paragraph 2(c).

³⁴ Partial Award, ¶ 504.

³⁵ *Id.*, ¶ 505.

and placed at the greatest height in order to minimize India's ability to control and manipulate Dead Storage. Likewise, Paragraph 8(e) prohibits the use of gated *spillways* for flood control unless "the conditions at the site of a Plant make a gated spillway necessary." Even then, "the bottom level of the gates in normal closed position shall be located at the highest level" possible. Paragraph 8(f) likewise requires that intakes to the power turbines be placed as high as possible.

40. The Treaty not only restricts the Parties "from taking certain actions," *i.e.*, by imposing operational constraints, "but also constrains their entitlement to construct works that would enable such actions to be taken," *i.e.*, by imposing design constraints.³⁶ As the Kishenganga Court observed, Paragraph 8 of Annexure D is an example of "restrictions on the design of . . . [Run-of-River] Plants."³⁷
41. Each of these design restrictions is aimed at the same purpose: to minimize India's storage of water of the Western Rivers and its ability to control flow. Unless India can prove that it is not merely desirable—but necessary—to depart from these default criteria, it must design Run-of-River Plants with un-gated spillways located near the top of the dam at the Full Pondage Level. Moreover, India must prove that it is necessary to place sediment outlets below the Dead Storage Level and, even then, such outlets must be as small as possible and located as high in the dam as possible. Likewise, power intakes for turbines must be at surface level unless inconsistent with economical construction and operation and with customary and accepted practice of design. In all events, the maximum permissible Pondage available to India is strictly capped in accordance with the objective formula set forth in the Treaty.
42. Finally, the Kishenganga Court held that in interpreting and applying the Treaty, the task is to enforce its plain language, even if the constraints it imposes are contrary to the current "best practices" in the industry.³⁸ "[A]ny general 'state-of-the-art' principle cannot serve to override the essential equilibrium on water use and flow agreed to by the Parties in the Treaty."³⁹ Consequently, it is irrelevant whether India's proposed design might be "preferable" or "the optimal design."⁴⁰ Nor does it matter whether India's proposed design

³⁶ *Id.*, ¶ 506.

³⁷ *Id.*

³⁸ *Id.*, ¶ 522 (quotation omitted).

³⁹ *Id.*, ¶ 516, n.722.

⁴⁰ *Id.*, ¶¶ 519, 522.

is “the simplest” or “most economical.”⁴¹ Rather “the optimal design and operation of a hydroelectric plant is that which can practically be achieved within the [design and operational] constraints imposed by the Treaty.”⁴²

V. Nature of the Disputes

43. Article III of the Treaty, which is an essential pillar of the strategic bargain between Pakistan and India, rests on three core foundation stones:
- a. India’s let flow and non-interference obligation in respect of the waters of the Western Rivers (Article III(1) and (2));
 - b. the prohibition on India in respect of storage and the construction of storage works on the Western Rivers (Article III(4)), subject to only limited exceptions; and
 - c. limited and tightly constrained use of water exceptions in respect of these principles and obligations (Article III(2)).
44. The exceptions to the Article III obligations are the subject of detailed definition and elaboration elsewhere in the Treaty, notably in Article I, which sets down certain key definitions, and in Annexures C, D and E, which respectively address Indian agricultural use of the waters of the Western Rivers, the generation of hydroelectric power by India on the Western Rivers, and storage of waters by India on the Western Rivers.
45. While various provisions in these parts are relevant for purposes of the proceedings before the Court, the elements that are at the core of the dispute between the Parties are centred on Paragraphs 8(a), (c), (d), (e) and (f) of Annexure D of the Treaty, which establish design criteria in respect of the construction by India of new run-of-river plants on the Western Rivers. As will be addressed fully in Pakistan’s Memorial, each of those design criteria are focused on limiting India’s entitlement and ability in respect of controllable storage beyond the bounds of what was considered by the drafters of the Treaty as necessary and essential in the light of the let flow and no storage obligations in Article III of the Treaty.

⁴¹ *Id.*, ¶ 520 n.734.

⁴² *Id.*, ¶ 522.

46. It is to the core design elements of new run-of-river plants in Paragraph 8(a), (c), (d), (e) and (f) that the Amended Request for Arbitration now turns.

(i) **The First Dispute (Pondage and Power Intakes at the KHEP)**

(a) **Pondage at the KHEP**

47. The first Dispute relates to India’s design for maximum Pondage of 7.55 Mm³ for the KHEP, which is based on calculations that contravene the Treaty. The design calls for Pondage well in excess of the maximum volume specified in Paragraph 8(c) of Annexure D, which provides that the “maximum Pondage in the Operating Pool shall not exceed twice the Pondage required for Firm Power.” India ignores this limitation on maximum Pondage.

