

印度河基申甘加工程仲裁案¹

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[案件导读]

本案是关于印度基申甘加水力发电工程（KHEP）的争端。² 印度计划通过隧道系统将基申甘加/尼勒姆河水资源引至印度河流域的另一条支流，利用落差来进行水力发电。巴基斯坦基于两国在1960年签订的《印度河条约》（以下简称“《条约》”）提出仲裁请求。仲裁庭依据国际法上有关条约解释的一般规则解释和适用了1960年《条约》，前后作出两次裁决。部分裁决解决了两个核心问题，分别是：印度计划的调水活动是否违反其《条约》下的义务，以及KHEP的设计和运行是否符合《条约》规范。为平衡双方在《条约》下的权利和保护下游环境，仲裁庭在最终裁决中确定了基申甘加/吉勒姆河应维持的最低流量。仲裁庭依据条约解释规则和习惯国际法阐明了水道国的权利和义务，推动了国际水法上的不造成重大损害原则的发展。本案对国际环境法相关原则的阐述和适用也对未来的国际河流案件具有参考价值。

[关键词]

国际水道，共享自然资源，条约解释，公平合理利用，重大损害，可持续发展，国际环境法，习惯国际法，《印度河条约》，水力发电，径流式水电站，支流间调水，泥沙控制，抽水冲刷，最低流量

一、争端的背景和发展

印度河是印度和巴基斯坦重要的灌溉水源。印度河系统由六条主要河流组成，包括三条西部河流，即印度河（the Indus）、吉勒姆河（the Jhelum）、基纳布河（the Chenab），和三条东部河流，即萨特莱伊河（the Sutlej）、比阿斯河（the Beas）和拉维河（the Ravi）。这些河流及其支流流经阿富汗、中国、印度和巴基斯坦四国后汇入印度河干流，在巴基斯坦的卡拉奇（Karachi）附近注入阿拉伯海。

¹ 简称“印度河仲裁案”。

² *The Indus Waters Kishenganga Arbitration* (Pakistan and India), Partial Award and Final Award, 31 R. I. A. A., pp. 1-358 (2013).

基申甘加/尼勒姆河（Kishenganga/Neelum River）是吉勒姆河的一条支流，即属西部河流的一部分。它发源于印度控制的查谟—克什米尔邦（Jammu and Kashmir），越过印巴两国的实际控制线（Line of Control）进入巴基斯坦控制的查谟—克什米尔地区，最终于穆扎法拉巴德（Muzaffarabad）汇入吉勒姆河。该河流在印度境内被称为基申甘加河，在巴基斯坦境内被称为尼勒姆河。它的流量具有很强的季节性，受上游的季节性融雪和下游的季风雨影响，5月到8月流量最高，从10月初至3月中旬是一个长时间的低流量季节。

1947年的英属印度独立和印巴分治催生了《印度河条约》。在印巴分治之前，印度河的用水问题由英属印度的有关省份和州之间进行协商，用水争端先由英国驻印度国务卿解决，后由印度政府解决。印巴分治后，印度河系统的六条主要河流的上游部分全部位于印度，而巴基斯坦控制的下游资源易受可用水量变化的影响，因此管理两个新国家之间的共享水资源变得十分必要。

起初，印度境内的东旁遮普邦（East Punjab）和巴基斯坦境内的西旁遮普省（West Punjab）之间签订了一份关于分配用水的临时协议，该协议于1948年3月31日到期。1948年4月，在一起事件中东旁遮普邦切断了通往西旁遮普省的水流。虽然双方很快达成了协议³，水流也在一个月内得到恢复，但这一事件暴露了两国关于各自在印度河系统内的权利和义务的分歧。

1951年，在美国田纳西河流域管理局前负责人大卫·利连索尔（David E. Lilienthal）的建议下，世界银行提出协助印度和巴基斯坦制定区域合作方法，以开发印度河系统的水资源。两国均同意接受协助。

在世界银行的斡旋下，经历长达近十年的谈判，印巴双方及世界银行于1960年9月16日签署了《印度河条约》⁴（以下简称“《条约》”）。1961年1月12日，缔约方交换批准文件，条约根据第XII(2)条的规定溯及1960年4月1日生效。条约规定东部河流（萨特莱伊河、比阿斯河和拉维河）归印度所有，西部河流（印度河、

³ Inter-Dominion Agreement, Between the Government of India and the Government of Pakistan, on the Canal Water Dispute Between East and West Punjab, 4 May 1948, 54 U.N.T.S. 45.

⁴ *Indus Waters Treaty 1960 Between the Government of India, the Government of Pakistan and the International Bank for Reconstruction and Development*, 19 September 1960, 419 U.N.T.S. 126.

吉勒姆河和基纳布河)归巴基斯坦所有。⁵ 《条约》不仅为两国分配使用印度河流域水资源建立了法律框架,还设立了印度河常设委员会(Permanent Indus Commission)⁶,以便为执行该条约建立并维持双边合作。印度和巴基斯坦各任命一名委员,代表本国政府进行与条约有关事项的沟通。

本案所涉争端的历史可以追溯到1988年,巴方委员接到通知,印度正在计划建造基申甘加水电工程(Kishenganga Hydro-Electric Project,以下简称“KHEP”)。该工程的设计是通过隧道系统将海拔较高的基申甘加河(Kishenganga River)河水引入海拔较低的乌拉尔湖(Wular Lake)附近的河流中,利用落差来进行水力发电,发电量可达330兆瓦。巴方委员认为该项目的实施会对巴基斯坦在基申甘加/尼勒姆河上的水电项目,特别是尼勒姆/吉勒姆水电工程(Nelum-Jhelum Hydro-Electric Project,以下简称“NJHEP”),以及其他用水产生不利影响,因此要求印度暂停工作并向巴基斯坦提供该项目的信息。2006年,印度根据巴基斯坦提出的反对意见修改了工程方案,但巴方对修订后的方案仍不满意。从1988年至2010年间,双方委员进行了大量的沟通以阐述各自立场,并召开了数次委员会会议,最终仍无法解决分歧。

2010年5月17日,巴基斯坦根据《条约》第IX条和附件G提出仲裁请求。巴基斯坦在仲裁请求中声称,当事各方未能依据《条约》第IX(4)条的规定,通过两国政府协议的方式解决关于KHEP的“争端”。此外,巴基斯坦用以下用语指出了争端中的“两个核心问题”(以下简称“争议一”和“争议二”):

a. 作为基申甘加水电工程的核心要素,印度将基申甘加河(尼勒姆河)中的水转移至另一条支流——即博纳尔纳拉河(Bonar Nallah)——的提议,根据国际法解释和适用,是否违反了《条约》下印度应对巴基斯坦担负的法律义务,包括第III(2)条的义务(让西部河流所有的水流动,不允许对这些河流进行任何干涉)和第IV(6)条的义务(维持自然水道)?

b. 依据《条约》,除了不可预见的紧急情况外,印度能否将径流式水电站的蓄水池中的水耗尽或使水量降至死水位(Dead Storage Level)以下?⁷

⁵ Articles II and III, the Indus Waters Treaty.

⁶ Article VIII, the Indus Waters Treaty.

⁷ Pakistan's Request for Arbitration, para. 4.

2010年12月17日，双方根据《条约》第IX(5)条和附件G的规定组建了仲裁庭。2013年2月18日，仲裁庭对巴基斯坦提出的两个核心问题作出部分裁决。2013年12月20日，仲裁庭作出最终裁决，确定了基申甘加/尼勒姆河应维持的最低流量。

二、《印度河条约》适用的领土范围

在仲裁过程中，双方争论了印巴两国管辖的查谟和克什米尔地区的主权归属问题，双方存在分歧的问题还有部分裁决是否涉及查谟和克什米尔地区的主权以及会对该地区的主权产生何种影响。仲裁庭认为，因关涉到查谟和克什米尔地区的主权问题，在解决本案所涉的两个核心争议之前，必须界定本案的调查范围和《条约》本身的适用范围。

查谟和克什米尔地区的主权问题一直是印巴之间最深刻和最敏感的问题之一。在缔约过程中，两国和世界银行深知主权问题可能妨碍分水协议的制定，因此便有意识地努力使约文反映出印巴双方在印度河流域水资源使用问题上达成的分配协议，同时避免涉及该水域的主权问题。

《条约》第XI(1)条中规定，

“本条约仅规制一方相对于另一方在使用河水时的权利和义务……

除在本条约中明确承认或放弃的权利或主张外，条约中的任何内容不得被解释为构成任何一方承认或放弃其权利或主张……。”⁸

仲裁庭指出，该条款排除了《条约》对于用水之外的其他权利或主张的影响。虽然它的措辞没有提到印度和巴基斯坦之间的任何领土争端，但此目的恰恰是保

⁸ In full, Article XI(1) of the Indus Waters Treaty reads as follows:

(1) It is expressly understood that

(a) this Treaty governs the rights and obligations of each Party in relation to the other with respect only to the use of the waters of the Rivers and matters incidental thereto; and

(b) nothing contained in this Treaty, and nothing arising out of the execution thereof, shall be construed as constituting a recognition or waiver (whether tacit, by implication or otherwise) of any rights or claims whatsoever of either of the Parties other than those rights or claims which are expressly recognized or waived in this Treaty.

Each of the Parties agrees that it will not invoke this Treaty, anything contained therein, or anything arising out of the execution thereof, in support of any of its own rights or claims whatsoever or in disputing any of the rights or claims whatsoever of the other Party, other than those rights or claims which are expressly recognized or waived in this Treaty.

证缔约方各自对争议领土的权利或主张不受《条约》的影响。根据该条款，仲裁裁决不会也不能涉及查谟和克什米尔地区的主权问题，该问题亦与本案争议无关，因此没有必要详细阐述双方在这一问题上的主张。⁹

继而仲裁庭考虑的问题是：缔约方在《条约》下有关河水利用的权利和义务是否延伸到河流在有争议的领土内流动的部分，包括印度正在建设KHEP的地区，以及巴基斯坦认为将会受到不利影响的尼勒姆山谷（Neelum Valley）地区。仲裁庭强调，结合上下文以及条约的目的和宗旨来解读条约文本对于解决争端至关重要，《条约》的序言中提到缔约方希望“对印度河系统的水实现最全面和最令人满意的利用”（most complete and satisfactory utilisation of the waters of the Indus system of rivers），并进一步指出《条约》确定了缔约方在用水方面的权利和义务。这些措辞表明缔约方意图使《条约》适用于整个印度河系统，而不仅仅是那些流经无争议领土的水，《条约》中也没有任何条款将印度河系统的部分水域排除在外。此外，《条约》适用范围内的四条河流都有部分流经查谟和克什米尔地区，如果将这些水道通过该地区的一部分排除在外，《条约》将远不足以实现缔约方所追求的目的和宗旨，即为开发和分配印度河系统的河水提供全面的解决方案。因此，《条约》的适用范围不仅包括流经无争议领土的水域，也包括流经查谟和克什米尔地区的水域，巴基斯坦有权援引该条约反对在印度管辖的争议领土内进行的水电工程建设。¹⁰

三、争议一：通过基申甘加水电工程调水的合法性

巴基斯坦反对印度将基申甘加/尼勒姆河中的水调入另一支流，认为该行为是为《条约》所禁止的，因为支流间调水不仅违反《条约》规定的一般义务，还违反《条约》有关水力发电用水许可的规定，并且影响了巴基斯坦的农业和水电用水。因此，在第一项争议中，当事方请求仲裁庭裁断的问题是：《条约》是否允许印度通过KHEP将基申甘加/尼勒姆河中的水运送到另一条支流中。巴基斯坦声称印度违反了三项条约义务：（1）违反了让西部河流的河水流动的一般义务；（2）违反了尽最大努力维护西部河流自然水道的义务；（3）不符合使用水力发

⁹ Partial Award, p. 185, paras. 361-362.

¹⁰ Partial Award, pp. 185-187, paras. 363-366.

电应满足的要求。¹¹

（一）印度进行支流间调水是否违反《条约》规定的一般义务

巴基斯坦提出，《条约》中的若干条款对印度利用西部河流水资源的行为做出了整体上的限制，无论其利用行为是否涉及水力发电。

1、第III条：让西部河流的河水流动的一般义务

首先，巴方援引了《条约》第III条，其中规定了印度使西部河流的河水“流动”的基本义务和在某些条件下将西部河流水资源用于水力发电或其他用途的权利。《条约》第III条规定：

“（1）巴基斯坦应不受限制地使用西部河流所有的水，而印度有义务根据第（2）款的规定让西部河流所有的水流动。

（2）印度有义务让西部河流所有的水流动，除下列用途外，不得对水流进行任何干扰，且对每条西部河流的利用，即印度河、吉勒姆河和基纳布河，应限制在其所在的流域盆地内（附件C第5段第（c）（ii）项的规定除外）：

- （a）生活用水；
- （b）非消耗性用水；
- （c）农业用水，详见附件C；
- （d）水力发电，详见附件D。”¹²

巴基斯坦认为，第III(2)条将印度对西部河流的利用（包括水力发电）限制为“在其所在的流域盆地内”，KHEP将为印度整个北部电网提供电力，而非其所在的吉勒姆河流域盆地，超出了《条约》第III(2)条限定的使用范围。印度认为，巴方误解了“除下列用途外”这一短语中“用途”一词的含义，第III(2)(d)条所指的“用途”是指对水本身的使用，而非对水能转换成的电能的使用。发电必须在流域盆地中进行，但是电力可以被运输到其他地方。

仲裁庭同意印方的观点，认为第III(2)条限制印度的用水行为，而不限制其使用水利产品的行为，同时也没有其他迹象表明《条约》意图对电力或其他水利产品的使用作出地域限制。¹³

2、第IV(6)条：尽最大努力维护西部河流自然水道的义务

¹¹ Partial Award, p.118, para. 163.

¹² Article III, the Indus Waters Treaty.

¹³ Partial Award, p.188, para. 369.

巴基斯坦还声称印度建造KHEP违反了《条约》第IV(6)条规定的“尽最大努力维护河流的自然水道”的义务。第IV(6)条规定：

“自条约生效之日起，各方将尽最大努力维护河流的自然水道，并在切实可行的范围内避免阻碍这些水道中的水流运行，以免可能对另一方造成实质损害。”¹⁴

巴方主张，根据第IV(6)条，印度有义务在切实可行的范围内避免阻碍水流的运行，以免对巴基斯坦造成实质损害。因为KHEP计划从河流的自然水道中调水，可以初步断定它违反了“维护河流的自然水道”的义务。其次，巴方认为该工程会导致水道退化，会阻碍水流运行进而造成实质损害，尤其是一系列水道生态环境损害，包括导致控制线下游的自然栖息地、生物群和生态系统功能大量丧失，鱼群种类减少，下游社会经济条件发生重要变化，且影响农作物灌溉。为了尽最大努力避免损害，印度需要对KHEP可能造成的下游环境影响进行充分评估。然而，印度既没有尽最大努力进行充分的环境影响评价，也没有向巴基斯坦提供关于项目预期影响的信息。由于未能充分评估KHEP在支流间调水所造成的环境影响，印度没有达到第IV(6)条规定的“尽最大努力”的义务标准。巴方援引了国际法院在乌拉圭河纸浆厂案（Pulp Mills Case）中的判决以支持其主张，认为虽然印巴两国之间的实际控制线情况特殊，该判决仍适用于本案：乌拉圭河纸浆厂案明确了“作为一般国际法上的一项要求，在某计划采取的工业活动可能在跨境环境下造成重大负面影响时，特别是对共享资源而言，应当进行环境影响评价”。¹⁵ 巴方还指出，1972年《斯德哥尔摩宣言》中的第21项原则规定了国家不造成跨境损害的要求，¹⁶ 也佐证了该要求是一项习惯国际法上的义务。

印方辩称，第IV(6)条的目的是维持“水道的几何形状”，确保有效排水和下游水流畅通，而不是维持特定的流量。建设《条约》条款允许的项目不能视为对水流运行造成了“阻碍”（obstruction），否则任何开发工作都将无法进行。此外，印度在巴基斯坦提供信息的基础上进行了充分且符合国际惯例的环境影响评价。印度还认为，第IV(6)条规定的不是一个强制性义务，而仅表明了缔约方

¹⁴ Article IV(6), the Indus Waters Treaty.

¹⁵ *Pulp Mills on the River Uruguay (Argentina v. Uruguay)*, Judgment, I.C.J. Reports 2010, p. 14, p. 83.

¹⁶ Stockholm Declaration of the United Nations Conference on the Human Environment, (16 June 1972), UN Doc. A/CONF.48/14/Rev.1.

的期望。

印方驳斥了巴方对其环境影响评价范围的批评,并指出巴方拒绝提供对整个地区进行环境评价所需的信息。印度进一步为其环境影响评价的可靠性进行辩护,认为其评价考虑了大坝在坝址地区的影响,符合当时的国际最佳实践,同时指出巴方开展的环境影响评价也存在缺陷。

最后,印度拒绝将国际环境法的原则引入本案,认为《条约》中没有规定的环境法原则不是仲裁庭应适用的法律;但同时强调印度重视环境问题,KHEP符合印度环境法的所有要求,不会对任何陆生物种产生重大影响,也不会增加该流域的疾病风险。

仲裁庭指出,从措辞来看,“尽最大努力”这一义务是强制性的,而不仅仅是一种期望性的表达。然而,第IV(6)条本身与支流间的调水活动不具有直接相关性。就其用语的一般意义而言,第IV(6)条旨在维护河道的物理状态,而不是维持河道中水流的流量和流速。该条款中的“水道”(channel)一词的一般用法指的是河流的河床,可能有水也可能没有水。因此,仲裁庭认为这条规定是要求保护河流的天然路径(印度称之为“水道的几何形状”),以努力保护河流的输水能力,从而保护当事各方免受干旱和洪水的侵袭。¹⁷

此外,第IV(6)条并不要求维护水道的状态以避免任何类型的河床退化,而是明确要求避免阻碍水道中的水流运行,以免可能对另一方造成实质损害。巴基斯坦没有充分解释建设和运行KHEP将对基申甘加/尼勒姆河下游的水流造成何种具体阻碍,也不能认定KHEP本身构成对水流运行的阻碍。仲裁庭强调,条约下的具体权利应当优先于一般义务,KHEP是按照《条约》附录D的制度来设计并准备投入运作的,第IV(6)条不可能禁止建造和运作符合《条约》规划的工程。¹⁸

(二) 基申甘加水电工程是否符合使用水力发电的要求

印度负有使西部河流的河水流动的义务,但使用水力发电是《条约》明确规定的例外情形,前提是符合附件D或E的要求。附件D规定了径流式水电站的设计、建造和运行标准,水库式水电站则要符合附件E的要求。

巴方提出了三点主张:第一,附件D不允许对吉勒姆河的支流进行永久性的调水;第二,即使允许,KHEP也不满足第15(iii)段规定的条件;第三,即使符

¹⁷ Partial Award, pp. 188-189, paras. 372-373.

¹⁸ Partial Award, p.189, paras. 374-375.

合第15(iii)段的条件，也不符合该段规定的“必要性”标准。印方则认为KHEP完全符合附件D的规范。

1、支流间调水的合法性

附件D第15段规定：

“在符合第17段规定的前提下，水电站的运行工作应满足以下条件：

(a) 在任意一个连续7天的周期内，水电站上方河流接收的水量应在同一7天周期内输送到水电站下方的河流中；(b) 在上述7天周期内的任意一个24小时周期内，相较于同一24小时周期内水电站上方河流接收的水量，输送到水电站下方河流的水量不得少于前者的30%且不得多于前者的130%。但是：

.....