Pondage Calculation Under the Treaty

48. The Treaty allows India a limited ability to supplement the natural flow at Run-of-River Plants with Pondage by storing water behind the dam and later discharging it through the Plant’s turbines, provided that it does so in accordance with the operational restrictions in, *inter alia*, Paragraph 15 of Annexure D to the Treaty.⁴³ However, the Treaty strictly curtails the maximum allowable volume of Pondage. The Treaty’s limitations on Pondage were the product of intense negotiations and, like several other provisions, were designed to strike a balance between allowing India the means to generate hydroelectric power on the Western Rivers, while at the same time limiting the amount of water that India can store and control and the corresponding ability to disrupt flows to the downstream riparian. As the Kishenganga Court held:

[O]ne of the primary objectives of the Treaty is to limit the storage of water by India on the Western Rivers ... For new Run-of-River Plants, *Annexure D ...restricts the permissible volume of pondage*, and pegs this limit to power generation at the minimum mean discharge calculated at the site. *These are not generous limits*—the volume of storage permitted to India on the Jhelum Main, for instance, is zero—and even the limited available record of the Treaty’s negotiating history suggests that *these amounts of storage were a key point of contention between the Parties*. The outcome was significant in that it achieved a careful balance between the Parties’

⁴³ Paragraph 15 of Annexure D requires that the same amount of water received above a Run-of-River Plant in a one week period must be released below the Plant in the same one-week period. *See* Annexure D, Paragraph 15(a) (“[T]he volume of water received in the river upstream of the Plant, during any period of seven consecutive days, shall be delivered into the river below the Plant during the same seven-day period[.]”). Paragraph 15 also imposes daily limits on how much water India can store or release at Run-of-River plant on a Western River. These daily limits vary depending on a plant’s location. *See id.*, Paragraph 15(b), (i) & (ii). At the KHEP, India can store no more than 70% of the water flowing into the reservoir on a daily basis, and it can release no more than 130% of the water flowing into the reservoir on a daily basis. *See id.*, Paragraph 15(b).

respective negotiating positions, allowing India hydro-electric use of the waters of the Western Rivers while protecting Pakistan against the possibility of water storage on the upstream reaches of those Rivers having an unduly disruptive effect on the flow of water to Pakistan.⁴⁴

49. The maximum cap on Pondage, like other design constraints for Run-of-River Plants, has the intended effect of limiting the *capacity* of the upper riparian to control the flow of waters of the Western Rivers downstream of the dam. As the Kishenganga Court recognized, “in many instances the Treaty does not simply restrict the Parties from taking certain actions, but also constrains their entitlement to construct works that *would enable* such actions to be taken.”⁴⁵
50. Paragraph 2(c) of Annexure D describes the concept of “Pondage” by referencing the function of Pondage at a Run-of-River Plant. It states that Pondage is “Live Storage of only sufficient magnitude to meet fluctuations in the discharge of the turbines arising from variations in the daily and the weekly loads of the plant.”⁴⁶ This provision does not, however, define the *method* to be used for determining the amount of permissible Pondage at a given site. Rather, the method for calculating the maximum amount of Pondage permitted at any particular site is set forth in a different paragraph of the Treaty, Paragraph 8(c) of Annexure D.
51. Paragraph 8(c) of Annexure D provides that:

Except as provided in Paragraph 18, the design of any new Run-of-River Plant . . . shall conform to the following criteria: . . . (c) The maximum Pondage in the Operating Pool shall not exceed twice the Pondage required for Firm Power.⁴⁷

52. Paragraph 8(c) objectively defines, for purposes of the Treaty, the upper limit of the permissible Live Storage (Pondage) to meet fluctuations in the daily and weekly loads of a given plant: maximum Pondage cannot exceed twice the Pondage required for Firm Power. **Firm Power**, in turn, is defined in Paragraph 2(i) of Annexure D as “the hydro-electric power corresponding to the minimum mean discharge [*MMD*] at the site of a plant.” This means that Firm Power is the amount of power that can be generated if a flow of water equal to

⁴⁴ Partial Award, ¶ 504 (emphases added).

⁴⁵ *Id.*, ¶ 506 (emphases added).

⁴⁶ Annexure D, Paragraph 2(c). Live Storage means “all storage above Dead Storage.” *Id.*, Paragraph 2(b).

⁴⁷ *Id.*, Paragraph 8(c) (emphases added). Paragraph 18 of Annexure D provides an exception for very small plants, and it is inapplicable here.

MMD is passed through a plant's turbines during the applicable period. Accordingly, as the Kishenganga Court held, Paragraphs 8(c) and 2(i) of Annexure D "restrict[] the permissible volume of pondage, and peg[] th[e] [maximum Pondage] limit to *power generation at the minimum mean discharge* calculated at the site."⁴⁸

53. India's approach to calculating Pondage would render the process a wholly arbitrary exercise controlled unilaterally by India. Rather than tie its Pondage calculation to any objective, verifiable factors (as the Treaty requires), India assumes that the KHEP's turbines will operate at their maximum power generating capacity of 330 MW (which is more than triple the KHEP's Firm Power of 108.5 MW) and deliver power on a weekly basis according to a delivery schedule (also called a "*load curve*") that is completely divorced from reality. (To justify a Pondage volume of 7.55 Mm³ at Kishenganga, for example, India must assume that the Plant will need to operate at peak power in the middle of the night, whereas, in fact, demand for power is at its lowest during this period.) India then doubles the volume of Pondage that results from this contrived methodology to arrive at "maximum Pondage."
54. India would observe only the operational restrictions imposed by Paragraph 15 of Annexure D, which limit the *flow rate* that India must release downstream on a daily and weekly basis, but effectively ignores the express limitations on maximum *Pondage volume* expressed by Paragraph 8(c). By India's light, the Treaty effectively imposes no limitation on Pondage at all, because Pondage is a function of variables that are entirely within India's control—how large a turbine India decides to install at any given site and how creative its engineers are in inventing a demand curve.
55. Unsurprisingly, India's methodology produces a maximum Pondage volume for the KHEP that greatly exceeds not only what the Treaty allows, but also what is customary for Run-of-River Plants in the region.
56. India's methodology for calculating maximum permissible Pondage therefore not only contravenes the limitations imposed by Paragraph 8(c), it also runs directly counter to at least two of the Treaty's primary objectives enshrined in Annexure D to the Treaty: "to limit the