(iii) 如果水电站位于吉勒姆河的支流上，且巴基斯坦在该支流上有农业用水或水电用水的需求，水电站下方释放的水流可以在必要时引入另一条支流，但必须限于巴基斯坦在前一支流上的当时既有的农业用水或水电用水没有受到不利影响的范围内。”¹⁹

可见，附件D第15段允许水电站在满足一定条件的前提下在支流间进行调水。对于可调水的范围，巴方认为，该段仅允许在水电站运行过程中偶尔向另一条支流输送水流，而不允许将大规模和永久性的调水作为水电站设计和运行的一部分。仲裁庭反对巴方的观点并指出，支流间调水运作复杂，需要投入大量费用建造大量工程，仅为了偶尔性的调水而实施如此庞大的建设工程意义甚微。²⁰

2、径流式水电站在吉勒姆河的支流上调水的条件

巴方主张，KHEP不属于第15(iii)段规定的“位于吉勒姆河的支流上”的水电站，因为它只有大坝位于吉勒姆河的支流上，而发电装置位于23公里外的一个集水区；其次，第15(iii)段仅允许调动“水电站下方释放的水流”，而KHEP调动的是水电站上方的水流；再次，“另一条支流”必须与水电站所在的支流居于同一水域，而博纳尔纳拉河不在基申甘加河水域内。

印方反驳称，巴方错误地理解了“水电站”这个词，它指的是从大坝、隧道和发电厂房到尾水渠的整个综合体。水是从水电站的尾水渠排入博纳尔纳拉河，

¹⁹ Para. 15 of Annexure D, the Indus Waters Treaty.

²⁰ Partial Award, p. 190, para. 379.

所以确属从水电站下方排入另一条支流。此外，印度认为“另一条支流”是指吉勒姆河的任何其他支流，而限于该水电站所在水域内的支流。

仲裁庭分析道，依据附件D，印度通过KHEP进行支流间调水必须满足三个条件：

“（1）KHEP是一个径流式水电站；（2）KHEP必须位于吉勒姆河的一条支流上；（3）支流间的调水必须符合第15(iii)段的规定。”²¹

仲裁庭依次考察了这三个条件。第一，根据附件D第2段中的一系列名词定义，决定一项工程是否构成径流式水电站的关键指标是其用于水力发电的水量，而不是拦截的水量。虽然印度最初的设想是将KHEP建造为水库式水电站，但最终设计出并通知巴方的方案都是符合《条约》定义的径流式水电站。²²

第二，《条约》第I(2)条中对“支流”（Tributary）的定义包括了基申甘加/尼勒姆河。对于基申甘加/尼勒姆河是吉勒姆河的支流这一事实双方不存在争议，但对于KHEP是否位于基申甘加河/尼勒姆河上双方分歧很大。印度认为部分工程位于该河上就足够了，决定性的判断标准是用于水电站运行的水来源于该河流。而巴基斯坦基于KHEP是在距离该河很远的地方（23公里外）进行发电而提出反对。

仲裁庭首先指出，“径流式水电站”（Run-of-River Plant）一词是特定条约下的定义名词，应当按照《维也纳条约法公约》第31条第4款的规定以“特殊意义”而非“通常意义”解释。²³ 与之相反，《条约》中数次使用了“水电站”（Plant）和“工程”（works），且没有对这两个词做出定义。“水电站”一词应理解为包括水电站的所有设施，而不仅仅包括实际发电的部分（例如发电厂房）。仲裁庭认为，KHEP在设计上是一个整体，仅具有水力发电一个功能，没有理由将其中的不同部分拆分对待。因此，应将该工程视为位于基申甘加河上，也就是位于吉勒姆河的支流上。²⁴

第三，仲裁庭认为，条件三实际包含两个要求：其一，必要性标准（下一节讨论）；其二，水流须经过KHEP的发电厂房后再排入其他支流。巴基斯坦认为，

²¹ Partial Award, p. 192, para. 382.

²² Partial Award, p. 192, para. 383.

²³ Article 31(4) of the Vienna Convention on the Law of Treaties provides: “A special meaning shall be given to a term if it is established that the parties so intended.”

²⁴ Partial Award, p. 193, paras. 385-387.

必须先将水释放回大坝下方的基申甘加/尼勒姆河，之后才能将其运送到另一条支流，而KHEP将水从涡轮机直接排入博纳尔纳拉河。仲裁庭反对这一观点并指出，第15(iii)段所指的是水电站下方的水，而不是大坝下方的水，从尾水渠排入博纳尔纳拉河的水无疑是“在水电站下方释放的水流”。此外，巴基斯坦对“另一条支流”的解释也缺乏文本依据，“另一条支流”指的是吉勒姆河的支流，而不是基申甘加/尼勒姆河的支流。²⁵

3、支流间调水的必要性

确定第15(iii)段允许调水，且KHEP基本符合调水的条件之后，仲裁庭继而考虑的问题是，KHEP实施的调水是否“必要”(necessary)。

巴方主张，“必要”应根据其一般含义解释为“不可或缺的，必不可少的，必须的”，并认为“必要”一词在国际法上暗含了比例原则的要求。仲裁庭在莱茵铁路公司案（Iron Rhine Arbitration）以及国际法院在多瑙河案（Gabčíkovo-Nagymaros Project Case）和乌拉圭河纸浆厂案中都曾指出，确保本国管辖和控制范围内的活动尊重其他国家或本国控制之外地区的环境是国家负有的一项一般义务。这项义务要求印度严格判断“是否必要”和/或“是否成比例”的问题，因为印度的行为可能会对环境产生不利影响，从而违反了习惯国际法。为此，印度首先应进行环境影响评价评估对下游的环境影响，其次应当根据1992年《关于环境与发展的里约宣言》采取预防措施。最后，巴方认为“是否必要”是一个客观而非主观的判断。

印方主张，根据条约目的和谈判记录来看，“必要”应理解为“最有利于发电的”（optimal for power generation）。如果不利用基申甘加/尼勒姆河与博纳尔纳拉河之间的落差，则无法实现《条约》序言所说的对水的“最全面和最令人满意的利用”。此外，印度反对巴基斯坦将环境损害原则引入必要性的含义，因为必要性要求关注的是水力发电，而不是保护环境。乌拉圭河纸浆厂案或其他判例均没有要求印度寻求他国的协助进行联合环评，即便有，该义务也需要巴方提供全面的信息才能得以履行，但巴方拒绝提供详细信息。最后，印度指出，世界上的主要国家认为采取预防措施不是习惯国际法。“预防”这一概念存在多种可能的含义，不能作为原则加以应用。

²⁵ Partial Award, p. 194, paras. 388-389.

“调水是否必要”这个问题背后实际隐含着一个更深层次的问题，即：调水对于什么而言是必要的？仲裁庭回顾了第15(iii)段的起草过程后认为是：对于实现水力发电的目的而言，将水调入另一条支流是否有必要？²⁶

至于“必要性”的标准，仲裁庭认为没有必要将它与不可缺少性或紧急性相联系。就《条约》的目的而言，除正常使用该词来描述为某一特定目的所需要或必要的行动外，没有理由赋予其任何特殊意义。然而，这并不意味着将必要性的标准降低至“期望性”，也不意味着印度可以对必要性进行自我判断。仲裁庭能够预见这样一类情况，即在水电站的设计中调水发电的收益微不足道，以至于无法将这种调水评价为“必要的”，但本案不属于此类情形。仲裁庭还指出，如果条约赋予了一国权利，该权利就必须是切实可行的。本案中，《条约》赋予印度以发电为目的用水的权利，如果不利用吉勒姆河两条支流间的高度落差，便无法实现KHEP预设的发电能力。因此，从基申甘加/尼勒姆河向另一支流调水是KHEP进行水力发电所必需的。²⁷

仲裁庭反对将必要性理解为排除国家不法行为的手段，但这并非否定潜在的下游损害的相关性。相反，仲裁庭认为防范下游用水遭受不利影响是第15(iii)段关注的核心，但其采取的是与巴基斯坦主张的比例检验标准不同的手段。仲裁庭认为：

“在根据习惯国际法援引必要性阻却国家实施国际不法行为的情形下，可适当考虑比例性。在这种情况下，不能简单主张有关行为是保护重要国家利益所必需的，也要证明所保护的利益至关重要，足以凌驾于受损国家的权利和利益之上。然而，从通常意义来看，‘必要’一词不具有这种额外的含义。”²⁸

（三）“当时既有的农业用水或水电用水”的判定

第一项争议的实质是当事双方对附件D第15(iii)段的解释存在分歧，尤其是这一条款要求印度的跨支流调水行为“必须限于巴基斯坦在前一支流上的当时既有的农业用水或水电用水没有受到不利影响的范围内”。双方同意，如果巴方证明其在相关时间存在农业或水电用水的需求，那么印方的水电站不得对巴方的用水产生不利影响。争议的核心在于究竟什么构成“当时既有的农业用水或水电用

²⁶ Partial Award, pp. 194-196, paras. 390-396.

²⁷ Partial Award, pp. 196-197, paras. 397-398.

²⁸ Partial Award, p. 197, para. 399.

水”，以及巴基斯坦是否已证明其在基申甘加/尼勒姆河上存在既有的使用。

1、巴基斯坦的主张

巴方认为，“当时既有的使用”应按照词语的通常意义理解，即指水流进入其他支流时既存的使用。也就是说，“当时既有的使用”要以水电站实际运行时为基准。巴方反对印方的观点并指出，附件D和附件E在措辞上存在区别，因为附件E适用于水库式水电站的建设，在确定“既有的使用”时需要一个截止日期，而附件D的第15(iii)段强调径流式水电站“位于”支流上并在支流上运行，应以水电站排放水流的时间来确定“既有的使用”。

巴方认为其已证明了“当时既有的农业用水或水电用水”。巴基斯坦主张，印度根据《条约》修建水电站的计划必须考虑到巴基斯坦“坚定承诺”(firmly committed)在特定地点使用这片水域的具体计划。首先，印度意识到巴基斯坦自1988年12月起就有建设NJHEP的计划。巴方委员于1989年4月22日致函印方委员，通知其NJHEP建设事项。后印方要求巴方提供有关NJHEP的详细信息，特别是有关确定“既有的使用”的信息。巴方于1990年3月提供了上述信息。再者，关于农业用水，巴基斯坦认为，KHEP下游的农业依赖于印度排放的水量，而KHEP将扰乱巴基斯坦现有的发展灌溉农业的项目。巴基斯坦指出，其环评报告中包含对尼勒姆山谷的航拍照片，这是其从事大规模农业活动的证据。虽然这些农业活动大部分依赖于支流，但灌溉水源也来自基申甘加/尼勒姆河本身，并且巴基斯坦已经制定了通过从干流抽水来扩大灌溉面积的计划。

巴方主张，印度计划的调水将大大减少下游的流量，这将导致NJHEP计划发电量的减少，也将影响巴方计划日后投入建设的其他几个水电站。巴基斯坦预计，NJHEP每年发电量损失13%，相当于损失1.413亿美元，其他计划建设的电站每年还将损失7,410万美元。此外，巴基斯坦认为，调水将影响其农业用水，特别是紧邻KHEP大坝下方的地区在一年中的6个月里都不会有水流。这对该区域农业活动的影响将取决于特定作物地区的确切位置，即该地区是否依赖于从基申甘加/尼勒姆河取水灌溉，但至少对现有的和计划中的灌溉项目都会产生负面影响。

巴基斯坦反对印度的观点，即该地区发电量的整体增长将抵消对NJHEP的负面影响。巴方认为调水给其他水电站带来的好处与本案无关，因为这些水电站位于其他支流上，不在本案争议范围内。再者，印度的计算也没有考虑到调水给其

他水电站造成的水量减少和负面影响。巴基斯坦认为，根据《条约》对KHEP的不利影响进行评估，不应像印度提出的“补偿性分析”那样，将对其他支流的农业用水或水电用水带来的积极影响考虑在内并做出整体平衡。只要调水对水流造成的干扰不属于无关紧要且偶然发生的，且确实对下游用水产生了不利影响，印度就不能够依据第15（iii）段进行调水。

2、印度的主张

印方认为，“既有的使用”是指“历史的使用”（historic uses），不同于为满足“未来”或“进一步”的需要（future or further needs）而可能开发的使用。巴方理解的“既有的使用”实际为“计划的使用”（intended use），不仅与该词的本意相反，而且使得印度无法实现对水资源“最全面和最令人满意的利用”。因此，印度主张在确定下游“既有的使用”时应基于截止日期（cut-off date），这个截止日期应为印度最终确定设计方案并在开始建设前六个月向巴基斯坦提供完整信息的时间点。自印度向巴基斯坦传达其推进项目的“坚定意向”（firm intention）之日起，印度的任何开发活动都不应干扰巴基斯坦下游已有的用水活动。就本案而言，截止日期最晚应为1994年6月，即印方向巴方提供KHEP最终方案（设计为水库式水电站）的时间。

虽然印度直至2005-2006年才通知巴基斯坦KHEP将被建造为径流式水电站，印方坚持认为这一变化不影响确定下游用途的截止日期。因为径流式水电站的设计与之前大致相同，而且修改后的设计降低了大坝的高度和大坝上游的贮水能力，对巴方更为有利。印度还指出，即便将截止日期确定为将KHEP修改为径流式水电站之后的时间，也无法认定NJHEP属“当时既有的使用”，因为NJHEP直到2008年才宣布投入建设。

印度主张，巴基斯坦没有证明任何与第15段第(iii)款有关的农业用水。印度在将KHEP设计为水库式水电站和修改为径流式水电站之时，都曾向巴方要求提供与“既有的农业用水或水电用水”相关信息。巴方只在1990年提供了13.3万公顷灌溉土地的面积，但没有具体说明灌溉工程的地点或灌溉地区。在实地考察期间印方也没有观察到上述工程。事实上，印方认为巴方提交给仲裁庭的证据表明，尼勒姆山谷中非常有限的农业依靠的是降水和旁流的沟渠，而不是基申甘加/尼勒姆河。

印度承认NJHEP是一种潜在的水电用水，但指出巴基斯坦直至2008年才宣布建设NJHEP（此时为KHEP的原始设计方案最终确定14年后，修订设计方案提交巴方2年后）。而印方自1960年起，就通过多种渠道向巴方传达了KHEP的建造计划，并持续进行信息收集和开展勘探工作，期间未有证据显示巴方计划建设水电站。直至1989年巴方才告知印方有关NJHEP的建设事项。自1994年印方向巴方提供关于KHEP的技术信息后，巴方仅在2005年向印方保证会提供关于“KHEP对NJHEP影响”的信息。因此，印度认为，NJHEP甚至不符合巴方自己对于“既有的使用”的定义，因其在2007-2008年之前既未做出“坚定承诺”（firm commitment），也未“积极投入”（active engagement）工程建设。即使在2008年现场检查期间，也没有发现巴基斯坦正在准备建设工作的证据。

同时，印度坚持认为，KHEP不会对NJHEP产生重大不利影响。相反，KHEP将对该地区的水力发电产生积极影响：它将增加流入巴方计划的科哈拉（Kohala）水电工程的水量，从而增加其在冬季发电的能力，抵消KHEP地区的电力减损。这一抵消效应，连同NJHEP带来的能源增长，该地区的电力输出能力总体是增长的。考虑到这两个工程对巴基斯坦的影响，以及其他计划建设的下游工程，印度认为KHEP的负面影响在很大程度上得到了缓解。即便不存在抵消效应，来自该地区的相关流量数据并未显示出巴方的水电用水将遭受重大不利影响，因为KHEP释放的水量将足以满足NJHEP的运作需要。此外，印度认为，即使仲裁庭得出结论，NJHEP的水力发电能力将受到不利影响，该不利影响也没有达到“重大程度”。根据《条约》，没有达到“重大程度”的不利影响不足以阻碍调水的进行。

同样，在印度看来，巴方也没有解释KHEP将如何影响巴基斯坦的下游农业用水。事实上，尼勒姆山谷地区的农业灌溉用水需求微乎其微，不会受到这一河段流量减少的影响。此外，巴方也未提供任何证据支持其关于向乌拉尔湖调水将延迟下游流量并影响作物的早期生长的说法。

3、仲裁庭的裁决

为确定第15段的恰当含义，仲裁庭遵循了《维也纳条约法公约》第31(1)条规定的条约解释基本规则：“条约应依其用语按其上下文并参照条约之目的及宗旨所具有之通常意义，善意解释之。”²⁹

²⁹ Article 31(1) of the Vienna Convention on the Law of Treaties provides: “A treaty shall be interpreted in good faith in accordance with the ordinary meaning to be

首先，从文本出发，仲裁庭指出第15段是对径流式水电站运行上的限制，第15(iii)段的语句使用的是现在时态，表明在径流式水电站的整个使用寿命期间，只要印度进行跨支流调水，就需要判断巴基斯坦是否存在农业用水或水电用水。再者，从上下文来看，第15段所在的附件D第3部分是对径流式水电站设计、建造和运行的体系化规定，必须以相互印证的方式解读附件D第3部分所载的各项条款，以免出现条款之间自相矛盾的解释结果。最后，就条约的目的和宗旨而言，《条约》的显著特点是对印度河系统六条主要河流的划分和分配，在其建立的关于用水权利和优先次序的制度下，巴基斯坦优先使用西部河流，印度优先使用东部河流。但巴基斯坦在西部河流上并不享有绝对的用水权，《条约》同时也允许印度在西部河流上用水，包括进行水电开发。因此，如果对第15段进行解释后推出的结果是巴基斯坦能够单方面制约印度运作水电站的权利，那么这种解释就与《条约》的目的和宗旨相违背。³⁰

接下来，仲裁庭依次考察了双方对于“当时既有的使用”采取的解释方法。通过以上对第15(iii)款的分析，仲裁庭认为文本本身对动态解释提供了一定程度的支持，但严格的动态解释将使条约的上下文失去意义，并破坏条约的目的和宗旨。仲裁庭分别考量了双方提出的解释方法，认为两种解释方法——即动态解释方法和关键时期解释方法——都不完全令人满意，并提出对附件D第15(iii)款的适当解释需结合这两种方法的某些内容。

（1）采用动态解释方法（ambulatory approach）的结果

如果采用巴方主张的“动态”方法解释条约，当一个新的跨支流径流式水电站的设计符合附件D第8段的规定时，就可以获准建造；但随后当巴基斯坦需要利用这片水域时，印度都必须做出让步。这样一种解释将对基申甘加/尼勒姆河上的跨支流工程建设形成制约，因为如果工程能否运作将受制于另一方的单方面意志和行动，任何负责任的工程建造方、融资债权人或政府机构都不会投资或建设这样一种工程。³¹

就KHEP而言，它的运作及发电能力和经济生存能力将永远受到威胁。在动态解释方法下，因为NJHEP需要较大的吞吐量，KHEP可能不得不在较干旱的月份暂

given to the terms of the treaty in their context and in the light of its object and purpose.”

³⁰ Partial Award, pp. 198-202, paras. 402-413.

³¹ Partial Award, p. 205, para. 422.