⁴⁸ Partial Award, ¶ 504 (emphasis added).

storage of water by India on the Western Rivers”⁴⁹ and to prevent construction of works that “would enable” the prohibited operations.⁵⁰

(b) Power Intakes at the KHEP

57. India has used its inflated Pondage calculation to justify its design for submerged power intakes at the KHEP (and the RHEP). The bottom level of the Plant’s power intakes (the “invert” level) is tied to Pondage. Specifically, the invert (or bottom) of the intake must be located below Dead Storage Level. The Dead Storage Level, in turn, is set based on the Full Pondage Level and the maximum Pondage volume (*i.e.*, the size of the Operating Pool). Accordingly, India’s flawed methodology for calculating maximum permissible Pondage results in an excessive Pondage volume that lowers the Dead Storage Levels of both the KHEP and the RHEP designs. This, in turn, results in a lowering of the power intakes. The result is to impermissibly increase the controllable volume of stored water and India’s capacity to control that storage, making the downstream riparian (Pakistan) all the more vulnerable. By contrast, if maximum Pondage is calculated in accordance with Paragraph 8(c), the result is a higher Dead Storage Level, and the intakes can be located at a higher elevation “consistent with satisfactory and economical construction and operation of the Plant as a Run-of-River Plant and with customary and accepted practice of design for the designated range of the Plant’s operation.”⁵¹
58. In all events, the Treaty requires that power intakes be located at the highest level consistent with satisfactory and economical construction and operation of the Plant and with customary and accepted practice of design, as required by Paragraph 8(f) of Annexure D. India has failed to establish any economical, operational, or industry-related need for its design, which places the power intakes leading to the power turbines well below Dead Storage Level. In fact, surface power intakes placed higher in the reservoir are frequently used in Run-of-River Plants because they are more effective at reducing the entrainment of sand into the intakes given that there is a lower concentration of suspended sand at the water surface. Placing the intakes at the highest level thus helps protect the turbines from abrasion. Therefore, India’s design for submerged power intakes at the KHEP violates the Treaty.

⁴⁹ *See id.*

⁵⁰ *Id.*, ¶ 506.

⁵¹ Annexure D, Paragraph 8(f).

Treaty Provisions: Paragraph 8(f) of Annexure D

59. Paragraph 8(f) of Annexure D imposes design restrictions on the location of power intakes, as follows:

The intakes for the turbines shall be located at the highest level consistent with satisfactory and economical construction and operation of the Plant as a Run-of-River Plant and with customary and accepted practice of design for the designated range of the Plant's operation.

60. Although relatively smaller in size than spillways and sediment outlets, power intakes still have the capacity to release water downstream of the Plant and manipulate the water level in the reservoir. Therefore, the lower the position of the intakes, the more control India has to manipulate storage and the river's flow. As illustrated below, India's proposed submerged power intakes are located far below Dead Storage Level.

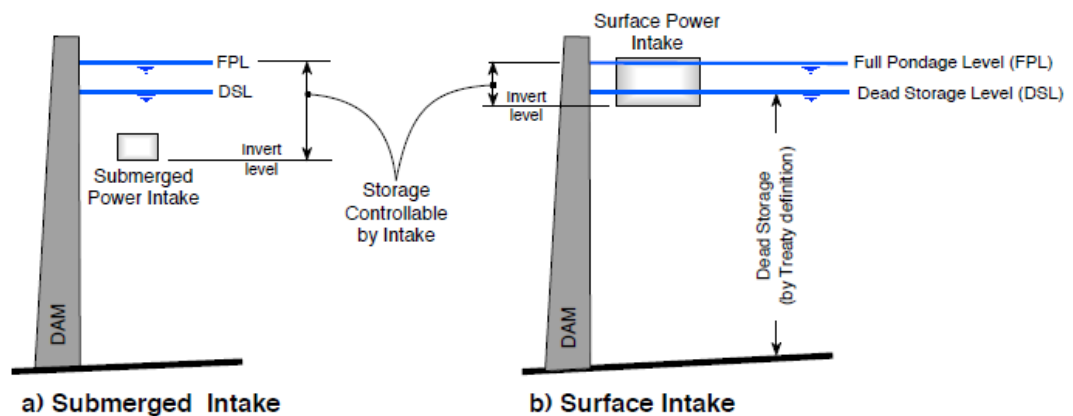


Figure 2: Effect of Intake Configuration on Controllable Storage

61. Moreover, the submerged intakes placed below Dead Storage Level increase the risk of sediment entering the intakes. India submerged its power intakes, however, under the assumption that it would be able to lower the water level below Dead Storage Level, close to the reservoir bottom, to flush sediment away from encroaching on the intake zone. Without drawdown flushing, submerged intakes cannot normally be maintained free of sediment. Given that the Kishenganga Court has held that the Treaty does not permit drawdown flushing or depletion of the reservoir below Dead Storage Level, India's current design for submerged power intakes is therefore not consistent with "satisfactory and economical

construction and operation of the Plant as a Run-of-River Plant” or with “customary and accepted practice of design for the designated range of the Plant’s operation.”⁵²