停运行。巴基斯坦未来的农业或水电用水可能要求印度在大部分时间内将大部分甚至全部河流的水引导到下游而不能保留供KHEP使用的水。理论上，如果巴基斯坦在基申甘加/吉勒姆河上位于印巴实际控制线和NJHEP之间的任何地点建造新的水电站，KHEP就需要释放尽可能多的基申甘加/尼勒姆河水以满足新水电站的运作。因此，根据巴方的动态解释方法，KHEP很容易陷入无法运行的状态，或者至少是只能够实现其设计发电能力的一小部分。这样的结果将使印度丧失《条约》赋予其的一项关键权利，即通过在吉勒姆河的支流间调水来进行水力发电。³²

由于此种解释结果缺乏稳定性，可能造成资源浪费，并且与附件D的设计和建造获批要求不相符。仲裁庭认为，严格的动态解释方法与第15(iii)段的上下文相矛盾，适用于KHEP时也与《条约》的目标和宗旨相违背，因其实际上完全排除了印度依照附件D建造发电站的权利。³³

(2) 采用关键时期 (critical period) 解释方法的结果

印度解释第15(iii)段的方式相对静态，只关注关键时刻或关键日期。对印度来说，“当时既有的使用”一词的意思是，在印度向巴基斯坦传达其推进项目的“坚定意图”之日起，印度进行任何新的开发活动都受限于巴基斯坦截至当日对下游水域的使用。因此，在这种解释方法下，关于该项目的何种特定事实可以形成“坚定意图”是判断解释结果合理性的一个关键考虑因素。印度主张，确定坚定意图形成的时刻可以参照附件D第9段(要求印度在开始建造之前至少六个月向巴基斯坦提供关于设计方案的完整资料)。因此，在设计方案被确定的阶段巴基斯坦的农业和水电用水也即被确定。³⁴

仲裁庭同意在附件D下，印度提出其设计方案的日期是一个重要时刻。但是，正如附件D后面各段所明确指出的，通知设计方案不足以表明其推进项目的“坚定意图”，因为还需考虑到的情况包括，通知后巴基斯坦可能提出反对的三个月期限，如果设计方案不符合第8段的标准双方通过《条约》的争端解决机制（第10-11段）解决所需的时间，水电站投入运行之前设计变更的可能性（第12(a)段），以及投入运行之后（第12(b)段）或应对紧急情况时（第13段）水电站配置

³² Partial Award, p. 205, para. 423.

³³ Partial Award, p. 205, para. 424.

³⁴ Partial Award, pp. 205-206, paras. 425-426.

可能改变。³⁵

换句话说，这种大型基础设施项目的建设往往伴随着水电站设计规范的变动，在施工区域不可预见的发现，以及获得融资和政府批准的不确定性。因此，当面对一个实际的项目时，判断“坚定意图”形成的时刻是非常困难的。仲裁庭认为，它无法事先确定任何一个事实或公式以断定关键日期，因为在设计、筹资、政府核准、建造、完工和作业这一连续进行的任何一阶段都难以确定形成“坚定意图”的关键日期，而且每一个建设项目面临的情况都不尽相同。

然而，仲裁庭也认识到，在附件D第8-11段的框架下，需要确定印度行使其建设和运行径流式水电站权利的特定时期。仲裁庭认为，比关注“坚定意图”的形成时间更为恰当的说法是找到“关键时期”，在这一时期，一系列的事实——招标、融资担保、政府批准以及正在开展施工——综合显示出一定程度的确定性，表明项目将“坚定地”按照提议进行。³⁶

为了在建造完成前确定一个关键时期，仲裁庭首先排除了两个时间点。一个是工程建设完成的日期，因为将关键日期确定为建设完工之日可能导致的不良后果是会鼓励两个国家建设各自的水电站以期率先竣工，但无法保证正在建造的项目能够按照设计运行。这可能导致资源的极端浪费和国际紧张局势的恶化。同时，仲裁庭还排除了将设计方案通知另一方的时间，虽然此时一方可能向另一方发出建造水电站的意向通知，但无法保证该项目会将在规划的时间内建成。³⁷

仲裁庭接下来分析的关键问题是，结合附件D第15段以及《条约》的目的和宗旨来看，采用“关键时期”解释方法会对当事双方各自的用水权利产生何种影响。关键时期解释方法的内在要求是，印度建设任何新的水电站都要根据附件D第15(iii)段考虑巴基斯坦既有的农业和水电用水。印度没有反对这一要求，但它认为截至印方的水电站项目确定之时，巴基斯坦尚不存在且当前也不存在任何既有的水电用水或重要的农业用水。仲裁庭认为，印方的观点回避了一个问题，即巴基斯坦“当时既有的”的农业或水电用水何时确定。对于巴基斯坦的用水，需要使用和印度相同的方法来进行判断。也就是说，巴基斯坦的水电用水计划可能也会限制印度在上游的水电开发活动。因此，确定一个不恰当的关键时期可能

³⁵ Partial Award, p. 206, para. 427.

³⁶ Partial Award, p. 207, para. 429.

³⁷ Partial Award, p. 207, para. 430.

会导致一种竞争，每一方都在寻求新的用水计划，以阻碍对方的用水。仲裁庭认为，对附件D(包括第15(iii)段)的解释必须尽最大可能尽量减少形成这样一种竞争机制的可能性，因为在竞争中第一个到达关键时期的一方就有能力阻碍对方在上游或下游的用水（视情况而定，要看谁是“赢家”）。³⁸

（3）《条约》在双方权利之间作出的平衡

仲裁庭认为，采用“动态”解释和“关键时期”的解释方法都不完全令人满意，对附件D第15(iii)段的解释应将两种方法中的特定要素相结合。仲裁庭还指出，解释结果应反映出《条约》在巴基斯坦使用西部河流的权利和印度利用西部河流开发水电的权利之间作出的平衡。³⁹

仲裁庭指出，巴基斯坦在本案中的相关使用本质上是水电用水的需求，因其在基申甘加/尼勒姆河的干流上不存在重大农业用水，支流提供的水源大致可以满足尼勒姆山谷内的农业用水。基于此，仲裁庭认为其解释任务主要包括两个步骤：第一，判断KHEP确定的关键时期；第二，根据附件D第3部分（特别是第9段的通知规定），使用相同的关键时期标准，判断在KHEP确定之时，NJHEP是否属于印度需要考虑的“既有的使用”。如下所述，仲裁庭在审查双方提交的大量证据后确定了关键时期，得出的结论是，KHEP先于NJHEP确定，印度进行调水的权利受《条约》保护。⁴⁰

仲裁庭强调，印度在基申甘加/尼勒姆河上调水的权利不是绝对的。第15(iii)段所依据的前提，即印度水电站的运作要考虑巴基斯坦的既有使用，虽然没有达到在动态解释方法中的绝对优先地位，但仍然是一个指导性的原则。也就是说，第15(iii)段保护巴基斯坦在全年中将基申甘加/尼勒姆河的部分水资源用于其既有的农业和水电用途的权利。⁴¹

（4）确定印度水电开发权利的优先性

仲裁庭面临的一项艰难任务是，它必须确定哪方率先计划了水电工程，而且还要确定该方为落实计划率先采取了具体步骤。仲裁庭认真审查了双方提交的证据，包括内部通信、缔约方之间的函件往来、委员会会议记录 and 环境影响评价，认为印度的主张更具有说服力，其建造KHEP的意图和行动都早于巴基斯坦对

³⁸ Partial Award, pp. 207-208, paras. 431-432.

³⁹ Partial Award, p. 208, para. 433.

⁴⁰ Partial Award, pp. 208-209, paras. 434-435.

⁴¹ Partial Award, p. 209, para. 436.

NJHEP的建造，因此前者在利用基申甘加/尼勒姆河水进行水电开发的权利优先于后者。⁴²

在确定优先性的过程中，当事双方对于何种事实起到决定性的作用存在巨大分歧。巴方主张，一旦巴基斯坦表达了坚定承诺，印度在按照《条约》计划建设水电工程时就必须考虑巴基斯坦在特定地点的计划用水。这种承诺发生在1988年12月，当印度得知巴基斯坦正在计划建设NJHEP之时。巴方还指出印度在1989年要求提供有关NJHEP，特别是有关确定既有使用的详细信息，巴基斯坦在1990年3月提供相关信息。而印方主张，其在1971年的一份文件中首次提到KHEP，该文件早于印度认为的NJHEP开始计划的时间，即1989年。印度在1994年6月前已采取措施向巴基斯坦传达了其建设KHEP的“坚定意图”，且向巴基斯坦提供了KHEP（作为水库式水电站）的最终设计方案。虽然巴基斯坦直到2005年-2006年才得知KHEP将被建造为径流式水电站，但这一改变是因为考虑到巴方反对将KHEP建造为水库式水电站，并且修订后的设计没有重大变动，因此这一变动与确定其“坚定意图”的时间点无关。⁴³

仲裁庭认为，所谓“关键时期”不在1980年-2000年之间，因为这二十年间除了关于项目的规划、意向和沟通外没有其他重大举措，而且很明显KHEP和NJHEP设计规模的后续发展和变化与它们最初传达给另一方的方案都存在许多出入。无论从事后看来，决定关键时期的决定性因素是什么，仲裁庭都不赞同根据没有实际投入建设的方案来确定关键时期。不同于当事双方提出的观点，仲裁庭认为2000年以后是最相关的时期，因为在这个时候，关于KHEP和NJHEP的计划和意图开始结合起来，两项工程也按照这一时期的计划正在建设当中。仲裁庭还认为2004年至2006年是KHEP的关键年份，在此期间印度的KHEP建设取得了重大进展。相较之下，巴基斯坦在规划和建设NJHEP方面落后于印度。在2004年至2006年的关键时期，印度表现出推进项目的认真意愿，采取步骤使KHEP成为现实（通过设计、招标、融资、公众咨询、环境评估，以及至关重要的国家和地方政府的批准）并使巴基斯坦知晓这一事实（或通过印度在委员会一级的沟通，或通过巴基斯坦专员独立取得的证据）。这一系列事实足以使仲裁庭相信，在NJHEP之前，KHEP已经进展到一个具备“坚决意图”的阶段。虽然有许多阻碍KHEP进程的障碍，例

⁴² Partial Award, p. 209, para. 437.

⁴³ Partial Award, pp. 209-210, para. 438.

如委员会未能有效解决本案所涉争议,但很清楚的是在2004年-2006年期间,KHEP的计划得到了确定,而此时NJHEP的方案尚未确定。⁴⁴

仲裁庭承认,因为两个水电工程都已经完成了大型基础设施建设的大部分进程,正处于建设之中,仲裁庭才得以从事后判断,确定KHEP的优先地位。然而,若当事双方处在这一进程中的较早阶段,实际建设尚未开始时,情况就会更加不明朗。仲裁庭建议,如果将来出现类似的问题,当事方在开始建设之前应诉诸于《条约》附件D下第3部分的第9-11段规定的程序来确定何种使用具有优先性以及水电站设计是否符合规范的问题。此外,《条约》第IX条指导当事双方通过委员会达成双边协商决议(第IX(1)条),或在委员会无法解决时将争议事项提交中立专家或仲裁法庭(第IX(2)条)。这些规定的目的即是促使双方在实际工程建设开始之前解决争议,依据上述争端解决机制解决问题也是避免双方竞相设计、建造和运营水电站的最好方法。仲裁庭指出,严格和及时地遵守《条约》关于解决分歧和争端的规定很可能会阻止这种竞争现象的发生,因为争端解决机制将在当事方为建造水电站花费大量资源之前启动。⁴⁵

(四) 印度负有确保最低流量的义务

仲裁庭指出,根据《条约》条款,印度有权调动基申甘加/尼勒姆河的河水以运行KHEP,但其调水权要受到一定的制约,包括上文所讨论的附件D第15(iii)段,以及进行条约解释时依据附件G第29段适用的相关国际习惯法原则。这两项限制都要求印度以能够确保基申甘加/尼勒姆河最低流量的方式运行KHEP。⁴⁶

首先,仲裁庭分析道,第15(iii)段赋予印度建设和运行涉及支流间调水的水电项目的权利,同时规定印度有义务避免对巴基斯坦“当时既有的”农业用水或水电用水造成不利影响。然而,避免不利影响的要求不能剥夺印度运行KHEP的权利。双方在《条约》下的权利都必须尽可能得到有效行使,即,印度调水运行KHEP的权利受到巴基斯坦农业和水电用水权利的制约,反之,巴基斯坦的用水权也受到印度调水运行KHEP权利的制约。任何无视这两种权利之一的解释都是对第15(iii)段作出了与《条约》相违背的解读,且损害了某一当事方的利益。

47

⁴⁴ Partial Award, pp. 210-213, paras. 439-442.

⁴⁵ Partial Award, pp. 213-214, paras. 443-444.

⁴⁶ Partial Award, pp. 214-215, para. 445.

⁴⁷ Partial Award, p. 215, para. 446.

印度确保流入巴基斯坦境内的水流达到最低限度的义务也是依据习惯国际法解释《条约》的结果。《条约》附件 G 第 29 段规定：

“除双方另有协议外，仲裁庭应适用的法律包括本《条约》，以及在解释或适用本《条约》必要时、但仅在实现此目的的必要范围内，按如下所列顺序适用：

(a) 双方明确承认的国际公约规则；

(b) 习惯国际法。”⁴⁸

仲裁庭回顾道，早在《条约》谈判之前，特莱尔冶炼厂仲裁案(Trail Smelter Arbitration)就已确立了习惯国际环境法的一项基本原则，即：

“任何国家均不得以此种方式使用或允许使用其领土，若通过烟雾在另一个国家领土之内或对领土或领土内的财产或个人造成伤害，造成严重后果，且可得到明确和令人信服的证据的证实。”⁴⁹

1972年《斯德哥尔摩宣言》中的第21项原则更广泛地重申了避免造成跨界损害的义务，即，国家在开发自然资源时，必须“保证在他们管辖或控制之内的活动，不损害其他国家或在国家管辖范围以外地区的环境”。⁵⁰

仲裁庭强调，

“毫无疑问的是，当代习惯国际法要求各国在规划和发展可能对邻国造成损害的项目时须将环境保护纳入考虑。自特莱尔冶炼厂仲裁案以来，一系列的国际公约、宣言及司法和仲裁判决、裁决都强调了以可持续的方式管理自然资源的必要性。特别是，国际法院在多瑙河案中详细阐述了‘可持续发展’原则，并指出了‘协调经济发展与环境保护的需要’”。⁵¹

仲裁庭继而指出，在将可持续发展原则应用于大型建设项目时，如同国际法院在乌拉圭河纸浆厂案中的所表达的，该原则被转化为“一般国际法上的一种要求，即，在某计划采取的工业活动可能在跨境环境下造成重大负面影响时，特别

⁴⁸ Para. 29 of Annexure G, the Indus Waters Treaty.

⁴⁹ *Trail Smelter Arbitration*, 13 R. I. A. A. 1905, p. 1965.

⁵⁰ Stockholm Declaration of the United Nations Conference on the Human Environment, 3 UN Doc. A/CONF. 48/14/Rev (1972).

⁵¹ Partial Award, pp. 169-170, para. 449. See also *Case concerning the Gabčíkovo-Nagymaros Project (Hungary/Slovakia)*, Judgment, I. C. J. Reports 1997, p. 7, p. 78.

是对共享资源而言，应当进行环境影响评价”。在该案中，国际法院确认，“如果工程对河流制度或其水资源的水质造成影响，计划实施该工程的国家没有对其可能造成的潜在影响进行环境影响评价，那么，它就没有履行审慎义务及其所暗含的警惕和预防责任”。最后，国际法院强调，此种审慎、警惕和预防的义务“在必要的情况下，自项目运行之始贯穿于项目的整个生命周期”。⁵²

仲裁庭也回顾了莱茵铁路公司案。该案的仲裁机构裁定，作为一项一般国际法原则，各国在进行大规模建设活动时负有“防止或至少减轻”对环境的重大损害之义务。该原则“不仅适用于一国自主进行的活动，也适用于为履行某具体条约而进行的活动”。⁵³ 这也就是说，该原则亦适用于本案中当事方履行《条约》的行为。

仲裁庭指出，即使是解释相关法律发展之前所缔结的条约，也必须考虑国际环境法原则。莱茵铁路公司案将习惯国际环境法的相关概念应用于19世纪中期缔结的条约，当时环境保护原则很少为国际条约所考虑，也尚未构成习惯国际法的一部分。同样，国际法院在多瑙河案中提出，在条约的适用问题中，如必要，“必须考虑这些新的规范，恰当地衡量其重要性”。⁵⁴ 因此，在本案中，仲裁庭认为其有责任适用现行习惯国际法下关于环境保护的原则来解释1960年缔结的《条约》。⁵⁵

在此背景下，仲裁庭注意到，印度在本案的听证会上承诺，在任何时候都确保KHEP下游的最低环境流量，巴基斯坦也对此作出了回应。⁵⁶ 也就是说，当事双方均承认水电工程的规划、建造和运行须考虑环境的可持续性。双方也同意，出于环境保护的需要，必须维持KHEP下游的最低流量。但是，双方对于构成最低限度的适当水量持有不同意见，因此，仲裁庭需要确定准确的最低流量值，但在部分裁决阶段双方提供的数据和信息不足，仲裁庭将该问题推迟到最终裁决。

⁵² *Pulp Mills on the River Uruguay* (Argentina v. Uruguay), Judgment, I.C.J. Reports 2010, p. 83, para. 204.

⁵³ *Arbitration Regarding the Iron Rhine ('Ijzeren Rijn') Railway between the Kingdom of Belgium and the Kingdom of the Netherlands*, Award, 24 May 2005, *PCA Award Series* (2007), para. 59.

⁵⁴ *Case concerning the Gabčíkovo-Nagymaros Project (Hungary/Slovakia)*, Judgment, I.C.J. Reports 1997, p. 7, p. 78.

⁵⁵ Partial Award, p. 217, para. 452.

⁵⁶ Partial Award, pp. 217-218, paras. 453-454.

四、争议二：降低蓄水池水位的合法性

巴基斯坦请求仲裁庭解决的第二项争议是：

“依据《条约》，除了不可预见的紧急情况外，印度能否将径流式水电站的蓄水池中的水耗尽或使水量降至死水位 (Dead Storage Level) 以下？”⁵⁷

巴基斯坦的担忧源于KHEP的设计修改为径流式水电站后，包含了一个流量为2000立方米/秒的溢洪道，以及位于2370米高处的三个门控开口，也就是说，门的底部在河床上方10米，在KHEP的死水位下方14.5米。印度表示，该溢洪道将发挥泄洪和除沙的双重作用，并特别表示其有意利用泄洪道进行抽水冲刷。抽水冲刷 (drawdown flushing) 是一种去除水电站蓄水池中泥沙的技术，通过大坝的低水位出水口将蓄水池中的水抽到接近河床的水位。在抽水冲刷的过程中，水流通过蓄水池的速度接近河流的自然流速，水流输沙能力的增强会将河床上堆积的泥沙抬升，通过大坝的出口将泥沙从蓄水池中排出。在KHEP的设计中，抽水冲刷将使水量降低至溢洪道闸门，水位因此也就低于死水位。

在此背景下，双方无法达成一致意见的是，印度是否可以根据《条约》在非不可预见的紧急情况下，特别是以抽水冲刷为目的，将诸如KHEP这样的径流式水电站的蓄水池水量降至死水位以下。巴基斯坦认为《条约》的具体条款禁止抽水冲刷，印度则辩称抽水冲刷符合《条约》中的“最先进技术”概念 (state-of-the-art concept)，这一点在关于巴格里哈尔水电工程 (Baglihar Hydro-electric project) 的专家决定中得到了确认。此外，印度对争议二的可受理性提出了两项异议。

（一）争议二的范围

在争议二中，当事双方对于印度依据《条约》是否可以通过抽水冲刷定期降低西部河流上径流式水电站的蓄水池水位以控制泥沙存在分歧。虽然理论上可以将该争议的措辞理解为蓄水池能否被耗竭，但仲裁庭经过分析后认为核心问题是，《条约》是否禁止印度对KHEP以及未来将在西部河流上运行的其他径流式水电站的蓄水池进行抽水冲刷。

争议二触及双方根本关切的问题。对于巴基斯坦来说，确保其不间断地使用

⁵⁷ Pakistan' s Request for Arbitration, para. 4; Pakistan' s Memorial, para. 1.12.