62. Indeed, the Kishenganga Court’s rejection of drawdown flushing was motivated, in part, by its recognition that high-level intakes (*e.g.*, surface intakes) (which do not require drawdown flushing) are a feasible alternative to submerged intakes (which do).⁵³

(ii) The Second Dispute (Pondage and Power Intakes at the RHEP)

(a) Pondage at the RHEP

63. India seeks to apply its arbitrary and impermissible Pondage calculation to the RHEP as well, giving rise to the second Dispute.
64. India’s proposed design for the RHEP provides for a total Pondage of 23.86 Mm³. Pakistan submits that India’s proposed Pondage for the RHEP exceeds the maximum Pondage permitted under Paragraph 8(c) and should be revised and implemented accordingly.

(b) Power Intakes at the RHEP

65. The second Dispute also involves India’s design for submerged power intakes at the RHEP. India’s proposed design calls for power intakes leading to the power turbines that are placed well below Dead Storage Level, and it relies on its inflated Pondage calculation to justify the placement of the intakes. For the same reasons discussed in Part V(i)(b) above, the submerged power intakes at the RHEP are not located at the highest level consistent with satisfactory and economical construction and operation of the Plant as a Run-of-River Plant and with customary and accepted practice of design because (i) surface intakes are a feasible alternative which would raise the intake to a higher level and (ii) a proper calculation of maximum Pondage would result in further raising the invert level of the power intakes at the RHEP. India’s proposed design of the RHEP therefore violates Paragraph 8(f) of Annexure D.

⁵² Annexure D, Paragraph 8(f).

⁵³ Partial Award, ¶¶ 518-20.

(iii) The Third Dispute (Large, Low-Level Sediment Outlets Placed Far Below Dead Storage Level at the KHEP)

66. The third Dispute relates to India’s design for multiple, large, low-level sediment outlets placed far below Dead Storage Level at the KHEP. These sediment outlets are in the form of a deep orifice spillway with three gated openings, each with its invert approximately 14.5 meters below Dead Storage Level and close to the reservoir bottom, resulting in the spillway having a total design discharge capacity of 3,000 cumecs.
67. India explained to the Kishenganga Court that it had designed its deep orifice spillway to enable sediment control through drawdown flushing. Drawdown flushing, as noted, involves opening the low-level outlets, releasing the impounded water downstream of the dam, and lowering the water level in the reservoir to below Dead Storage Level and close to the reservoir bottom or riverbed, in order to scour accumulated sediment deposits and flush them downstream.
68. The Kishenganga Court, however, held that “[e]xcept in the case of an unforeseen emergency,” the Treaty does not permit reducing the water level of reservoirs of Run-of-River plants on the Western Rivers below the Dead Storage Level and therefore does not permit drawdown flushing.⁵⁴ The Court further held that “[t]he accumulation of sediment . . . does not constitute an unforeseen emergency that would permit depletion of the reservoirs below Dead Storage Level for drawdown flushing purposes.”⁵⁵ Sub-Paragraphs (1) and (3) of Paragraph B of its Decision accordingly provide as follows:

(1) Except in the case of an unforeseen emergency, the Treaty does not permit reduction below Dead Storage Level of the water level in reservoirs of Run-of-the River Plants on the Western Rivers.

...

(3) Accordingly, India may not employ drawdown flushing at the reservoir of the Kishenganga Hydro-Electric Plant to an extent that it would entail depletion of the reservoir below Dead Storage Level.⁵⁶

⁵⁴ *Id.* at § V.B(1)

⁵⁵ *Id.* at § V.B(2).

⁵⁶ *Id.* at § V.B(1), (3).

69. Following the Kishenganga Court’s decision, India should have re-located these sediment outlets to the highest level possible as required by the Treaty,⁵⁷ but it has refused to do so. As a result, India’s proposed design violates Paragraph 8(d) of Annexure D.

Treaty Provisions: Paragraph 8(d) of Annexure D

70. Paragraph 8(d) of Annexure D imposes specific design restrictions on the placement and size of low-level outlets for “sediment control or any other technical purpose.” It states as follows:

There shall be no outlets below the Dead Storage Level, unless necessary for sediment control or any other technical purpose; any such outlet shall be of the minimum size, and located at the highest level, consistent with sound and economical design and with satisfactory operation of the works.

71. Paragraph 8(d) thus dictates that there shall be no outlets below Dead Storage Level “unless *necessary* for sediment control or any other technical purpose.” Even if shown to be necessary for such purposes, they must be of minimum size and located at the highest level. These restrictions are imposed to ensure that Dead Storage is “truly ‘dead’—an area to be filled once, and not thereafter subject to manipulation.”⁵⁸

Restrictions on Low-Level Outlets Below Dead Storage Level

72. This Dispute, like the other six Disputes, is fundamentally about storage. India is attempting to maximize the amount of storage by placing sediment outlets (in the form of an orifice spillway) deep in the reservoir, notwithstanding the provisions of the Treaty. The reality is that the entire volume of water above the lowest outlets in the reservoir constitutes “controllable storage” that could be manipulated by the dam operator. As illustrated in Figure 3, if the spillway gates are raised to the highest possible level, then the volume of controllable storage will be greatly diminished.