西部河流下游的水流是《条约》的重要目标之一，由于抽水冲刷必然影响大坝下方水流的速度和时间（蓄水池放水时，流量增加；随后蓄水池重新蓄水时，流量减少），禁止抽水冲刷对于实现上述目标至关重要。此外，巴基斯坦还担心泥沙释放到下游会对河流环境产生影响。巴方主张，限制印度耗竭蓄水池和重新蓄水的能力是《条约》第III条“使西部河流的河水流动”和“不对水流造成任何干扰”义务的具体表现。相反，印方主张，抽水冲刷对于其有效行使《条约》所赋予的在西部河流上开发水电的权利至关重要。对于KHEP来说抽水冲刷是最有效的泥沙管理技术，对于此项争议的裁定结果将决定印度是否有能力实现KHEP和其他水电项目的最大寿命和价值。

仲裁庭指出，争议二涉及的广泛范围加剧了双方的这些关切。虽然双方的分歧起源于印度打算对KHEP的蓄水池进行抽水冲刷，但该争议不限于KHEP的运作，它也关系到印度将来在西部河流上可能修建的其他径流式水电站上采用抽水冲刷的权利。仲裁庭认为自己的职责是依据法律裁定《条约》是否允许抽水冲刷，但它强调本案裁决对双方关于巴格里哈尔水电工程的权利和义务不产生影响。巴格里哈尔水电工程相关事项已由中立专家做出决定，在此不应重复审查。同时，仲裁庭指出，中立专家的决定仅具有个案效力，不具有普遍指导性，因而不适用于本案。⁵⁸

（二）争议二的可受理性

仲裁庭首先回顾了《条约》下的争端解决机制，并分析了印方针对争议二的可受理性提出的反驳。

《条约》第IX条规定了解决可能产生的分歧和争端的方式：

“（1）当事各方之间就本条约的解释或适用所产生的任何问题，或任何可能构成违反本《条约》的事实，该事实如果成立的话，应首先由委员会进行审查，委员会将努力以协议方式解决该问题。

（2）如果委员会未能就第（1）段所述问题达成协议，则将视为产生了分歧，应按下列方式处理：

（a）如果任一委员认为该分歧属于附件F第1部分规定的分歧，则应任一委员的请求，由中立专家依照附件F第2部分的规定处理；

（b）如果该分歧不属于第（2）（a）段所述情况，或者如果一个中

⁵⁸ Partial Award, pp. 222-223, paras. 468-470.

立专家依照附件F第7段的规定通知委员会，他认为该分歧或其中的一部分应被视为争端，则将视为产生了争端，应依照本条第(3)、(4)和(5)段来解决。

前提是，委员会可以自由裁量，分歧可由中立专家依照附件F第2部分处理，也可视为争端依照本条第(3)、(4)和(5)段来解决，或以委员会同意的任何其他方式解决。”⁵⁹

第IX条第(3)、(4)、(5)段规定了印巴两国政府通过协议解决争端，以及在这种努力失败的情况下组建仲裁庭的程序。

第IX条将当事方之间可能产生的有关《条约》解释或适用的事项，或可能构成违反《条约》的事实，归为三类，即“问题”(question)、“分歧”(difference)、“争端”(dispute)。所有事项都应首先作为“问题”由委员会审查，并努力以协议的方式解决。如果委员会未能就该“问题”达成协议，《条约》规定的某些问题将作为“分歧”来处理，其余则成为“争端”。虽然缔约方可自由选择任何争端解决方式，但涉及的程序可能截然不同。“分歧”可以通过附件F程序以指定中立专家的方式快速解决，而“争端”必须通过政府间协议解决，或在未达成协议的情况下由仲裁庭裁决。

仲裁庭指出，第IX条的目的是为双方解决由《条约》产生的争议提供一个综合性的框架，在这个框架下争议要么通过委员会或政府间谈判，要么选择两种第三方争端解决方式之一来解决。《条约》序言中强调了提供这一框架的重要性：“为以合作精神解决今后在解释或适用本《条约》所商定之条款可能出现的问题作出规定。”⁶⁰

根据第IX条的规定，若双方争议所涉事项属《条约》附件F所列出的技术性分歧，则可提交一名中立专家解决，该中立专家须为高级工程师(a highly qualified engineer)。一般来说，这类技术问题或有关于《条约》在特定事实上的适用，或有关于特定项目是否符合《条约》规范。若该事项成为第IX条所界定的“争端”，除非在政府间得到协议解决，否则可以将其提交仲裁庭。中立专家和仲裁庭一经任命或组成，均有权依据其自身权限对相关争议作出决定，前者依据附件F的第7段，后者依据附件G第16段。

⁵⁹ Article IX, the Indus Waters Treaty.

⁶⁰ Partial Award, p. 224, para. 473.

印度对争议二的可受理性提出了两项反对意见。第一，除非委员们一致同意采取另一种办法，《条约》要求中立专家对双方之间产生的问题是属提交中立专家处理的技术性“分歧”还是属提交仲裁庭处理的“争端”作出一个初步判断，但巴基斯坦在本案中并没有要求任命这样一位中立专家。第二，本争议的主题事项客观来说属于附件F所列清单下须交付中立专家解决的分歧，而且，巴基斯坦本身也表达了将该议题提交中立专家的意愿。仲裁庭根据《条约》第IX条依次审查了印度提出的两项异议。

1、巴基斯坦是否遵循了《条约》第 IX 条的程序

(1) 印度的主张

印度的第一个反对意见涉及将争端提交至仲裁庭的程序，它指称巴基斯坦没有遵循《条约》所要求的程序步骤，就假定争端已经出现。印度主张，鉴于委员会内部没有就争议二达成协议，巴基斯坦本应要求任命一名中立专家，请求该专家决定争议二构成分歧还是争端。只有中立专家确定争议二不属于《条约》附件F第1部分规定的技术性分歧，才能将其提交仲裁庭。

印度认为，一方提出的有关《条约》的任何事项都应首先作为“问题”由委员会审查。委员会应本着合作的精神努力地解决任何一方提出的“问题”，委员会成员须为高级工程师，且需认真执行《条约》规定的阶段性机制。然而，如果委员会的努力失败，委员只能单方面采取一种办法：将产生的分歧提交至中立专家。第IX(2)(a)条明确授权如果委员认为一项分歧是技术性的且属于附件F第1部分范围内，可要求将该分歧提交中立专家。但是，如果委员们在这个问题上持有不同意见，则必须参考附件F本身及其第7段，该段规定了在委员会对分歧是否属技术性问题产生不同意见时，中立专家有权决定适用关于“分歧”的程序，即中立专家有权确定分歧是否在自己职能范围内，如果不在则适用其他方式解决该分歧。

印度主张，不同于第IX(2)(a)条，第IX(2)(b)条没有规定委员判断“争端”产生的依据，仅规定在第IX(2)(a)条不适用的情况下适用第IX(2)(b)条，即两名委员都认为该分歧不属于中立专家解决的技术性问题，或指定的中立专家衡量后认为该分歧超出其职能范围的情况。因此，在双方就如何推进程序不能达成一致的时候，任一方都不能直接发起仲裁程序，而应让中立专家判断“分歧”是否已

成为可提交仲裁的“争端”。在印度看来，鉴于《条约》赋予工程师在解释重要条款方面的关键作用，以及双方具有就委员会日常工作中产生的工程问题迅速向中立专家寻求意见的需要，委员会和中立专家在争端解决机制下的优先地位是合乎情理的。

然而，印度认为，在本案中上述程序没有得到遵守。委员们既未一致认定此分歧不属于中立专家解决的技术问题，双方也未要求中立专家判断此分歧的恰当处理方式。印方委员认为该分歧属于第IX(2)(a)条适用的情形，而巴方委员持反对意见。因为双方委员不能达成一致，印度认为巴方有责任将本争议提交中立专家决定如何处理。而巴方委员没有作出该项请求，而是在2009年3月11日的信函中单方面将本争议界定为“争端”，这样的行为否定了委员会和中立专家的作用并导致过早地将争议二提交仲裁庭审议。

(2) 巴基斯坦的主张

巴基斯坦认为，将争议二提交仲裁庭审理的程序是恰当的。第一，仲裁庭对这两个争端的管辖权不存在争议。第二，巴基斯坦为通过谈判解决争议二作出了广泛努力，履行了《条约》第IX条的程序要求。

巴基斯坦认为，第IX(2)(a)条允许任何一方请求任命中立专家。任命请求提出后，则由中立专家来判断该问题是否在他的职能范围内。但任命中立专家的请求必须实际提出，在没有实际提出这种请求的情况下，仲裁庭有能力评估和裁决争议二。换句话说，如果委员在仲裁庭成立之前没有发起第IX(2)(a)条下的中立专家程序，那么中立专家程序的优先性就不会被触发，仲裁庭可以依据第IX(5)条行使管辖权。

巴基斯坦指出，在其提交仲裁请求之前，印度从未提出争议二应由中立专家解决或构成一项“分歧”。印度甚至否认存在第IX(1)条下的“问题”。在委员会记录中，印方也一再将与争议二有关的事项定性为“issues”，而不是“questions”，并反对使用《条约》第IX条下的术语。印度不仅拒绝适用第IX条，而且从未请求任命中立专家。因为双方都没有提出任命要求，而且印方委员明确表示不存在任何分歧，第IX(2)(a)条不适用于本案。因此，巴基斯坦认为它恰当地发起了仲裁程序。在仲裁程序启动之前印度没有请求任命中立专家，它也就失去了坚持让中立专家首先决定如何处理争议二的权利，即中立专家程序失去

了处理争议的优先性，现在应由仲裁庭来界定争议二是否属于《条约》意义范围内的“争端”。《条约》附件G第16段规定仲裁庭应决定与其权限有关的所有问题，一旦争端提交至仲裁庭，仲裁庭有权对所有有关权限和程序的问题作出最终决定。

（3）仲裁庭的裁决

当事双方对应遵循的程序的分歧源于对第IX(2)(a)条的解释，该条规定了在什么情况下授权中立专家解决双方之间的分歧。与此相反，第IX条对于设立仲裁庭的条件主要是否定表达的。也即是说，除非中立专家决定某一事项应提交仲裁庭，否则只有在双方未依据第IX(2)(a)条将该事项提交中立专家的情况下，分歧才被视为“争端”。为了确定争议是否得到恰当处理，仲裁庭必须首先判断印方委员或巴方委员是否有责任将该问题提交中立专家处理。

根据第IX(2)(a)条，两国各自的委员行使两种不同的职能：（1）就一项分歧是否属于可提交中立专家处理的事项发表意见；（2）要求将一项分歧提交中立专家处理。从前一职能来看，委员对分歧的处理意见可以被解读为一项程序性要求，即，如果任一委员认为该分歧属于附件F所列事项，则必须将该分歧提交中立专家处理。或者，从后一职能来看，委员的任命请求只是一种触发机制：客观来看属于附件F所列事项的分歧应在任一委员的请求下提交中立专家处理。⁶¹

根据仲裁庭的解释，第IX(2)(a)条表明当事双方意图使委员会发挥双重作用，既作为中立专家程序的发起者，又在某些情况下作为诉诸中立专家机制的一部分。因此，当某一委员认为一项分歧与所列举的技术性事项之一有关，并希望由中立专家解决时，可按第IX(2)(a)条的要求将该分歧提交中立专家处理。然而，这一要求只有在任命中立专家的请求实际提出后才有效，如果委员仅仅表达出一项分歧由中立专家来处理比较恰当的意见是不够的。仲裁庭认为，“任一委员认为”这一短语是为了保证任何一方都有能力将附件F所列的关键技术性问题授权中立专家解决。同时，实际提出任命请求这一要求对于避免可能出现的程序僵局也是必要的。⁶²

仲裁庭认为，印方委员和巴方委员都没有就争议二所涉事项提出任命中立专家的请求，这就足以反驳印度针对可受理性的第一个异议。并且，在仲裁程序开

⁶¹ Partial Award, p. 225, para. 477.

⁶² Partial Award, p. 226, paras. 478-479.

始前印方委员从未表达过争议二属于中立专家职能范围内的意见。相反，第100届、第101届和第103届委员会会议记录显示印方多次不同程度地表达过如下立场：巴方提出的议题可作为委员会进一步讨论的主题；KHEP的设计符合《条约》规范，因此不存在分歧；水位降至死水位以下是一个普遍问题，不具有与KHEP的明确相关性，不应认为存在分歧。然而，对于《条约》是否允许将水量消耗至死水位之下是否属于中立专家职能范围内的问题，印方委员始终未发表看法。⁶³

仲裁庭重申，《条约》序言表明第IX条旨在以合作的精神通过多种途径解决分歧和争端。为实现这一目标，第IX(2)(a)条确保在当事一方提出请求的情况下任命中立专家，但并非旨在为案件进入仲裁程序设置程序性障碍。此外，即使印度现在提出任命请求，因其在委员会会议上坚持认为双方不存在分歧，仲裁庭也不能接受它现在转变立场。因此，仲裁庭驳回了印度针对可受理性的第一个异议。

64

2、争议二的主题是否可由仲裁庭审理

印度提出的第二个异议是，争议二关涉《条约》规定应由中立专家解决的高度技术性问题。

印方认为，即便巴基斯坦遵循了上述程序，争议二的主题仍应由中立专家解决，因为该争议涉及根据附件D第8(d)段对KHEP和死水位之下控制泥沙的出水口位置的设计。《条约》规定水电站设计是否符合规范的问题应由中立专家判断，而且巴基斯坦曾承诺将低水位出水口的问题诉诸中立专家，后又将本争议提交仲裁。

巴方认为，争议二并非技术性的争论，也不在中立专家处理的技术性问题清单中，而是有关《条约》具体条款解释的重要法律争论，尤其是附件D第2段和第14段的含义以及巴格里哈尔专家决定的权重。此外，巴方从未表示将争议二提交中立专家的意向。其意欲提交中立专家的问题是溢洪道的合法性，而非争议二所讨论的“抽水冲刷的合法性”。

仲裁庭在处理印方的第二项反对意见时，首先审查了其基本前提，即，附件F第1部分所列的技术问题必须交付中立专家解决。仲裁庭认为，《条约》中没有规定，附件F第1部分所列的技术问题必须由中立专家解决而不能由仲裁庭裁决，

⁶³ Partial Award, pp. 226-227, para. 480.

⁶⁴ Partial Award, p. 227, paras. 481-482.

除非当事方提出要求且中立专家认为有能力解决。除了上文讨论的第IX(2)(a)条的情形外,《条约》中均以许可而非强制的措辞来表达诉诸中立专家这一做法。附件F第1段载列了中立专家能够胜任解决的问题,其中指出“委员可以……向中立专家提交下列问题”,但《条约》没有规定必须由中立专家解决这些问题。与此同时,附件F第2段明确限制了中立专家处理与经济赔偿请求有关的技术问题的权限;第13段规定,中立专家的决定可能引起的任何不在其职能范围内的事项,应当依照《条约》第IX条解决。因此,《条约》显然考虑到了技术问题可通过中立专家以外的解决机制获得解决的情况。⁶⁵

仲裁庭认为,《条约》中没有任何条款禁止仲裁庭审议技术问题,除非当事一方已经实际提出任命中立专家的请求。第IX(2)(b)条规定了“分歧”升级为“争端”的条件,其中并未提及附件F第1部分。假如当事方有此意图,《条约》下组建仲裁庭的条件可以规定为一项纯粹的客观检验标准,即所涉争端超出所列技术性问题的范围,然而《条约》没有做此规定。此外,附件F第7段指示中立专家对照技术问题清单评价其职能范围,但附件G没有类似的规定。仲裁庭不需要对其权限进行分析,也不可能通知委员会涉及技术事项的争端实际上应提交中立专家解决。仲裁庭的组成本身也表明它在解决技术问题上的能力。一般来说,委员会或仲裁庭成员所需的技能或资格表明了当事方期望该机构发挥的作用。《条约》规定,仲裁庭的裁判员之一须为高级工程师,事实上,当事方也完全可以任命工程师为其指定的仲裁员或仲裁庭主席。⁶⁶

由此,仲裁庭得出结论,中立专家只能解决附件F所确定的技术性问题,而一个按规定设立的仲裁庭可以审议关于《条约》的解释或适用所产生的任何问题,或任何可能构成违反《条约》的事实。因此,任何提交仲裁庭的争端都不能仅仅因为涉及技术问题而被裁定不予受理。

最后,仲裁庭考察的问题是,印度所主张的巴基斯坦已承诺将争议二提交中立专家解决是否影响该争议的可受理性。仲裁庭认为,巴基斯坦提交中立专家解决的问题与本案争议二实质上是不同的,前者所关注的是,为控制泥沙而设计的溢洪道出口是否有必要,是否为最小尺寸,是否位于最高水平,是否符合合理和经济的设计,以及是否能使工程令人满意地运作——这正是应由中立专家处理的

⁶⁵ Partial Award, p. 228, para. 484.

⁶⁶ Partial Award, pp. 228-229, paras. 485-486.

技术问题。而后者则涉及通常意义上低水位排水口的许可作业方式，特别是《条约》是否允许印度采用抽水冲刷的方式来控制泥沙——这是一个超出中立专家职能范围的法律问题。即便争议二一开始被当作分歧提交给中立专家，中立专家也有责任将该问题提交回委员会按争端处理。基于上述原因，印度针对可受理性提出的两项异议均不成立。⁶⁷

（三）抽水冲刷的合法性

1、双方的主张

巴基斯坦担心允许抽水冲刷将使印度能够在西部河流上设计更大和更低的出水口，从而增强了印度对西部河流流量的实际控制能力。因此，巴方主张《条约》的具体条款限制印度耗竭径流式水电站的蓄水池，因而禁止抽水冲刷。印度反对巴方对相关条款的解释，并辩称，《条约》下的“最先进技术”概念允许根据技术进步来解释条约，抽水冲刷体现了技术发展的最新水平。此外，双方还对仲裁庭应给予巴格里哈尔专家决定的权重意见不一。针对抽水冲刷在《条约》下的合法性，双方分别提出了以下主张。

第一，巴方认为，印度能否耗竭位于西部河流上的蓄水池涉及到“印度对西部河流流量的允许干预范围”这一基本问题。鉴于印度在西部河流上游有大量的水电项目，如果允许它不受限制地使用低水位出水口，将使其能够对水流流入巴基斯坦的时间产生重大影响。《条约》为解决这一关切，仅允许印度在附件D限定的范围内利用西部河流进行水力发电。争议二是具有普遍性的，它所涉及的不仅是KHEP，还涉及在西部河流上的任何水电站的设计和运行。此外，巴基斯坦引用缔约过程中的证据指出，对印度改变西部河流流量的能力作出限制，是双方谈判内容的一部分。最后，印度在1995年委员会会议上的发言表示，《条约》规定的不能使水位降至死水位以下是其有效排沙的主要障碍，这表明印度承认《条约》限制其耗竭蓄水池和抽水冲刷。

印方认为，巴方担心印度利用抽水冲刷控制西部河流流量是没有根据的，而且巴基斯坦高度关注这种可能性，却忽视了《条约》对于印度在西部河流上有效利用水力发电的关切。即便KHEP使用抽水冲刷，巴基斯坦在《条约》下的权利也能够得到充分保护，因为冲刷和蓄水都会在《条约》规定的洪水期进行，即每年的6月21日至8月20日之间。而且在其他时间特别是水流较少的季节进行抽水冲刷

⁶⁷ Partial Award, pp. 229-231, paras. 488-491.

也是完全不现实的，因为这项操作需要完全停止发电，对于KHEP来说每天将损失约3千万卢布（约56万美元），高流量季节需要数天完成抽水冲刷，而在低流量季节则需要数周。同时，印方认为巴方忽略了《条约》中所载的“最先进技术”概念使其能够适应不断发展的技术，在《条约》没有明确禁止的情况下，印度有权使用最先进的维护程序和措施以确保KHEP的长期可持续性。在1960年，抽水冲刷尚未成为一种已知或被广泛采纳的泥沙管理方法，但现在已成为最先进的技术。鉴于上世纪60年代对抽水冲刷的了解有限，条约起草者不可能有意禁止抽水，且1960年人们对于泥沙沉积的风险也没有今天认识得这么全面。最后，印方回应了之前承认《条约》禁止抽水冲刷的立场，在巴格里哈尔案之前的很长一段时间内，印巴双方的工程师都认为抽水冲刷是不被允许的，但巴格里哈尔案的问题导致印度重新审视了《条约》内容并修正了其观点。

第二，巴方认为，附件D中对死库容（Dead Storage）的定义应结合印度负有的使西部河流的水流动的义务来理解。《条约》附件D第2(a)段对“死库容”的定义如下：

“死库容是指蓄水中不用于作业目的的部分，死水位是指与死库容相对应的水位线。”⁶⁸

《条约》对库容作出限制是双方为“限制印度对流量的干扰范围”所采取的一种手段。巴方主张，该定义禁止将死库容用于作业目的，也就禁止印度进行抽水冲刷。印度不能通过将抽水冲刷定义为水电站的“维护”而不是“作业”来规避这项限制，因为印度对“作业目的”的狭义解释不仅没有文本基础，而且与《条约》的其他规定也无法调和。

印方认为，该定义不含有禁止的意思，因为它没有使用表示义务的词语，例如“应当”（shall）。其次，虽然《条约》没有定义“作业目的”（operational purposes），但抽水冲刷不属于作业目的，而是一种“维护工作”（maintenance operation）。“作业目的”仅限于发电，不包括对水电站的维护，

第三，附件D第14段通过援引附件E中的规定，对径流式水电站施加了一项限制，即“除非发生不可预见的紧急情况外，不得耗尽死库容”。

附件D第14段规定：

⁶⁸ Para. 2(a) of Annexure D, the Indus Waters Treaty.

“死库容的蓄水应符合附件E第18段和第19段的规定。”⁶⁹

附件E第18段规定：

“无论在任何地点，进行蓄水库容的年度蓄水和死水位之下的初次蓄水时，应以双方委员一致同意的时间和方式进行。如双方委员无法达成一致意见，印度可以按以下方式进行：

.....

（b）如果蓄水池位于吉勒姆河上，在6月21日至8月20日之间蓄水；.....”⁷⁰

附件E第19段规定：

“除非发生不可预见的紧急情况，死库容不得被耗尽。如被耗尽，则应按照初次蓄水的方式进行重新蓄水。”⁷¹

巴方认为，清理泥沙显然不属于“不可预见的紧急情况”，因为印度能够预见到这种需要，附件D的第8(d)段也提到了泥沙控制。因此，第14段本身禁止耗竭死库容来进行抽水冲刷。其次，从第14段的通常含义来看，它援引的是附件E第18段和第19段的全文，包括禁止耗竭死库容的部分。再次，第14段的禁止义务与《条约》在限制库容以及印度控制西部河流流量的能力方面作出的努力也是一脉相承的。最后，巴方认为KHEP并非附件D所描绘的典型的径流式水电站，它实质上是水库式水电站，因此更应适用附件E第19条。

印方认为，第14段仅限制径流式水电站蓄水而不禁止耗竭蓄水池。其次，第14段出于限制蓄水的目的，援引附件E相关条文时仅涉及其中与蓄水有关的部分，而不包括禁止耗竭死库容的部分。再次，正因为径流式水电站和水库式水电站的性质不同，《条约》才对二者作出区别规定，径流式水电站所需的蓄水量比水库式水电站少得多，所需蓄水时间较短，对下游流量的影响能力也较小，因此《条约》允许径流式水电站在耗竭蓄水池方面具有更大的灵活性。最后，印方主张，KHEP完全符合《条约》对径流式水电站的定义，而且巴方在2006年之后对KHEP提出的反对意见也建立在承认KHEP为径流式水电站的前提上。

第四，附件D第8(d)段规定“除非是出于控制泥沙或其他技术目的的需要，

⁶⁹ Para. 14 of Annexure D, the Indus Waters Treaty.

⁷⁰ Para. 18 of Annexure E, the Indus Waters Treaty.

⁷¹ Para. 19 of Annexure E, the Indus Waters Treaty.

不得在蓄水池的死水位以下修建出水口”。巴方指出，该条并非允许耗竭死库容，而只是允许在死水位以下修建出水口，这二者之间存在重要区别，因为这样的出水口可以用来控制沉积物，而不需要将水位抽降至死水位以下。并且，虽然该条提到了“合理和经济的设计”（sound and economical design），但也必须满足“最小尺寸并位于最高水位”（minimum size, located at the highest level）的要求。印方认为，该段没有提及禁止抽水冲刷或要求不可预见的紧急情况，相反，由于控制泥沙需要耗竭蓄水池，而第8(d)段明确允许控制泥沙，所以间接允许了抽水冲刷。此外，通过抽水冲刷控制泥沙不构成对西部河流的控制。

第五，巴方主张，虽然附件D第15段没有明确提及死库容排水的问题，但为了冲洗泥沙而迅速耗竭蓄水池必然违反第15段对每日流量的严格限制，因此实际上流量限制即便没有完全禁止，也是“极度限制”了抽水冲刷。不论在哪个季节进行抽水冲刷都有可能违反流量限制，《条约》也没有对流量限制作出季节性的区分。印方则主张，第15段不限制抽水冲刷，抽水冲刷会在高流量季节受到一定限制，但不会造成流量减少的问题。

第六，巴方不反对水电项目有效泥沙管理的必要性，但它引用巴方专家莫里斯博士（Dr Morris）的意见认为，KHEP和其他径流式水电站都可以在不进行抽水冲刷的情况下完成有效泥沙管理。此外，印方所强调的抽水冲刷的重要性是对于水库式水电站，而不是径流式水电站而言的。印方也低估了抽水冲刷对环境的影响，即便《条约》允许抽水冲刷，也需要对其负面环境影响进行评估。

印方主张，《条约》中并未明确禁止抽水冲刷，因此问题的关键在于抽水冲刷是否代表了最先进的技术以及对KHEP来说是否有必要。印度认为，泥沙管理对于任何水电站来说都是有必要的。由于气候、构造和地质因素的影响，基申甘加/尼勒姆河上的KHEP泥沙沉积问题尤其严重，而抽水冲刷是一种在国际上得到承认的有效泥沙管理方法。根据科学计算结果，对KHEP的蓄水池进行定期冲洗，对于尽量减少其泥沙淤积和储存能力的丧失并保持进水口附近良好的泥沙环境是十分必要的。印方认为，对KHEP来说抽水冲刷是控制泥沙最有效的方式。

第七，2007年2月12日，依据《条约》附件F任命的中立专家雷蒙德·拉菲特教授（Professor Raymond Lafitte）作出关于巴格里哈尔案的专家决定，解决了双方关于位于奇纳布河（Chenab River）上的巴格里哈尔水电工程的一系列分

歧。他判定巴格里哈尔工程的低水位闸门溢洪道设计符合附件D第8(d)段的规范，并认为，“作业目的”指的是发电，为了使水电项目运作良好，出于维护目的可将水位降至死水位以下。

巴方表示，虽然它认为巴格里哈尔案中专家的推理没有说服力，但并不打算对巴格里哈尔案提出上诉。巴方认为，巴格里哈尔专家决定对本案仲裁庭没有约束力，充其量只是具有说服力。巴格里哈尔所涉及的问题与目前仲裁庭审理的问题不同，因为它涉及不同河流上的另一个水电项目。此外，巴方认为该专家做出的决定超出了其职能范围，不能视为“最终的、有约束力”(final and binding)的决定，也没有任何分量。

而印方认为，争议二构成了对巴格里哈尔案决定的上诉，因此仲裁庭应不予受理。印度并不将巴格里哈尔作为一个“有约束力”的判例，而是作为一个处理类似事实和法律的相关判例适用。诉诸判例是一种可取的和普遍接受的做法，印度将巴格里哈尔案称为“权威判例”。

2、仲裁庭的裁决

为了解决争议二，仲裁庭需要确定该条约是否允许印度在运行西部河流上的径流式水电站时为控制泥沙而进行抽水冲刷。巴方主张，《条约》下规制水库式水电站的附件 E 明确禁止耗竭水电站的蓄水池，即意味着无法使用抽水冲刷。而在附件 D 下，在死库容 (Dead Storage) 的定义、对低水位出水口的限制以及对大坝下方释放水流的相关限制的共同作用下，抽水冲刷也是被禁止的。印方辩称，巴方提及的这些条款不禁止抽水冲刷，而且缔约方特意在起草《条约》时载入灵活的“最先进技术”原则以便能够利用最先进的技术，其中包括控制泥沙的技术。

仲裁庭考虑了水电装置中控制泥沙的流程，回顾了《条约》背景和印度在西部河流上开发水电的权利范围，并考察了双方援引的《条约》具体条款，以判断抽水冲刷的合法性和必要性。⁷²

首先，仲裁庭指出，双方对 KHEP 作为径流式水电站的性质不存在本质分歧，巴方对于 KHEP 的描述基本上是准确的，即：KHEP 建设了一座高坝，比许多径流式水电站的蓄水量大，而且采用的是水库式水电站常用的进水设计。但由于《条约》仅根据用于水力发电的蓄水量定义径流式水电站，因此大坝拦截的总水量对

⁷² Partial Award, pp. 231-232, para. 493.

于水电站的分类没有影响。仲裁庭强调，争议二不仅关涉 KHEP 的泥沙控制，也关系到印度未来在西部河流上建造的其他径流式水电站能否耗竭蓄水池。因此，仲裁庭将根据《条约》附件 D 审查这一问题。《条约》的附件 D 规定了在西部河流上设计、建造和运行径流式水电站应符合的要求。⁷³

（1）蓄水池泥沙淤积与泥沙控制

虽然争议二本质上是一个法律问题，但因其涉及到泥沙淤积的过程、泥沙管理、从蓄水池释放泥沙的不同方法的效果比较和释放泥沙的环境影响，解决该争议需要了解泥沙在蓄水池中是如何沉积的以及控制泥沙沉积的技术手段。因此仲裁庭在解释《条约》相关条款之前简要回顾了泥沙沉积的过程并介绍了控制泥沙的几种手段。

大致说来，控制泥沙在蓄水池中淤积可以通过以下几种方法：（1）减少进入蓄水池的泥沙数量；（2）使泥沙通过蓄水池，避免其从悬浮体中沉降；（3）允许泥沙在蓄水池中沉降并定期清理淤泥，抽水冲刷即属此种方法。每种方法各有利弊，效果也因流域情况和蓄水池具体位置而异。通常，几种方法相结合取得的效果最佳。⁷⁴

（2）与抽水冲刷有关的《条约》上下文

能否耗竭死水位以下的蓄水由附录D明确规定，其中援引并参照了附录E的有关条款。这些规定应在整个条约的语境內加以解释，特别是应以允许使用和分配在西部河流上的用水权为背景。仲裁庭首先从双方援引的有关耗竭水量的条款上下文着手分析《条约》。

第一，《条约》的主要目标之一是限制印度在西部河流上的蓄水活动（并相应地，完全禁止巴基斯坦在东部河流上游蓄水）。该条约的附件E严格限制了印度可以在每条西部河流上开发的一般库容（General Storage）、电力库容（Power Storage）和泄洪库容（Flood Storage）的容量。对于新建的径流式水电站，附件D同样限制其蓄水池的允许容积，并将这一容积与现场计算得出的最小平均流量时的发电量挂钩。这些限制都非常严格，例如，印度在吉勒姆河干流上可蓄水的容积为零，缔约过程中这些限制是双方争论的重点。但结果是《条约》在双方的立场之间达成了谨慎的平衡，既赋予印度在西部河流上开发水电的权利，也保

⁷³ Partial Award, p. 232, para. 494.

⁷⁴ Partial Award, pp. 234-235, paras. 499-502.

证上游的蓄水不对流入巴基斯坦的水流造成不当的干扰。而死库容 (Dead Storage) 是唯一不受附件D或E条款限制的库容。印度可在径流式水电站或水库式水电站中设计任意容量的库容，因为死库容与其他库容在性质上是不同的，死库容是“死”的，即，只需一次蓄水，此后不再发生变化。⁷⁵

第二，仲裁庭注意到，在许多情况下，《条约》不仅限制当事方采取某些行动，而且还限制可能涉及这些行动的工程建设。因此，《条约》不仅限制印度在西部河流上的蓄水，也不允许印度建设超过《条约》规定的发电能力的水库式水电站。附件D则列明了容许运行的径流式水电站标准，并在第8段对该类水电站的设计作出了限制。特别是，第8(d)段禁止在蓄水池的死水位以下修建出水口，“除非是出于控制泥沙或其他技术目的的需要”。任何可能需要的出水口必须是最小尺寸并位于最高水位，既满足合理和经济的设计要求又能使工程令人满意地运行。⁷⁶

当事双方对第8(d)段的含义提出了截然不同的意见。巴基斯坦认为该条可推定为禁止抽水冲刷，而印度则认为该条明确授权为有效泥沙管理而进行必要的大坝设计。仲裁庭认为二者的理解都不准确。第8(d)段没有以直接或迂回的方式，通过禁止必要的出水口来禁止抽水冲刷，它允许出水口在“出于控制泥沙的必要”时低于死水位。同时，第8(d)段也不能证明双方允许抽水冲刷，出水口低于死水位也可以在不显著降低蓄水池水位的同时通过泄洪控制泥沙淤积。因此，仲裁庭认为，第8(d)段既没有允许也没有禁止抽水冲刷。这一条款须结合其上下文来理解。对低于死水位的出水口的设计限制只有在一个背景假设下才有意义，即，死库容的用途也受到某种程度的限制。如果双方允许耗竭死库容，无论是出于抽水冲刷或其他用途，限制死水位以下出水口的大小和位置就目的不明。考虑到用于抽水冲刷的出水口的首选位置是在河床上，换句话说，是在蓄水池的最低水位，而不是最高水位，这一点更加得到印证。因此，《条约》对出水口的限制有力地表明，对死库容的使用和耗竭也存在一定限制。⁷⁷

第三，仲裁庭认为，《条约》的意图是允许印度通过径流式水电站在西部河流上开发水电。这是需要考量的一个重要方面，因为双方不会浪费时间进行数年

⁷⁵ Partial Award, pp. 235-236, paras. 504-505.

⁷⁶ Partial Award, pp. 236-237, para. 506.

⁷⁷ Partial Award, p. 237, paras. 507-508.

的谈判最终却无法有效行使《条约》下的权利。任何《条约》规定的权利必须能够得到有效行使。如果禁止抽水冲刷将阻碍可持续的水电开发，那么仲裁庭在进行条约解释时就需要考虑到这一现实。鉴于存在多种可采的泥沙管理方法，并非所有方法都需要耗竭水量至死水位以下，仲裁庭认为需要进一步考查抽水冲刷的必要性。⁷⁸

(3)《条约》具体条款是否禁止消耗死水位以下的蓄水

就《条约》的具体条款而言，仲裁庭指出，两项条款直接影响到抽水冲刷的合法性，其一关于在水电站下方释放水流，其二关于蓄水的限制。仲裁庭依次讨论了这两项条款。

首先，仲裁庭回顾了附件D第15段规定的径流式水电站下方释放水流的条件：

“在符合第17段规定的前提下，水电站的运行工作应满足以下条件：（a）在任意一个连续7天的周期内，水电站上方河流接收的水量应在同一7天周期内输送到水电站下方的河流中；（b）在上述7天周期内的任意一个24小时周期内，相较于同一24小时周期内水电站上方河流接收的水量，输送到水电站下方河流的水量不得少于前者的30%且不得多于前者的130%……”

巴方主张，根据第15段对水量的限制，抽水冲刷即便没有被完全禁止，也是“极度受限”（severely curtailed）的。仲裁庭认为未必如此：根据特定蓄水池的流量和水文规模，抽水冲刷可能符合，也可能不符合这些限制。一般来说，对于水文规模较大的蓄水池以及低流量季节的大部分蓄水池来说，抽水冲刷将不符合第15段的规定。但水文规模较小的蓄水池仍有可能在7天内完成冲刷，同时又符合第15段对水电站下方每日输水量的限制，因此不能认为第15段禁止抽水冲刷。然而，按照印度的设计，在KHEP上进行的抽水冲刷很可能不符合第15段的流量限制。⁷⁹

其次，对于抽水冲刷最关键的限制条款是附件D第14段，其中援引了附件E第19段。仲裁庭注意到，在解读这些条款时不能将第19段中关于禁止耗竭的规定同18段关于蓄水的规定分开。通过援引第18段关于初次蓄水的时间安排和第19段，起草者意图使附件D对重新蓄水的情形作出规制。何时可以耗竭蓄水池显然

⁷⁸ Partial Award, p. 237, para. 509.

⁷⁹ Partial Award, p. 238, para. 512.

与重新蓄水的需要直接相关，这一点从第19段的措辞“如被耗尽”也可以得知，因此附件D在援引附件E第19段时指的是第19段全文，而不仅是第二句话。双方对于泥沙淤积不属于不可预见的紧急情况不存在争议。因此，附件D禁止以抽水冲刷为目的耗竭死库容。⁸⁰

此外，仲裁庭指出，这一条约解释结果与附件D中对“死库容”的定义也是一致的，即“库容中不用于作业目的的部分”。仲裁庭认为没有必要判断该定义本身是否禁止抽水冲刷，但有必要强调“作业”（operation）和“维护”（maintenance）存在区别，在像本《条约》这样详细和全面的法律文件中，仲裁庭认为，一方不可能通过主张《条约》并未提及的“维护目的”来规避《条约》明确作出的限制性规定。⁸¹

（4）抽水冲刷对于西部河流上水力发电的必要性

仲裁庭讨论的最后一个关键问题是，抽水冲刷对于在西部河流上进行可持续的水力发电来说是否必不可少。这需要评估禁止抽水冲刷对印度在西部河流上运作径流式水电站的能力造成的影响。

仲裁庭审阅了双方提交的技术性文件和依据的专家意见，认为《条约》施加的限制不应当造成KHEP或印度在西部河流上建造的其他水电项目无法运行或成为不经济的短期项目。虽然禁止耗竭蓄水池的条款使得印度无法在死水位之下进行抽水冲刷，但抽水冲刷只是泥沙控制的若干技术之一。就KHEP而言，仲裁庭同意巴方专家莫里斯博士的意见，泄洪排沙（sediment sluicing）是一种可行的替代方案。此方法是在泥沙颗粒沉淀到水库中之前，将满载泥沙的水流通过大坝释放出来。根据莫里斯博士的说法，阻碍KHEP进行泄洪排沙的是KHEP目前的设计，而不是大坝的高度或蓄水池的大小。印方没有反驳莫里斯博士的意见。虽然印方专家仁谷利珈博士（Dr Rangaraju）认为抽水冲刷是必要的（essential），仲裁庭认为他的证言仅能够证明抽水冲刷是恰当且也许是更优（appropriate and perhaps preferable）的技术，而并非唯一可行的。另一位印方专家施莱斯博士（Dr Schleiss）的报告中表明抽水冲刷以KHEP现行的设计来说是必要的，但并未排除其他设计方案的可行性，因此也未能证明不含抽水冲刷的设计在技术上行不通。仲裁庭认为，印度在西部河流上无须抽水冲刷就能够有效行使其水力发电的

⁸⁰ Partial Award, p. 239, para. 514.

⁸¹ Partial Award, pp. 239-240, para. 515.