⁵⁷ The Kishenganga Court clearly alerted India that it may need to change its current designs to comply with the Court’s decision:

In the case of the KHEP, the Court is cognizant that changes to the design of the project may be required to optimize the management of sediment in light of this Partial Award. In this respect, it is provident for the Court to note that its *Order on Interim Measures* has temporarily restrained the construction of “permanent works on or above the Kishenganga/Neelum riverbed,” a development that may now serve to facilitate any changes in design that India may need to implement in light of the Court’s decision on drawdown flushing.

Id., ¶ 522 n. 739.

⁵⁸ *Id.*, ¶ 505.

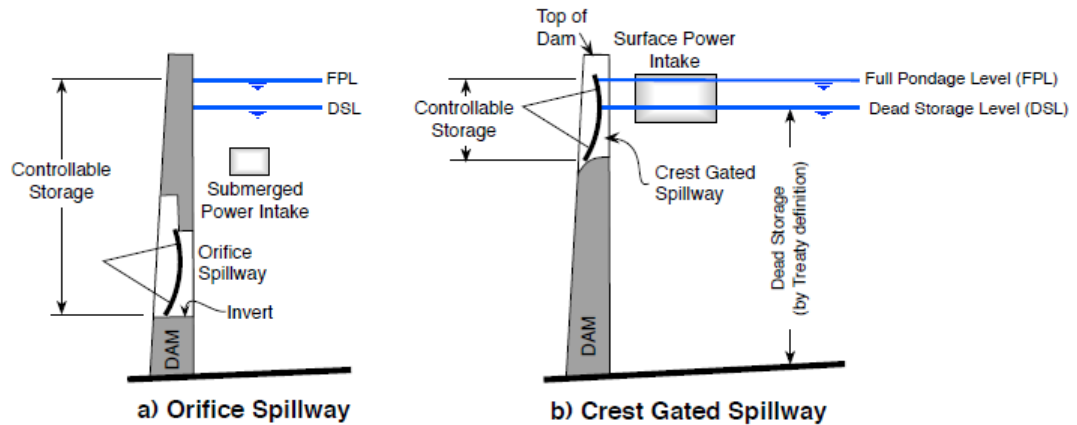


Figure 3: Effect of an Using Orifice Spillway or a Crest Gated Spillway for Sediment Control on Controllable Storage

73. Thus, the result of India’s insistence on placing sediment outlets (in the form of an orifice spillway) deep in the reservoir is a design configuration that gives India control over a greater volume of water, including the ability to facilitate prohibited operations like drawdown flushing.
74. The Treaty imposes restrictions on the size and location of low-level outlets below Dead Storage Level in order to limit India’s control over stored water.
75. To protect Pakistan as the downstream riparian, the Treaty seeks to minimize India’s ability to control the impounded waters in the reservoir by prohibiting outlets below Dead Storage Level unless necessary for sediment control or any other technical purpose. Where it is shown that outlets below the Dead Storage Level are required for sediment-management purposes, the Treaty still requires that these outlets are of minimum size and placed at the highest level in the reservoir, so as to curtail India’s ability to control the impounded water. Moreover, as the Kishenganga Court found, Paragraph 14 of Annexure D, together with Paragraph 19 of Annexure E, constitute a “decisive prohibition on the depletion of a reservoir below Dead Storage Level.”⁵⁹
76. Low-level sediment outlets set below Dead Storage Level of the type proposed for the KHEP, if repeated at the other dams India intends to build, will produce a large volume of controllable water stored between Full Pondage Level and the low-level outlets at multiple reservoirs on the Western Rivers. In effect, India would be converting Dead Storage into

⁵⁹ *Id.*, ¶ 513.

controllable storage, with the result that Dead Storage would not be “truly ‘dead’—an area to be filled once, and not thereafter subject to manipulation.”⁶⁰ If India were minded to manipulate these gated orifice spillways without regard to the Treaty provisions, India would have immense influence and discretion over the flow of the Western Rivers—a state of affairs that is incompatible with the fundamental purpose of the Treaty.

77. As already explained, India previously attempted to justify constructing three large, low-level outlets at the KHEP—each with a gate crest 14.5 meters below Dead Storage Level and close to the reservoir bottom—on the ground that they were necessary for sediment control through drawdown flushing. But the Kishenganga Court held that the Treaty does not permit the reservoir level to be depleted below Dead Storage Level, much less to a level near the reservoir bottom, as is required to effectuate drawdown flushing.⁶¹ Without the ability to deplete the reservoir below Dead Storage Level and engage in drawdown flushing, these low-level outlets or deep orifice spillways are ineffective for sediment control and serve no legitimate purpose. The result is that these deep orifice spillways below Dead Storage Level are in contravention of Paragraph 8(d); they are not “necessary” for sediment control because they are ineffective, absent resort to the prohibited practice of reservoir depletion below Dead Storage Level and drawdown flushing.
78. Nor is India’s placement of orifice spillways deep in the reservoir necessary for “any other technical purpose.” India, in fact, designed its deep orifice spillways for sediment control, and it has not proven that they serve any other legitimate “technical purpose” that justifies and makes its current design (including the size and depth of the outlets) “necessary.”⁶²
79. Despite the Kishenganga Court’s Partial Award, and despite the Court expressly stating that “changes to the design of the project may be required” in light of its decision,⁶³ India has refused to alter the original design and continues to use a deep orifice spillway as low-level sediment outlets located below Dead Storage Level and has refused to make the sediment outlets smaller in size and placed higher in the reservoir. India is therefore in violation of the design criteria of Paragraph 8(d) of Annexure D.