权利，这一点不仅是对于KHEP而言，也适用于未来的其他径流式水电站。一般来说，泄洪排沙适宜水文规模较小且狭窄的蓄水池，因为河流上多余的来水可以带走泥沙，这种几乎不降低水位的排沙方法对于一年中大部分输沙量都来自短期且可预测时段的地区尤其有效。⁸²

仲裁庭特别强调，在进行评估时它考量的不是不使用抽水冲刷进行水力发电对于印度而言是否更加有利，因为仲裁庭在解决争端时没有采用“最佳实践”的义务。印度主张其有权对位于西部河流上游的水电设施进行最优设计和运作(the optimal design and operation)。然而，任何设计工作都需要考虑各种因素，并非所有的因素都是技术性的，水文、地质、社会、经济、环境以及监管方面的考虑都是直接相关的。仲裁庭认为，该《条约》对印度修建和运作水电站的相关限制就属于监管因素，而水电站的最佳设计和运作是可以在《条约》所规定的限制范围内实现的。⁸³

最后，仲裁庭指出，本裁决的内容不应对已经在西部河流上运行的或还未运行但已经在建设中的其他径流式电站产生追溯性的影响。因为对于这些水电站，印度已经向巴基斯坦披露了设计方案，而巴基斯坦没有提出反对。⁸⁴

五、最终裁决：最低流量的确定

（一）争议范围与可受理性

在最终裁决阶段，仲裁庭要求当事方提交进一步的数据，以便裁量基申甘加/吉勒姆河上应维持的最低流量。双方按仲裁庭的要求提交了数据，但都对另一方提交文件的范围和内容表示了反对。

巴方认为，印度利用仲裁庭要求双方提交数据和信息的机会提出了新的论点和专家证据，“试图推翻或修改在部分裁决中作出的最终且有拘束力的裁定”。因此，巴基斯坦要求仲裁庭从双方提交的材料中提取所需数据并无视无关的材料。

印方则认为，巴基斯坦提交的文件中包含“大量环境材料”，远远超出了仲裁庭要求提供数据的范围，而且充斥着对其立场的辩护。印度对巴基斯坦提交文件的范围和内容提出谴责，但没有向仲裁庭提出任何要求，相信仲裁庭会做出公

⁸² Partial Award, pp. 240-243, paras. 517-521.

⁸³ Partial Award, p. 243, para. 522.

⁸⁴ Partial Award, p. 243, para. 523.

正的处理。

仲裁庭认为，双方提交的文件都是合理和适当的，符合仲裁庭的要求。鉴于双方对尚待解决的问题有不同的看法，仲裁庭预料到它们希望强调和提请注意不同方面的事实，在部分裁决中故意未对进一步提交的数据范围作出限制。因此，仲裁庭肯定了双方意见的可受理性。⁸⁵

（二）最终裁决的任务

根据部分裁决的内容，最终裁决的目的是确定 KHEP 下游所须维持的最低流量的精确速率。仲裁庭首先回顾了部分裁决中已解决的事项，然后处理了双方关于基申甘加/尼勒姆河水水文数据的分歧，接下来根据已有证据评估了 KHEP 可能对巴基斯坦的农业和水电用水以及下游环境造成的影响，并依据这些影响裁定了最低流量。最后，仲裁庭处理了巴基斯坦要求建立监测制度的请求。

首先，仲裁庭在回顾部分裁决的内容时，强调了巴基斯坦的农业用水和水电用水对于本案的相关性，并强调，根据习惯国际法对《条约》作出的解释，印度负有“确保流入巴基斯坦的水流达到最低限度”的义务。仲裁庭还指出，当事双方都认识到，为了环境的可持续发展，KHEP 下游的水流必须达到最低限度，但是双方对构成最低限度的水量持有不同意见。因此，在部分裁决和双方提交的进一步数据的基础上，仲裁庭在最终裁决中面临的任务是：确定一个最低流量，既能够减轻 KHEP 运行过程中对巴基斯坦农业和水电用水的不利影响，同时保护印度运行 KHEP 的权利和 KHEP 相对于 NJHEP 的优先性。仲裁庭指出，正如它在部分裁决中所强调的，为了保证缔约双方使用基申甘加/尼勒姆河河水的稳定性和可预测性，仲裁庭必须确定一个精确的最低流量。⁸⁶

（三）最低流量的确定

1、双方关于水文数据的分歧

按照仲裁庭的要求，双方提交了对 KHEP 坝址、实际控制线、NJHEP 坝址的流量估算数据。双方的流量估算方法大致相同：如相关年份（1971 年至 2004 年）的数据可用，双方均采用目标位置附近观测站的流量数据；双方均将选定观测站与参考观测站的可用数据相联系并运用回归分析填补数据空缺；双方均将穆扎法拉巴德观测站（Muzaffarabad measuring station）选定为参考观测站；对于附

⁸⁵ Final Award, pp. 343-344, paras. 76-77.

⁸⁶ Final Award, p. 347, paras. 87-88.

近没有观测站的地点，例如实际控制线上，双方均使用基申甘加/尼勒姆河沿线其他地点的观测站来估算流量。

但双方就以下问题存在分歧：（1）计算最低流量应使用以前根据《条约》交换的数据还是“修正”的数据；（2）诺舍里水文测量站（Nauseri gauging station）的数据是否真实可靠；（3）应使用巴方还是印方的回归分析来填补观测数据的空白；（4）适用何种分析框架以及如何确定实际控制线上的可用流量。⁸⁷

仲裁庭观察到，尽管双方提交大量证据强调它们在方法上的差异，但它们的数据实际上是十分相似的。尤其是低流量季节，双方对月平均流量的估算很少出现非常大的差异。对于一年中最干旱的几个月中实际控制线上的流量，巴方数据还略高于印方数据。唯独在估算实际控制线上非常低的流量时，双方的数据出现了意料之中的显著差异，这是由于缺乏观察和来自附近地点的数据有限所造成的，仲裁庭在作出裁决时会将此纳入考虑。⁸⁸

仲裁庭还评论了当事方收集水文数据的方法。当事双方对于计算最低流量使用的数据来源存在分歧，但《条约》没有规定委员会、中立专家或仲裁庭只能使用依照第 VI(2) 条交换的数据处理《条约》相关争议，只要数据真实可靠且以透明的方式取得，就符合水文领域的最佳实践。但巴基斯坦没有与印度分享已公布的真实数据，让印度付费查阅巴基斯坦发布在水文年鉴中的数据是不妥当的。仲裁庭要求双方通过印度河常设委员会机制来保证水文数据的质量并共享数据。⁸⁹

2、KHEP 对下游的影响

接下来，仲裁庭根据当事双方提交的意见，评估了 KHEP 可能对巴基斯坦的农业用水和水电用水以及对印度河下游和实际控制线穿过的地区产生的环境影响，继而审查了这些影响与部分裁决中裁定的印度在《条约》下享有的权利之间如何相互作用。仲裁庭采取的方法是：首先根据双方提交的数据考虑 KHEP 对下游的影响，再决定如何将《条约》适用于这些事实。⁹⁰

（1）巴基斯坦的农业用水

巴方没有提供其在基申甘加/尼勒姆河上现有或预期农业用水的相关数据，但它表示，尼勒姆河谷未来的发展将依赖于增加抽水灌溉的使用并摆脱自给自足

⁸⁷ Final Award, p. 324, para. 22.

⁸⁸ Final Award, p. 348, para. 90.

⁸⁹ Final Award, p. 348, para. 91.

⁹⁰ Final Award, p. 349, para. 92.

的农业模式。双方对于该潜在使用与确定最低流量的相关性意见不一。

仲裁庭重申其在部分裁决中的决定，即，尽管在 KHEP 确定并获得优先地位时巴基斯坦的农业用水尚不确定，但巴基斯坦有关农业用水的权利仍是 KHEP 运行中需要考虑的相关因素。在确定最低流量时，仲裁庭需要考虑预期的农业用水。但由于巴方未提交相关数据，仲裁庭可依赖的证据较少，只好根据其水电用水和环境因素来确定最低流量。尽管如此，仲裁庭相信该最低流量将确保河流中水流充足，不会严重限制尼勒姆山谷的农业发展。⁹¹

（2）巴基斯坦的水电用水

双方提供的数据反映了水量变化对各自水电站（即KHEP和NJHEP）的发电能力和经济效益造成的影响。仲裁庭指出，根据巴方提交的数据来看，KHEP的运行明显会降低NJHEP的发电能力。印方没有对巴方的计算提出质疑，但反对巴方提出的流量方案，认为每一种方案都将大幅减少KHEP的发电量，并损害仲裁庭在部分裁决中给予KHEP的优先权。仲裁庭认为，只有NJHEP会受到最低流量的影响，并指出流量和发电量之间具有直接且近乎线性的关系。⁹²

（3）下游环境

双方对KHEP下游可能产生的环境变化做出了截然不同的评估。巴基斯坦对一系列指标之间的相互作用进行了全面评估，并预测实际控制线上的生态系统可能产生中等至严重变化，变化的程度取决于河水的流速。而印度的评估是基于预期水深和对三种鱼类的影响，其结论是2立方米/秒的低流量不会对水生环境造成影响。

仲裁庭指出，双方的分歧必须根据不断发展的预测环境变化的科学来看待，而环境变化则是由水流条件改变而引起的。巴基斯坦进行了更为广泛的分析，试图反映河流生态系统内部的复杂相互作用。科学家和决策者越来越多地使用这种性质的评估来加深对生态的理解，从而促进对河流系统的管理和发展。相比之下，印度采取了较为简单的评估，得出的结论基本上来自一个单一的指标——特定鱼类的栖息地。⁹³

仲裁庭认为，对这类环境问题的评估没有唯一“正确”的方法。对于特定的

⁹¹ Final Award, p. 349, para. 94.

⁹² Final Award, pp. 349-350, paras. 95-96.

⁹³ Final Award, pp. 350-351, para. 98.

河流或项目，何为正确的方法将取决于河流的现有状态、预期变化的幅度、拟议项目的重要性，以及可利用的时间、资金和当地的专业技术。对于某些情况，简单的评估方法可能是首选。而对于KHEP这样大规模的项目，巴方更为恰当地深度评估了下游环境的潜在变化。印方的评估只考虑了可供鱼类生存的水深，这种评估方法不足以应对基申甘加/尼勒姆河复杂的生态系统。⁹⁴

巴方在评估结论中将河流的生态环境进行分级，认为40立方米/秒的流量可使河流条件达到高C级别（high C category），而20立方米/秒的流量或释放70%的水流将使河流条件达到低C级别（lower Category C river condition）。仲裁庭认为，将基申甘加/尼勒姆河的河流状况分级的做法虽然有帮助，却有可能暗示了数字上的精确性，而这一过程本身就具有固有的不确定性。但无论如何，减缓下游的环境变化需要的环境流量远远高于印度所主张的流量。在处理双方的水文数据时，仲裁庭也注意到了实际控制线上的水位对KHEP所释放的水量尤其敏感。在只考虑环境相关因素的情况下，仲裁庭确定的环境流量是12立方米/秒。⁹⁵

仲裁庭给出了一个暂时性的结论，KHEP对环境和巴基斯坦发电（包括NJHEP）的影响都表明，最低流量应高于印度主张的流量，但低于巴基斯坦主张的流量。如果仅考虑环境因素，KHEP向下游释放的水流应维持在大约12立方米/秒。如果考虑到巴基斯坦的水电用水，KHEP就需要释放更多水流。仲裁庭特别强调，这未必适用于其他河流条件，该裁定也不应被解释为将环境流量等同于固定的最低流量。在其他情况下，特别是国家间合作不存在困难的情况下，适当的环境流量可以演进为一个动态的流量机制。而在本案中，由于当事双方的数据表明KHEP对旱季流量的影响是生态变化的主要决定因素，仲裁庭认为没有必要考虑百分比或动态的流量机制。⁹⁶

3、KHEP 的优先性

⁹⁴ Final Award, p. 351, paras. 99-100.

⁹⁵ Final Award, p. 352, paras. 102-103.

⁹⁶ Final Award, p. 352, para. 104. 因最终裁决中多次提及“最低流量”和“环境流量”，仲裁庭在注释 151 中澄清了二者之间的区别。环境流量不一定是一个固定的最低量，最低流量仅影响旱季的水流，而环境流量是一个流量机制，能够将基础设施和开发造成的河流环境变化维持在一个可接受的范围内。因此，环境流量视实际情况可高可低，并可能对高流量季节的水流有一些不是“最低流量”的规定。实际上，巴基斯坦提出的百分比或动态流量机制就是环境流量的例子。基于基申甘加/尼勒姆河的特征以及低流量是生态变化的主要原因，同时，由于最终流量的确定不仅基于环境，还基于巴基斯坦的水力发电用水，仲裁庭才能够以固定的最低流量来确定环境流量。只要这一最低流量有助于减轻重大环境损害，它也可以作为环境流量，但不意味着二者含义相同。

仲裁庭指出，评估KHEP的影响只是第一步，在确定最低流量时还必须考虑另外两个因素。

第一，部分裁决中确认了KHEP具有优先性。虽然KHEP的运行必须使双方的权利都得到有效行使，但“巴基斯坦的农业用水和水电用水免受不利影响”这一要求不得剥夺印度运作KHEP的权利。为了平衡印度有效运行KHEP的权利和保护下游环境的需要，仲裁庭认为，在最干旱的月份里，印度在KHEP地区有权使用至少一半的水流。如果为了避免对NJHEP的负面影响将每月的最低流量限定为一半以上，将不符合《条约》规定。⁹⁷

第二，附件G第29段规定解释或适用《条约》时应参照习惯国际法的相关规定。仲裁庭重申其在部分裁决中指出的，即使在解释相关习惯国际法形成之前缔结的条约，也必须考虑国际环境法原则。而且，本案中，附件G第29段明确了适用习惯国际法的范围和顺序。

部分裁决中仲裁庭指出，一国在进行大规模建设活动时负有防止或至少减轻对环境的重大损害的义务。从这项义务，仲裁庭不难得出结论，确定环境流量对于履行《条约》来说是必要的。然而，仲裁庭认为其“不应当也没有必要在权衡环境变化和其他权利的优先性时采取预防性的方法或承担决策者的角色，去寻求可接受的环境变化和其他优先事项之间的平衡，或是允许环境考虑超越《条约》明确规定的其他权利和义务间的平衡，尤其是印度转移吉勒姆河支流的权利”。仲裁庭的权力相当有限，只能够减轻重大损害。除此之外，作出更多限制不仅没有必要，也是为《条约》所禁止的。如果习惯国际法不是用来限制，而是用来否定《条约》明确授予的权利，这就不是对《条约》的解释和适用，而是用习惯法取代了《条约》。与部分裁决的意见相一致，仲裁庭认为如果将环境的优先性置于其他所有考虑之上，就与《条约》附件D第15(iii)段规定的原则相违背，也违反了附件G第29段的规定。⁹⁸

在考虑了双方的流量估算数据后，仲裁庭认为9立方米/秒的最低流量标准符合巴基斯坦对环境流量的分析，基于印度的数据也能够最严酷的冬季维持自然水流。

此外，仲裁庭再次强调，预测环境变化存在一定程度的不确定性，实际控制

⁹⁷ Final Award, p. 353, paras. 107–109.

⁹⁸ Final Award, pp. 354–355, para. 112.

线上的流量无法测量和未来流量的不可预测性也加剧了这一不确定性。而对于缔约国来说，水流的稳定性和可预测性又是至关重要的。因此，考虑到如果基申甘加/尼勒姆河的实际情况发生变化而既判力原则将阻碍当事方再次对本案提起仲裁，仲裁庭决定，在KHEP开始调水的7年之后，如任何一方认为必要，可以通过印度河常设委员会和《条约》规定的机制请求重新确定最低流量。⁹⁹

4、监测最低流量制度

巴基斯坦请求仲裁庭建立一个监测制度以评估印度是否遵守了本裁决确定的最低流量。具体来说，它请求命令印度向其提供以下实时数据：（1）流入KHEP蓄水池和KHEP大坝下方释放的每日流量，（2）蓄水池水位，以及（3）允许巴基斯坦对测量站进行定期检查。

印度拒绝巴基斯坦的要求，认为到他国领土上进行检查是前所未有的，而且超出了《条约》商定的监测范围。此外，该机制建立在恶意推定的基础上，违反了国际法。印度认为，印度河常设委员会足以满足巴基斯坦的监测需求，而且双方一直通过委员会定期交换流量和用水数据。

仲裁庭认为，通过印度河常设委员进行数据交换和监测当事各方对印度河支流使用情况是比较恰当的机制。《条约》第VI(1)条规定双方交换有关每日流量和释放水流的相关监测数据，此中包括了与KHEP有关的必要数据。第VIII(4)条规定了一方委员提出请求时委员会有立即进行现场检查的义务。基于这些条款，仲裁庭认为其既没有必要也没有权力授权委员会建立一个特别的监测制度来执行本裁决。¹⁰⁰

六、不造成重大损害原则的发展和国际环境法原则的适用

（一）习惯国际法上的不造成重大损害规则

在本案所涉的第一项争议中，巴基斯坦称印度计划在西部河流上建造和运行KHEP违反了《条约》下规定的义务，尤其是第VI(6)条规定的“尽最大努力维护河流的自然水道”，在切实可行的范围内避免阻碍这些水道的水流运行，以免给另一方造成实质损害。巴基斯坦认为KHEP会导致水道退化、阻碍水流运行，并造成一系列水道生态环境损害，包括实际控制线下游的自然栖息地、生物群和生

⁹⁹ Final Award, p. 356, paras. 117-119.

¹⁰⁰ Final Award, p. 357, paras. 121-122.

态系统功能大量丧失，鱼群种类减少等，还会影响农作物灌溉，导致下游社会经济条件发生重要变化。

仲裁庭在解释该条义务时首先从文本出发，指出“尽最大努力”这一用语不仅仅是期望性的表达，而是给双方创设了法律义务。就该条款用语的一般意义而言，“维护河流的自然水道”指的是维护河道的物理状态，而不是维持河道中水流的流量和流速。该条款也并不要求维护水道的状态以避免任何类型的水道退化，而仅明确要求避免“可能对另一方造成实质损害的任何对这些水道水流的阻碍”。¹⁰¹ 仲裁庭认为，虽然巴基斯坦强调 KHEP 在清除泥沙的过程中可能会造成河道退化，但它没能充分解释 KHEP 会对基申甘加/尼勒姆河下游的水流造成何种具体的阻碍。并且，也不能将 KHEP 本身视为对水流运行的阻碍，因为建造和运行水电工程是印度在《条约》下享有的具体权利。¹⁰²

虽然不能认定 KHEP 会对巴基斯坦造成实质损害，但根据《条约》附件 D 第 15(iii)段的要求，以及进行条约解释时依据附件 G 第 29 段适用的相关国际习惯法原则，印度在运行 KHEP 时负有“确保最低流量”的义务。在阐述这一义务时，仲裁庭回顾并确认了习惯国际法上禁止对他国造成重大损害的原则。

首先仲裁庭指出，早在 20 世纪 40 年代的特莱尔冶炼厂仲裁案就确立了一项习惯法原则：“任何国家均不得以此种方式使用或允许使用其领土，若通过烟雾在另一个国家领土之内或对领土或领土内的财产或个人造成伤害，造成严重后果，且可得到明确和令人信服的证据的证实。”¹⁰³ 接着仲裁庭援引了 1972 年《斯德哥尔摩宣言》中的第 21 项原则，该原则要求国家在开发自然资源时，必须“保证在他们管辖或控制之内的活动，不损害其他国家或在国家管辖范围以外地区的环境”。¹⁰⁴ 仲裁庭还回顾了国际法院在多瑙河案中对可持续发展原则的详细阐述以及对“协调经济发展与环境保护的需要”的提及，¹⁰⁵ 并进一步确认，习惯国际法要求各国在规划和发展可能对邻国造成损害的项目时须将环境保护

¹⁰¹ Partial Award, p. 189, para. 374.

¹⁰² Partial Award, p. 189, para. 375.

¹⁰³ *Trail Smelter Arbitration*, 13 R.I.A.A. 1905, p. 1965.

¹⁰⁴ Stockholm Declaration of the United Nations Conference on the Human Environment, 3 UN Doc. A/CONF. 48/14/Rev (1972).

¹⁰⁵ *Case concerning the Gabčíkovo-Nagymaros Project (Hungary/Slovakia)*, Judgment, I.C.J. Reports 1997, p. 7, p. 78.

纳入考虑。¹⁰⁶ 此外，仲裁庭援引了莱茵铁路公司案的裁定：作为一项一般国际法原则，各国在进行大规模建设活动时负有“防止或至少减轻”对环境的重大损害之义务，该原则“不仅适用于一国自主进行的活动，也适用于为履行某具体条约而进行的活动”。¹⁰⁷

基于对习惯国际法上不造成重大损害原则的确认和阐释，仲裁庭明确指出印度在《条约》下须承担不造成重大损害的义务，在本案中具体体现为保持最低流量的义务。鉴于资料和证据的不足，仲裁庭将确定最低流量的工作推迟到最终裁决。但无论如何，在本案中，仲裁庭通过考察相关法律渊源、回顾相关的国际司法判例，对不造成重大损害原则，特别是国际水道法领域内的不造成重大损害原则进行了解释和适用。它明确了水道国在行使其条约权利时，须承担习惯国际法上的义务，至少上游国须承担“确保最低流量”的义务。

（二）国际环境法原则在国际河流案件中的适用

本案中巴基斯坦主张，“维护河流的自然水道”的义务要求印度对 KHEP 可能造成的下游环境影响进行充分评估，而印度拒绝将国际环境法原则适用于本案。对此，仲裁庭指出：“毫无疑问的是，当代习惯国际法要求各国在规划和发展可能对邻国造成损害的项目时须将环境保护纳入考虑。自特莱尔冶炼厂仲裁案以来，一系列的国际公约、宣言及司法和仲裁判决、裁决都强调了以可持续的方式管理自然资源的必要性。”¹⁰⁸

就可持续发展原则在大型建设项目上的应用，仲裁庭援引了乌拉圭河纸浆厂案，认为该原则被转化为“一般国际法上的一种要求，即，在某计划采取的工业活动可能在跨境环境下造成重大负面影响时，特别是对共享资源而言，应当进行环境影响评价。如果工程对河流制度或其水资源的水质造成影响，计划实施该工程的国家没有对其可能造成的潜在影响进行环境影响评价，那么，它就没有履行审慎义务及其所暗含的警惕和预防责任。”该义务“在必要的情况下，自项目运行之始贯穿于项目的整个生命周期”。¹⁰⁹

¹⁰⁶ Partial Award, p. 216, para. 449.

¹⁰⁷ *Arbitration Regarding the Iron Rhine (‘Ijzeren Rijn’) Railway between the Kingdom of Belgium and the Kingdom of the Netherlands*, Award, 24 May 2005, PCA Award Series (2007), para. 59.

¹⁰⁸ Partial Award, p. 216, para. 449.

¹⁰⁹ *Pulp Mills on the River Uruguay (Argentina v. Uruguay)*, Judgment, I. C. J. Reports 2010, p. 83, para. 204.

仲裁庭回顾了莱茵铁路公司案的做法，强调即使是解释相关法律发展之前所缔结的条约，也必须考虑国际环境法原则。仲裁庭还特别提到，国际法院在多瑙河案中详细阐述了“可持续发展”原则，指出了“协调经济发展与环境保护的需要”，并且在条约的适用问题中指出，如必要，“必须考虑这些新的规范，恰当地衡量其重要性”。¹¹⁰

据此，仲裁庭明确提出可持续发展原则是国际环境法乃至习惯国际法上的一项原则，并确认双方在行使《条约》权利的同时必须将环境保护纳入考虑。然而，仲裁庭在确定最低流量时，认为其“不应当也没有必要在权衡环境变化和其他权利的优先性时采取预防性的方法或承担决策者的角色，去寻求可接受的环境变化和其他优先事项之间的平衡，或是允许环境考虑超越《条约》明确规定的其他权利和义务间的平衡，尤其是印度转移吉勒姆河支流的权利”。¹¹¹

也就是说，仲裁庭在本案中对外环境法原则的适用止步于确认“一国在进行大规模建设活动时负有防止或至少减轻对环境的重大损害的义务”，以及据此产生的环评义务和维持最低流量的义务，而拒绝利用国际环境法原则对当事方的行为作出更多限制。可以认为，仲裁庭虽然承认习惯国际法上的可持续发展原则，但在其具体适用上采取了一种相对保守的立场。这是由《条约》的具体内容所决定的。附件 D 第 15(iii)段已经对双方的权利之间作出了平衡。附件 G 第 29 段也规定，仲裁庭在解释和适用《条约》时应首先诉诸《条约》本身，其次在必要的范围内依次适用“双方明确承认的国际公约规则”和“习惯国际法”。仲裁庭认为，如果习惯国际法不是用来限制，而是用来否定《条约》明确授予的权利，这就不是对《条约》的解释和适用，而是用习惯法取代了《条约》。¹¹² 总的来说，本案是仲裁庭接受国际水道作为一种共享资源的判例，也是将后续发展的国际环境法原则适用于既往签订的条约的又一国际司法实践。

¹¹⁰ *Case concerning the Gabčíkovo-Nagymaros Project (Hungary/Slovakia)*, Judgment, I.C.J. Reports 1997, p. 7, p. 78.

¹¹¹ Final Award, pp. 354-355, para. 112.

¹¹² Final Award, pp. 354-355, para. 112.

**IN THE MATTER OF
THE INDUS WATERS KISHENGANGA ARBITRATION**

-before-

**THE COURT OF ARBITRATION CONSTITUTED
IN ACCORDANCE WITH THE INDUS WATERS TREATY 1960
BETWEEN THE GOVERNMENT OF INDIA
AND THE GOVERNMENT OF PAKISTAN
SIGNED ON 19 SEPTEMBER 1960**

-between-

THE ISLAMIC REPUBLIC OF PAKISTAN

-and-

THE REPUBLIC OF INDIA

PARTIAL AWARD

COURT OF ARBITRATION:

**Judge Stephen M. Schwebel (Chairman)
Sir Franklin Berman KCMG QC
Professor Howard S. Wheeler FREng
Professor Lucius Caflisch
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TABLE OF CONTENTS

I.	PROCEDURAL HISTORY	1
A.	THE INDUS WATERS TREATY AND THE INITIATION OF THIS ARBITRATION	1
B.	THE CONSTITUTION OF THE COURT OF ARBITRATION.....	3
C.	THE FIRST MEETING OF THE COURT AND THE ADOPTION OF PROCEDURAL RULES.....	4
D.	CONFIDENTIALITY	9
E.	THE COURT’S FIRST SITE VISIT.....	10
F.	PAKISTAN’S APPLICATION FOR INTERIM MEASURES	14
G.	THE IMPLEMENTATION OF THE ORDER ON INTERIM MEASURES	20
H.	THE COURT’S SECOND SITE VISIT.....	25
I.	THE PARTIES’ WRITTEN SUBMISSIONS ON THE MERITS; REQUESTS FOR DOCUMENTS AND FURTHER INFORMATION.....	28
J.	EXPERT WITNESSES AND TESTIMONY BY VIDEO LINK.....	32
K.	THE HEARING ON THE MERITS.....	37
II.	BACKGROUND.....	41
A.	THE GEOGRAPHY.....	41
B.	THE INDUS WATERS TREATY.....	43
C.	THE HISTORY OF THE DISPUTES.....	46
D.	THE KHEP AND THE NJHEP – TECHNICAL CHARACTERISTICS	50
E.	THE IMPACT OF THE KHEP ON THE NJHEP	54
III.	ARGUMENTS OF THE PARTIES	55
A.	THE DIVERSION OF THE KISHENGANGA/NEELUM RIVER UNDER THE TERMS OF THE TREATY	55
1.	The Parties’ arguments on the governing principles of the Treaty for use of the waters of the Western Rivers	55
(a)	The meaning of the Treaty text.....	57
<i>Pakistan’s arguments</i>	57	
<i>India’s arguments</i>	58	
(b)	The Treaty’s drafting history.....	59
<i>Pakistan’s arguments</i>	59	
<i>India’s arguments</i>	62	
2.	The Parties’ arguments on the Treaty provisions governing hydro-electric projects.....	65
(a)	“Restricted . . . to the drainage basin thereof”	66
<i>Pakistan’s arguments</i>	66	

<i>India's arguments</i>	68
(b) Run-of-River Plants	68
<i>Pakistan's arguments</i>	69
<i>India's arguments</i>	71
(c) "Where a Plant is located on a Tributary of the Jhelum . . . water released below the Plant may be delivered . . . into another Tributary"	73
<i>Pakistan's arguments</i>	73
<i>India's arguments</i>	74
(d) "If necessary"	75
<i>Pakistan's arguments</i>	76
<i>India's arguments</i>	78
(e) Interpretation of the phrase "then existing Agricultural Use or hydro-electric use"	80
<i>Pakistan's arguments</i>	80
<i>India's arguments</i>	81
(f) Whether Pakistan has established an "existing . . . use"	83
<i>Pakistan's arguments</i>	83
<i>India's arguments</i>	84
(g) Whether the diversion of the Kishenganga/Neelum River would cause an adverse effect	86
<i>Pakistan's arguments</i>	86
<i>India's arguments</i>	88
3. The Parties' arguments on Article IV(6) of the Treaty	90
<i>Pakistan's arguments</i>	90
<i>India's arguments</i>	92
B. THE PERMISSIBILITY OF RESERVOIR DEPLETION UNDER THE TREATY	94
1. The Parties' arguments on the admissibility of the Second Dispute	98
(a) Whether Pakistan has followed the procedure of Article IX for the submission of disputes to the Court	100
<i>India's arguments</i>	100
<i>Pakistan's arguments</i>	102
(b) Whether the Second Dispute is a technical matter that falls within Part 1 of Annexure F and should therefore be classified as a "difference" to be decided by a neutral expert	104
<i>India's arguments</i>	104
<i>Pakistan's arguments</i>	106

2. The Parties' arguments on the permissibility of reservoir depletion below Dead Storage Level.....	107
(a) The permissibility of reservoir depletion generally.....	108
<i>Pakistan's arguments</i>	108
<i>India's arguments</i>	109
(b) The Treaty's definition of "Dead Storage"	111
<i>Pakistan's arguments</i>	112
<i>India's arguments</i>	113
(c) The Treaty's provisions on the filling of reservoirs	114
<i>Pakistan's arguments</i>	114
<i>India's arguments</i>	116
(d) The Treaty's provisions on low-level outlets.....	118
<i>Pakistan's arguments</i>	118
<i>India's arguments</i>	119
(e) The Treaty's provisions on water flow.....	119
<i>Pakistan's arguments</i>	119
<i>India's arguments</i>	120
(f) The necessity of drawdown flushing.....	120
<i>Pakistan's arguments</i>	120
<i>India's arguments</i>	122
(g) The <i>Baglihar</i> expert determination	126
<i>Pakistan's arguments</i>	127
<i>India's arguments</i>	129
C. THE RELEVANCE OF TERRITORIAL CLAIMS.....	130
<i>Pakistan's arguments</i>	130
<i>India's arguments</i>	132
IV. ANALYSIS OF THE COURT.....	134
A. THE TERRITORIAL SCOPE OF THE TREATY	134
B. THE FIRST DISPUTE: THE PERMISSIBILITY OF DELIVERING THE WATERS OF THE KISHENGANGA/NEELUM RIVER INTO ANOTHER TRIBUTARY THROUGH THE KHEP	137
1. India's general obligations under Articles III and IV(6).....	138
2. The requirements for Run-of-River Plants under Annexure D.....	140
(a) The permissibility of inter-tributary transfers in general.....	141
(b) The KHEP as a Run-of-River Plant located on a tributary to the Jhelum	142

(c) The criterion that inter-tributary transfers must be “necessary”	145
3. The interpretation of the “then existing Agricultural Use or hydro-electric use by Pakistan” in Paragraph 15(iii)	148
(a) The text.....	149
(b) The context.....	151
(c) The object and purpose of the Treaty	153
4. Challenges of the application of Paragraph 15(iii) to the KHEP	154
(a) The Parties’ approaches to “then existing” uses as applied to the KHEP	154
(b) Implications of adopting the “ambulatory” approach.....	157
(c) Implications of adopting the “critical period” approach	158
(d) The Treaty’s balance between the rights of both Parties	161
5. The import of the Court’s interpretation for the construction and operation of the KHEP	162
(a) India’s vested right to build and operate the KHEP.....	162
(b) The preservation of downstream flows	168
(c) The insufficiency of the data on record to determine a precise minimum downstream flow; the Court’s request for further data	172
C. THE SECOND DISPUTE: THE PERMISSIBILITY OF RESERVOIR DEPLETION UNDER THE TREATY	174
1. The scope of the Second Dispute.....	174
2. The admissibility of the Second Dispute.....	177
(a) Whether Pakistan has complied with the procedure of Article IX of the Treaty	179
(b) Whether the subject matter of the Second Dispute can properly be heard by the Court.....	182
3. The permissibility of drawdown flushing.....	186
(a) Reservoir sedimentation and sediment control	188
(b) The context of the Treaty with respect to drawdown flushing.....	191
(c) The specific provisions of the Treaty.....	194
(d) The necessity of drawdown flushing for power generation on the Western Rivers	196
V. DECISION	201

FIGURES AND MAPS

Map of the Indus system of rivers and its catchment area	42
Schematic representation of the KHEP.....	51
Map of the respective locations of the KHEP and the NJHEP	53
Schematic representation of a dam with a low-level spillway	95
Diagrams showing the specific design of the KHEP	96 & 97
Diagram illustrating the difference between the high level and orifice-type intakes.....	122

GLOSSARY OF DEFINED TERMS

1954 Proposal	Proposal by the World Bank for a “Plan for the Development and Use of the Indus Basin Waters” dated 5 February 1954 (Annex PK-2)
<i>Baglihar</i> (or <i>Baglihar Determination</i>)	Raymond Lafitte, Determination of Neutral Expert on the Baglihar Project dated 12 February 2007 (Annex PK-230)
Commission	The Permanent Indus Commission established by Article VIII of the Treaty
Commissioners	The Pakistani Commissioner and the Indian Commissioner
Counter-Memorial	India’s Counter-Memorial dated 23 November 2011
Court	The Court of Arbitration in these proceedings as constituted pursuant to Article IX(5) and Annexure G of the Treaty
CWPC	India’s Central Water and Power Commission
CWPC Letter	Letter from the Chairman of the CWPC to India’s Ministry for Irrigation and Power dated 16 May 1960 (Annex IN-54)
Dead Storage	As defined at Paragraph 2(a) of Annexure D to the Treaty, “that portion of storage which is not used for operational purposes.”
Dead Storage Level	As defined at Paragraph 2(a) of Annexure D to the Treaty, “the level corresponding to Dead Storage”
EIA	Environmental impact assessment
First Dispute	As stated in Pakistan’s Request for Arbitration, the dispute between the Parties as to: Whether India’s proposed diversion of the river Kishenganga (Neelum) into another Tributary, i.e. the Bonar-Madmati Nallah, being one central element of the Kishenganga Project, breaches India’s legal obligations owed to Pakistan under the Treaty, as interpreted and applied in accordance with international law, including India’s obligations under Article III(2) (let flow all the waters of the Western rivers and not permit any interference with those waters) and Article IV(6) (maintenance of natural channels)
First Meeting	Meeting convened by the Court with the Parties on 14 January 2010 pursuant to Paragraph 14 of Annexure G to the Treaty
ICOLD	International Commission on Large Dams
Indian Commissioner	Commissioner for Indus Waters appointed by India pursuant to Article VIII(1) of the Treaty

Kishenganga/Neelum River (or Kishenganga/Neelum or River)	The river called the “Kishenganga” by India and the “Neelum” by Pakistan
KHEP	Kishenganga Hydro-Electric Project
11 March 2009 Letter	Pakistani Commissioner’s letter to the Indian Commissioner dated 11 March 2009 (Annex PK-194)
MCM	Million cubic metres
Memorial	Pakistan’s Memorial dated 27 May 2011
Morris Report	Expert report by Dr Gregory L. Morris submitted by Pakistan with its Reply; “Response to Items A, B and C in Chapter 7, Counter-Memorial of the Government of India”
Neutral Expert	The neutral expert appointed pursuant to Annexure F to the Treaty who rendered the Baglihar Determination
NJHEP	Neelum-Jhelum Hydro-Electric Project
Order on Interim Measures	Order on the Interim Measures Application of Pakistan dated June 6, 2011
Pakistani Commissioner	Commissioner for Indus Waters appointed by Pakistan pursuant to Article VIII(1) of the Treaty
Parties	The Islamic Republic of Pakistan and the Republic of India
PCA	Permanent Court of Arbitration
Rejoinder	India’s Rejoinder dated 21 May 2012
Reply	Pakistan’s Reply dated 21 February 2012
Request for Arbitration	Pakistan’s Request for Arbitration dated 17 May 2010
Run-of-River Plant	As defined at Paragraph 2(g) of Annexure D to the Treaty, “a hydro-electric plant that develops without Live Storage as an integral part of the plant, except for Pondage and Surcharge Storage.”
Schleiss Report	“Note on Second Dispute regarding Drawdown Flushing,” expert report by Prof. Dr Anton J. Schleiss submitted by India with its Rejoinder

Second Dispute	As stated in Pakistan’s Request for Arbitration, the dispute between the Parties as to: Whether under the Treaty, India may deplete or bring the reservoir level of a run-of-river Plant below Dead Storage Level (DSL) in any circumstances except in the case of an unforeseen emergency
Storage Work	As defined in Paragraph 2(a) of Annexure E to the Treaty, “a work constructed for the purpose of impounding the waters of a stream; but excludes (i) a Small Tank, (ii) the works specified in Paragraph 3 and 4 of Annexure D, and (iii) a new work constructed in accordance with the provisions of Annexure D”
Treaty	Indus Waters Treaty 1960 Between the Government of India, the Government of Pakistan and the International Bank for Reconstruction and Development signed at Karachi on 19 September 1960, 419 U.N.T.S. 126
VCLT	Vienna Convention on the Law of Treaties, 1969, 1155 U.N.T.S. 331
World Bank	International Bank for Reconstruction and Development

I. PROCEDURAL HISTORY

A. THE INDUS WATERS TREATY AND THE INITIATION OF THIS ARBITRATION

1. On 19 September 1960, the Government of the Republic of India and the Government of the Islamic Republic of Pakistan (the “**Parties**”) signed the Indus Waters Treaty 1960 (the “**Treaty**”).¹ The Treaty was also signed by the International Bank for Reconstruction and Development (the “**World Bank**”) in respect of the World Bank’s role under certain provisions of the Treaty. Instruments of ratification were exchanged between the Parties on 12 January 1961; the Treaty entered into force on that date with retroactive effect as of 1 April 1960 as stated in Article XII(2).
2. Article IX of the Treaty provides for a system for the settlement of differences and disputes that may arise under the Treaty. Article IX states in part:

Article IX

SETTLEMENT OF DIFFERENCES AND DISPUTES

- (1) Any question which arises between the Parties concerning the interpretation or application of this Treaty or the existence of any fact which, if established, might constitute a breach of this Treaty shall first be examined by the Commission, which will endeavour to resolve the question by agreement.
- (2) If the Commission does not reach agreement on any of the questions mentioned in Paragraph (1), then a difference will be deemed to have arisen, which shall be dealt with as follows:
 - (a) Any difference which, in the opinion of either Commissioner, falls within the provisions of Part 1 of Annexure F shall, at the request of either Commissioner, be dealt with by a Neutral Expert in accordance with the provisions of Part 2 of Annexure F;
 - (b) If the difference does not come within the provisions of Paragraph (2)(a), or if a Neutral Expert, in accordance with the provisions of Paragraph 7 of Annexure F, has informed the Commission that, in his opinion, the difference, or a part thereof, should be treated as a dispute, then a dispute will be deemed to have arisen which shall be settled in accordance with the provisions of Paragraphs (3), (4) and (5);

Provided that, at the discretion of the Commission, any difference may either be dealt with by a Neutral Expert in accordance with the provisions of Part 2 of Annexure F or be deemed to be a dispute to be settled in accordance with the provisions of Paragraphs (3), (4) and (5), or may be settled in any other way agreed upon by the Commission.