⁶⁰ *Id.*, ¶ 505.

⁶¹ *Id.*, § V.B(1)-(3).

⁶² *See* Annexure D, Paragraph 8(d).

⁶³ Partial Award, ¶ 522 n.739.

(iv) **The Fourth Dispute (Large, Low-Level Sediment Outlets Placed Far Below Dead Storage Level at the RHEP)**

80. The fourth Dispute relates to India's proposed design for multiple, large low-level sediment outlets placed far below Dead Storage Level at the Ratle Hydroelectric Plant. These sediment outlets likewise take the form of a deep orifice spillway—this one with five bays, each with a crest approximately 31 meters below Dead Storage Level, resulting in the spillway having a total design discharge capacity of 15,750 cumecs (per the safety criterion, which assumes that one bay is stuck closed, the discharging capacity of four remaining bays is 12,600 cumecs). This corresponds to the flow that would be expected in a flood event that recurs only once every 10,000 years. Each bay has a width of 10.75 meters and height of 14.20 meters with discharge capacity of 3,150 cumecs. This is in addition to a surface gated bay consisting of one opening with a discharge capacity of 1,240 cumecs. India's proposed low-level outlets are not necessary for sediment control and are not of the minimum size and located at the highest level as required. They will impermissibly enable India to manipulate the flow of waters released downstream to Pakistan and are in violation of the Treaty, including the design criteria of Paragraph 8(d) of Annexure D.

81. As discussed in Part V(iii), Paragraph 8(d) provides that there “shall be no outlets below the Dead Storage Level, unless necessary for sediment control or any other technical purpose” and if so necessary, they shall be of minimum size and located at the highest level. India's design, prepared before the Kishenganga Court held that drawdown flushing was impermissible under the Treaty, contemplated that its gated outlets for drawdown flushing would be used to control sediment. Yet the design has remained unchanged, and, therefore, India's current design is predicated on operating the plant in a manner that is prohibited by the Treaty. Moreover, its current design would not be effective for sediment control, much less necessary, without depleting the reservoir below Dead Storage Level. The five gated orifice openings proposed for the RHEP are not of the smallest size and are not placed at the highest level. Therefore, its proposed design violates Paragraph 8(d) of Annexure D.

(v) **The Fifth Dispute (Spillway Gates at the KHEP)**

82. The fifth Dispute relates to India's design for an orifice spillway for flood control with three gated openings at the KHEP. The gated orifice spillway locates the bottom level of each gate in normal closed position 20 meters below Full Pondage Level and 14.5 meters below Dead

Storage Level. India has failed to prove that a gated spillway is necessary at the KHEP and, even if it is, that the bottom level of the spillway gates in normal closed position is at the highest level consistent with sound and economical design, as required by Paragraph 8(e) of Annexure D. India's design for a deep orifice spillway at the KHEP violates the Treaty.

Treaty Provisions: Paragraph 8(e) of Annexure D

83. Paragraph 8(e) of Annexure D imposes design restrictions on the use of gated spillways and the location of gates in reservoirs, as follows:

If the conditions at the site of a Plant make a gated spillway necessary, the bottom level of the gates in normal closed position shall be located at the highest level consistent with sound and economical design and satisfactory construction and operation of the works.

As Paragraph 8(e) indicates, the default rule is that spillways are to be un-gated. Only if site conditions make gates "necessary" may gated spillways be employed, and even then, they must be placed at the highest location.

84. The restriction on the use of gates reflects the Treaty's objective of limiting India's ability to control the flow of the Western Rivers.⁶⁴ An un-gated spillway is made presumptive because it gives the dam operator no ability to decide whether to store or release water and no ability to manipulate the timing and volume of flows downstream. When the water level rises above the crest (or overflow level) of an un-gated spillway, the water naturally flows over the spillway and is released downstream of the dam. By contrast, gated spillways permit the dam operator to manipulate the flow of the water to Pakistan by deciding whether to store or release water by opening and closing the spillway gates. With gates, the dam operator can cause great disruption to the downstream riparian.
85. The further restriction on the placement of any gates (if necessitated by site conditions) reinforces the same Treaty objective of protecting Pakistan. The higher the placement of the bottom level (or invert) of the gates in normal closed position, the less the volume of impounded water that is subject to control and manipulation by India. The lower the placement of the gates, the greater the volume of water that is subject to control and

⁶⁴ *Id.*, ¶ 506.

manipulation by India. Alternative spillway design configurations, and the resulting controllable storage, are illustrated in Figure 4 below.

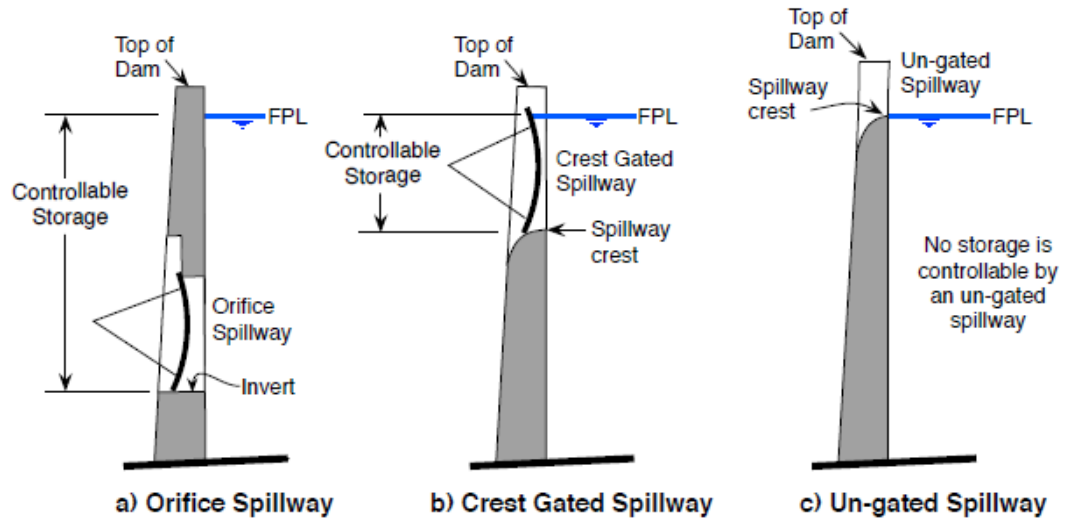


Figure 4: Effect of Spillway Configuration on Controllable Storage

86. India’s design violates Paragraph 8(e) because India has failed to establish the necessity of a gated spillway, and, even if gates are necessary, India has not located the spillway at the highest possible level. As discussed in Part V(iii), India designed its orifice spillways at the KHEP in contemplation of engaging in drawdown flushing, by depleting the water level to or near the reservoir bottom.
87. Despite the Partial Award, and despite the Kishenganga Court expressly noting that design changes may be required, India has not changed its design. Instead, by employing orifice spillways with the bottom of the gates close to the bottom of the reservoir, India gives itself the ability to open the gates and empty the reservoir to cause downstream flooding and then close the gates and shut off the downstream water supply. India’s proposal is therefore in contravention of the design criteria of Paragraph 8(e) of Annexure D.

(vi) The Sixth Dispute (Spillway Gates at the RHEP)

88. The sixth Dispute relates to India’s proposed design for a spillway with five gated openings at the RHEP. The deep orifice spillway would have the bottom of the gates in normal closed position located approximately 31 meters below Dead Storage Level.
89. As discussed in Part V(v), Paragraph 8(e) of Annexure D provides that gates may be used only if site conditions make it “necessary” to do so, and even then, the bottom level of the

gates in normal closed position must be at the highest level consistent with sound and economical design and satisfactory construction and operation of the works. India's proposed design does not satisfy that requirement and violates the design criteria of Paragraph 8(e).

90. Despite the Partial Award, India has not changed its design for the RHEP. Instead, by employing orifice spillways with the bottom of the gates close to the bottom of the reservoir, India gives itself the ability to open the gates and empty the reservoir to cause downstream flooding and then close the gates and shut off the downstream water supply. India's proposal is therefore in contravention of the design criteria of Paragraph 8(e) of Annexure D.

(vii) The Seventh Dispute (Freeboard at the RHEP)

91. The seventh Dispute relates to India's proposed design for freeboard at the RHEP. India has proposed 2 meters of freeboard between Full Pondage Level and the top of the dam. This amount of freeboard is excessive and is more than what is reasonably needed to protect against overtopping by wave action. It is therefore in violation of the design criteria of Paragraph 8(a) of Annexure D.

92. Paragraph 8(a) of Annexure D is one of those limits on storage and states:

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.

93. For a dam operator, freeboard can be an instrument for artificially raising the water level above Full Pondage Level, particularly if gates are designed or subsequently modified to allow the water level to exceed the Full Pondage Level. India has not adequately explained why more than one meter of freeboard is necessary to protect against overtopping from wave action or the maximum design flood. India's proposal for 2 meters of freeboard impermissibly provides a means by which India could raise the water level above Full Pondage Level without justification, increasing the volume of stored water and India's capacity to control that water. India's proposed design therefore is in contravention of Paragraph 8(a) of Annexure D.

* * *

94. It is important to bear in mind the cumulative effect of India's numerous violations of the Treaty—violations that India presumably intends to repeat at the other HEPs it plans to construct in the future on the Western Rivers. By artificially inflating the volume of Pondage available to it at the KHEP and the RHEP (the first and second Disputes), India enhances its ability to withhold water from Pakistan or, alternatively, to cause downstream flooding. India's ability to manipulate the downstream flow then is further enhanced by its insistence on designing these plants with submerged intakes in violation of Paragraph 8(f) (the first and second Disputes); sediment outlets that are lower and larger than necessary in violation of Paragraph 8(d) (the third and fourth Disputes); gated spillways that are deep below Dead Storage Level and lower than necessary in violation of Paragraph 8(e) (the fifth and sixth Disputes); and excessive freeboard at the RHEP in violation of Paragraph 8(a) (the seventh Dispute). India is attempting to exert control over the impounded waters of the Western Rivers and to gain the ability to manipulate the flows downstream to Pakistan, in a manner that is anathema to the careful balance struck in the Treaty. This strikes at the heart of the bargain reached in the Treaty.

VI. Relief Sought

95. In relation to the first Dispute, Pakistan seeks the following relief:
- a. A declaration that maximum Pondage for Run-of-River Hydroelectric Plants in the Western Rivers should be calculated based on the design parameters set forth in Paragraph 8(c) of Annexure D and a determination of the proper methodology under the Treaty for computing maximum Pondage.
 - b. A declaration that the Pondage provided for in India's design for the KHEP breaches the Treaty, and should be reassessed and implemented in accordance with the calculation method sanctioned by the Court in accordance with the relief sought in paragraph 95(a).
 - c. A mandatory and permanent injunction restraining India from operating the KHEP until the Pondage provided for in the design is brought into conformity with the Treaty.
 - d. A declaration that India's design for submerged power intakes at the KHEP breaches the Treaty, including Paragraph 8(f) of Annexure D, and should be redesigned and implemented accordingly.

- e. A mandatory and permanent injunction restraining India from constructing submerged power intakes as currently designed and from operating the KHEP with such intakes.
 - f. A declaration that India may not design and construct power intakes at Run-of-River Plants on the Western Rivers that are in the form of submerged power intakes located deep in the reservoir.
96. In relation to the second Dispute, Pakistan seeks the following relief:
- a. A declaration that the Pondage provided for in India's design for the RHEP breaches the Treaty, and should be reassessed and implemented in accordance with the calculation method sanctioned by the Court in accordance with the relief sought in paragraph 95(a).
 - b. A mandatory and permanent injunction restraining India from operating the RHEP until the Pondage provided for in the design is brought into conformity with the Treaty.
 - c. A declaration that India's proposed design for submerged power intakes at the RHEP breaches the Treaty, including Paragraph 8(f) of Annexure D, and should be redesigned and implemented accordingly.
 - d. A mandatory and permanent injunction restraining India from constructing submerged power intakes as currently designed and from operating the RHEP with such intakes.
97. In relation to the third Dispute, Pakistan seeks the following relief:
- a. A declaration that India's design for low-level sediment outlets deep in the reservoir at the KHEP breaches the Treaty, including Paragraph 8(d) of Annexure D.
 - b. A mandatory and permanent injunction restraining India from constructing the low-level sediment outlets as currently designed and from operating the KHEP with such outlets.
 - c. A declaration that India may not design and construct low-level sediment outlets at Run-of-River Plants on the Western Rivers that are in the form of deep orifice spillways.
98. In relation to the fourth Dispute, Pakistan seeks the following relief:
- a. A declaration that India's proposed design for low-level sediment outlets deep in the reservoir at the RHEP breaches the Treaty, including Paragraph 8(d) of Annexure D.

- b. A mandatory and permanent injunction restraining India from constructing the low-level sediment outlets as currently designed and from operating the RHEP with such outlets.
 - c. A declaration that India may not design and construct sediment outlets at Run-of-River Plants on the Western Rivers that are in the form of deep orifice spillways.
99. In relation to the fifth Dispute, Pakistan seeks the following relief:
- a. A declaration that India's design for spillways at the KHEP breaches the Treaty, including Paragraph 8(e) of Annexure D.
 - b. A mandatory and permanent injunction restraining India from constructing spillways as presently designed and from operating the KHEP with such deep orifice gates.
 - c. A declaration that, at sites similarly situated to the KHEP, India may not design and construct Run-of-the River Plants on the Western Rivers that have similar spillways.
100. In relation to the sixth Dispute, Pakistan seeks the following relief:
- a. A declaration that India's proposed design for spillways at the RHEP breaches the Treaty, including Paragraph 8(e) of Annexure D.
 - b. A mandatory and permanent injunction restraining India from constructing spillways as presently designed and from operating the RHEP with such gates.
 - c. A declaration that, at sites similarly situated to the RHEP, India may not design and construct Run-of-River Plants on the Western Rivers that have similar spillways.
101. In relation to the seventh Dispute, Pakistan seeks the following relief:
- a. A declaration that the freeboard provided for in India's proposed design for the RHEP breaches the Treaty, including Paragraph 8(a) of Annexure D.
 - b. A mandatory and permanent injunction restraining India from operating the RHEP until the design of the freeboard is brought into conformity with the Treaty.

VII. Appointment of Arbitrators

102. By its original Request for Arbitration, Pakistan appointed the following as arbitrators pursuant to Paragraphs 4 and 6 of Annexure G to the Treaty.

a. Judge Bruno Simma (Germany)

b. Donald Blackmore (Australia)

103. By letter dated 20 October 2022 from Pakistan to the Chairman designate of the Court of Arbitration, copied to the representatives of India and others, Pakistan (*inter alia*) transmitted a communication from Judge Simma indicating that, having regard to the more than six years that had elapsed since his original appointment, and in view of his present commitments, he could no longer accept the appointment as arbitrator.

104. In the light of Judge Simma's retirement as arbitrator, Pakistan appointed Judge Awn Shawkat Al-Khasawneh (Jordan) as arbitrator.

Request made by:

The Government of the Islamic Republic of Pakistan



(AHMAD IRFAN ASLAM)
Agent of Pakistan

28 July 2023