[. . .]

¹ *Indus Waters Treaty 1960 Between the Government of India, the Government of Pakistan and the International Bank for Reconstruction and Development*, 19 September 1960, 419 U.N.T.S. 126 (“Treaty”).

- (4) Either Government may, following receipt of the report referred to in Paragraph (3), or if it comes to the conclusion that this report is being unduly delayed in the Commission, invite the other Government to resolve the dispute by agreement. [. . .]
- (5) A court of Arbitration shall be established to resolve the dispute in the manner provided by Annexure G
 - (a) upon agreement between the Parties to do so ; or
 - (b) at the request of either Party, if, after negotiations have begun pursuant to Paragraph (4), in its opinion the dispute is not likely to be resolved by negotiation or mediation ; or
 - (c) at the request of either Party, if, after the expiry of one month following receipt by the other Government of the invitation referred to in Paragraph (4), that Party comes to the conclusion that the other Government is unduly delaying the negotiations.

[. . .]

3. In turn, Paragraph 2 of Annexure G to the Treaty provides in relevant part as follows:

- 2. The arbitration proceeding may be instituted
 - [. . .]
 - (b) at the request of either Party to the other in accordance with the provisions of Article IX (5)(b) or (c). Such request shall contain a statement setting forth the nature of the dispute or claim to be submitted to arbitration, the nature of the relief sought and the names of the arbitrators appointed under Paragraph 6 by the Party instituting the proceeding.

4. Through a **Request for Arbitration** dated 17 May 2010, Pakistan initiated proceedings against India pursuant to Article IX and Annexure G of the Treaty.

5. In its Request for Arbitration, Pakistan stated that the Parties had failed to resolve the “Dispute” concerning the Kishenganga Hydro-Electric Project (the “**KHEP**”) by agreement pursuant to Article IX(4) of the Treaty. Pakistan identified “two questions that are at the centre” of the dispute in the following manner:

- a. Whether India’s proposed diversion of the river Kishenganga (Neelum) into another Tributary, i.e. the Bonar-Madmati Nallah, being one central element of the Kishenganga Project, breaches India’s legal obligations owed to Pakistan under the Treaty, as interpreted and applied in accordance with international law, including India’s obligations under Article III(2) (let flow all the waters of the Western rivers and not permit any interference with those waters) and Article IV(6) (maintenance of natural channels)?
- b. Whether under the Treaty, India may deplete or bring the reservoir level of a run-of-river Plant below Dead Storage Level (DSL) in any circumstances except in the case of an unforeseen emergency?²

² Pakistan’s Request for Arbitration, para. 4.

6. These disputes will be referred to, as in the Request for Arbitration, as the “**First Dispute**” and the “**Second Dispute**,” respectively.

B. THE CONSTITUTION OF THE COURT OF ARBITRATION

7. The Court of Arbitration (the “**Court**”) was established pursuant to Article IX(5) and Annexure G of the Treaty. Paragraph 4 of Annexure G calls for the appointment of seven Members of the Court.
8. On 17 May 2010, Pakistan appointed His Excellency Judge Bruno Simma and Professor Jan Paulsson as arbitrators in accordance with Paragraphs 4 and 6 of Annexure G.
9. On 16 June 2010, India appointed His Excellency Judge Peter Tomka and Professor Lucius Caflisch as arbitrators in accordance with Paragraphs 4 and 6 of Annexure G.
10. In the absence of a standing panel of umpires as provided under Paragraph 5 of Annexure G or an agreement on the remaining umpires as specified in Paragraph 7(b)(i) of that Annexure, the Parties proceeded to select umpires in accordance with the procedure set out in Paragraph 7(b)(ii), which provides:
 - (ii) Should the Parties be unable to agree on the selection of any or all of the three umpires, they shall agree on one or more persons to help them in making the necessary selection by agreement; but if one or more umpires remain to be appointed 60 days after the date on which the proceeding is instituted, or 30 days after the completion of the process described in sub-paragraph (a) above, as the case may be, then the Parties shall determine by lot for each umpire remaining to be appointed, a person from the appropriate list set out in the Appendix to this Annexure, who shall then be requested to make the necessary selection.
11. The Parties called upon three of the persons provided in the Appendix to Annexure G—the Secretary-General of the United Nations (for selection of the Chairman), the Rector of the Imperial College of Science and Technology, London, England (for selection of the Engineer Member), and the Lord Chief Justice of England (for selection of the Legal Member)—to appoint the umpires.
12. On 12 October 2010, the Secretary-General of the United Nations appointed Judge Stephen M. Schwebel as umpire and Chairman of the Court in accordance with Paragraphs 4(b)(i), 7 and 8 of Annexure G.

13. On 12 December 2010, the Lord Chief Justice of England and Wales appointed Sir Franklin Berman KCMG QC as umpire, in accordance with Paragraphs 4(b)(iii) and 7 of Annexure G.
14. On 17 December 2010, the Rector of Imperial College London appointed Professor Howard S. Wheeler FREng as umpire, in accordance with Paragraphs 4(b)(ii) and 7 of Annexure G.
15. The Members of the Court signed and delivered declarations of independence and impartiality, which the Chairman communicated to the Parties on 27 December 2010.

C. THE FIRST MEETING OF THE COURT AND THE ADOPTION OF PROCEDURAL RULES

16. Paragraph 14 of Annexure G to the Treaty provides:

14. The Court of Arbitration shall convene, for its first meeting, on such date and at such place as shall be fixed by the Chairman.

17. By e-mail communication dated 17 December 2010, the Chairman of the Court invited the Parties, pursuant to Paragraph 14 of Annexure G, to meet with the Members of the Court at the premises of the Permanent Court of Arbitration (the “PCA”) in The Hague on 14 January 2011.
18. The Parties accepted the Chairman’s invitation in e-mail communications dated 26 and 27 December 2010. Thereafter, the Chairman transmitted for the Parties’ comments a draft agenda for the meeting, prepared in accordance with Paragraph 15 of Annexure G, which provides:

15. At its first meeting the Court shall:

- (a) establish its secretariat and appoint a Treasurer;
- (b) make an estimate of the likely expenses of the Court and call upon each Party to pay to the Treasurer half of the expenses so estimated: Provided that, if either Party should fail to make such payment, the other Party may initially pay the whole of the estimated expenses;
- (c) specify the issues in dispute;
- (d) lay down a programme for submission by each side of legal pleadings and rejoinders; and
- (e) determine the time and place of reconvening the Court.

19. The Parties’ comments thereon were incorporated as annotations to the agenda.

20. The Court of Arbitration held its first meeting on 14 January 2010 (the “**First Meeting**”). Immediately following the First Meeting, the PCA transmitted to the Parties a verbatim transcript of the day’s discussions which was signed by the Chairman and constituted minutes for the purpose of Paragraph 19 of Annexure G.
21. Following the First Meeting, draft **Terms of Appointment** were sent to the Parties for comment and approval, resulting in the signing of the Terms of Appointment by the Parties, the Chairman and the Secretary-General of the PCA, with effect from 8 March 2011. In paragraphs 2.11 and 2.12 of the Terms of Appointment, the Parties confirmed that: (1) the Members of the Court had been “validly appointed in accordance with the Treaty”; and that (2) they had “no objection to the appointment of any member of the Court on the grounds of conflict of interest and/or lack of independence or impartiality in respect of matters known to them at the date of the signature of these Terms of Appointment.”
22. At the First Meeting, having paid regard to Paragraph 24 of Annexure G, the Parties and the Court agreed, in keeping with prevailing practice, that all Members of the Court (whether arbitrators or umpires) would receive the same fees, and that all such fees would be paid by the Treasurer without any direct Party payments to the arbitrators.
23. On 21 January 2011, the Court issued **Procedural Order No. 1**, incorporating the matters agreed to by the Parties during the First Meeting:

1. Seat of Arbitration

- 1.1 Taking note of the agreement expressed by the Parties during the First Meeting, the Court determines that the seat of arbitration for these proceedings shall be The Hague, The Netherlands.

2. Supplemental Rules of Procedure

- 2.1 Pursuant to Paragraph 16 of Annexure G, the Court will determine, after receiving the Parties’ views, supplemental Rules of Procedure for the conduct of these proceedings.
- 2.2 Based on the Parties’ comments prior to and during the First Meeting, the Court notes that two options for supplementing Annexure G are under consideration:
- a. the PCA Optional Rules for Arbitrating Disputes Between Two States; or
 - b. rules of procedure similar to those used by arbitral tribunals constituted under the United Nations Convention on the Law of the Sea in proceedings administered by the PCA.
- 2.3 In either case, the rules would be subject to amendment by the Court, in consultation with the Parties, to account for the particularities of these proceedings.
- 2.4 The Parties are invited to confer and agree upon one of the foregoing options or, in the absence of agreement, to provide the Court with their respective comments on

this matter. The Parties shall appraise the Court of their agreement or provide their respective comments by no later than February 3, 2011.

- 2.5 After having considered the Parties' views, the Court shall adopt supplemental rules of procedure in due course.

3. Programme for Submission of Written Pleadings

- 3.1 Pursuant to Paragraph 15(d) of Annexure G, and taking note of the views of the Parties expressed during the First Meeting, the Court lays down the following programme for the submission of written pleadings:

- 3.1.1 The written pleadings in these proceedings shall include:

- (a) A Memorial by Pakistan.
- (b) A Counter-Memorial by India.
- (c) A Reply by Pakistan, which shall be restricted to matters raised in rebuttal to India's Counter-Memorial.
- (d) A Rejoinder by India, which shall be restricted to matters raised in rebuttal to Pakistan's Reply.

- 3.1.2 Pakistan shall submit its Memorial no later than 180 days from the date of the First Meeting, i.e., no later than July 13, 2011. The Court acknowledges that Pakistan has the prerogative to accelerate the proceedings by submitting its Memorial before this deadline.

- 3.1.3 India shall submit its Counter-Memorial no later than 180 days from receipt of the Memorial of Pakistan.

- 3.1.4 Pakistan shall submit its Reply no later than 90 days from receipt of the Counter-Memorial of India.

- 3.1.5 India shall submit its Rejoinder no later than 90 days from receipt of the Reply of Pakistan.

4. Preliminary Objections of India

- 4.1 In its comments of January 11, 2011 on the draft agenda for the First Meeting, India gave notice that it "will urge preliminary objections which go to the maintainability of Pakistan's Request for Arbitration, including the competence of the Court of Arbitration to deal with the differences mentioned in the Request for Arbitration." After having discussed the matter with the Parties during the First Meeting, the Court determines that the preliminary objections of India shall be considered in the following manner:

- 4.1.1 India shall lodge its preliminary objections no later than 30 days from the submission of the Memorial of Pakistan.

- 4.1.2 Pakistan shall submit its Reply to India's preliminary objections no later than 30 days from receipt of India's submission.

- 4.1.3 The Court shall thereafter determine a time and place for the conduct of a hearing on preliminary objections in accordance with paragraphs 5.2.1 and 5.3 herein.

- 4.1.4 Following the hearing on preliminary objections, the Court shall endeavour to render its Decision on Preliminary Objections expeditiously, and if possible before the deadline for submission of India's Counter-Memorial.

- 4.2 The proceedings on preliminary objections shall not affect the schedule for the submission of written pleadings provided under paragraph 3 herein.

5. Time and Place of Reconvening the Court

- 5.1 Taking note of the views of the Parties expressed during the First Meeting and the schedule established under paragraphs 3 and 4 herein, the Court will notify the Parties in due course of the time and place of its reconvening.
- 5.2 Without prejudice to any further developments that may arise in these proceedings, the Court hereby informs the Parties of its availability to reconvene for hearings on the following dates:
- 5.2.1. For the hearing on preliminary objections:
- (a) In the event that Pakistan submits its Memorial between April 15, 2011 and the end of May 2011, the Tribunal has provisionally set aside August 29 and 30, 2011 as possible hearing dates, in The Hague.
 - (b) In the event that Pakistan submits its Memorial on or after June 1, 2011, the Tribunal has provisionally set aside November 17 and 18, 2011 as possible hearing dates, in The Hague.
- 5.2.2 For the hearing on the merits:
- (a) In the event that Pakistan submits its Memorial between April 15, 2011 and the end of May 2011, the Tribunal has provisionally set aside August 20 to 31, 2012 as possible hearing dates.
 - (b) In the event that Pakistan submits its Memorial on or after June 1, 2011, the Tribunal has provisionally set aside December 3 to December 14, 2012 as possible hearing dates.
- 5.3 Should Pakistan submit its Memorial substantially earlier than April 15, 2011, the Court may, to the extent practicable, propose earlier dates for the conduct of hearings.

6. Specification of the Issues in Dispute

- 6.1 Pursuant to Paragraph 15(c) of Annexure G and with regard to the Parties' opening statements during the course of the First Meeting, the Court takes note of the issues in dispute as found in Pakistan's Request for Arbitration of May 17, 2010, without prejudice to further development of the issues by the Parties in their respective pleadings.

7. Confidentiality

- 7.1 Taking note of the Parties' agreement, all written pleadings and any other documents or evidence relating to these proceedings are to remain confidential at this time.
- 7.2 In due course, and in any event no later than 30 days before the opening of the hearing on the merits (should such be necessary), the Parties shall inform the Court as to:
- 7.2.1 whether they agree to open to the public any hearings on the merits that may be conducted in these proceedings and, if so, whether they agree that the hearings may be broadcast;
 - 7.2.2 whether they agree to make public the written pleadings, supporting documents, Rules of Procedure, and procedural orders utilized in these proceedings; and
 - 7.2.3 whether they agree to make public the award rendered by the Court.

8. Site Visit

- 8.1 Taking note of the Parties' agreement during the First Meeting that the Court should conduct a site visit to the pertinent facilities and locations of the Kishenganga hydro-electric facility and to those of the Neelum Valley, the Court invites the Parties to confer and agree on a joint itinerary for the visit. The Parties are particularly encouraged to agree upon the optimum dates for conducting the site visit and on attendant security arrangements, as well as air transport between their respective sites if feasible.
- 8.2 Unless the Parties jointly apply for more time to discuss the matter, the Parties' respective views on the time, place, and other arrangements relating to the proposed site visit (including any points that may have been agreed to between them) shall be communicated to the Court no later than March 18, 2011.
- 8.3 The Court shall thereafter issue an order deciding upon the further steps to be taken in regard to the site visit.
- 8.4 The Court takes note of the views expressed by the Parties during the First Meeting regarding the possible conduct of the site visit within the months of February 2011 or March 2011. Regrettably, upon review of the calendars of its members, the Court has decided that it would not be possible to conduct the visit within the first quarter of 2011.

9. Appointment of Secretariat, Registrar, and Treasurer

- 9.1 Pursuant to Paragraph 15(a) of Annexure G and with the Parties' approval, the Court made the following appointments during the First Meeting:
 - 9.1.1 The Permanent Court of Arbitration as Secretariat,
 - 9.1.2 Mr Aloysius P. Llamzon, Legal Counsel of the PCA, as Registrar, and
 - 9.1.3 Mr Brooks W. Daly, Deputy Secretary-General and Principal Legal Counsel of the PCA, as Treasurer.

10. Transcription of Hearings and Meetings

- 10.1 The Court takes note of the Parties' agreement that verbatim transcripts of hearings and meetings be taken in these proceedings.
- 10.2 In accordance with Paragraph 19 of Annexure G, the Secretariat shall arrange for the verbatim transcription of hearings and meetings. Such transcripts, when signed by the Chairman, shall constitute minutes for the purposes of Paragraph 19 of Annexure G.

24. After hearing the Parties' views during the First Meeting and receiving further communications from the Parties pursuant to paragraph 2 of Procedural Order No. 1, the Court issued **Procedural Order No. 2** dated 16 March 2011, in which it adopted a set of "Supplemental Rules of Procedure" to apply in these proceedings subject to the Treaty, the procedural orders of the Court, and the Terms of Appointment.³

25. As recorded in paragraph 4.1 of Procedural Order No. 1, India gave notice, prior to the Court's First Meeting, that it would "urge preliminary objections which go to the maintainability of

³ Procedural Order No. 2, para. 1.1.

Pakistan's Request for Arbitration, including the competence of the Court of Arbitration to deal with the differences mentioned in the Request for Arbitration." Procedural Order No. 1 set out a schedule for the consideration of any preliminary objections.

26. However, by e-mail communication dated 7 July 2011, India informed the Court that it no longer intended to "lodge preliminary objections to jurisdiction," and that "[o]bjections to admissibility, pursuant to Article 12(2) of the Supplemental Rules of Procedure, would be addressed at the appropriate stage of the proceedings."

D. CONFIDENTIALITY

27. With respect to confidentiality, Paragraph 19 of Annexure G provides:

The Chairman of the Court shall control the discussions. The discussions shall not be open to the public unless it is so decided by the Court with the consent of the Parties. The discussions shall be recorded in minutes drawn up by the Secretaries appointed by the Chairman. These minutes shall be signed by the Chairman and shall alone have an authentic character.

28. During the First Meeting, the Parties agreed that all written pleadings and any other documents or evidence relating to these proceedings were to remain confidential unless otherwise agreed. The Court noted this agreement in paragraph 7 of Procedural Order No. 1, while also establishing a timeline for further consultation between the Parties concerning the possible opening of the hearing on the merits to the public, and the publication of the written pleadings, supporting documents, rules of procedure, procedural orders and the Award to be rendered by the Court.
29. On 10 July 2012, the Court invited the Parties to submit to the Court their agreed views on the matters set out in paragraph 7 of Procedural Order No. 1.
30. By e-mail communication dated 20 July 2012, India stated its view that the pleadings and case documents should be made available to the public at the start of the oral hearing. It also suggested that the hearing be broadcast and open to the public. Finally, India supported making the Award available to the public.
31. By e-mail communication dated 7 August 2012, Pakistan stated its wish to keep the proceedings confidential. Pakistan was willing however to support the issuance of a press release at the conclusion of the hearing and the publication of the Court's Award.

32. After further discussion between the Parties and with the Chairman at the hearing on the merits, the PCA issued, on 20 August and 1 September 2012, two press releases concerning the opening and closing of the hearing respectively.⁴

E. THE COURT'S FIRST SITE VISIT

33. During the First Meeting of the Court, the Parties had agreed that it would be desirable for the Court to conduct a site visit to the pertinent facilities and locations of the KHEP as well as to the Neelum Valley and Pakistan's Neelum-Jhelum Hydro-Electric Project (the "NJHEP").
34. Pursuant to Procedural Order No. 1, the Court invited the Parties to confer and agree upon a joint itinerary and other arrangements for the site visit. The Parties exchanged views on 18 March 2011.
35. By e-mail communication dated 21 March 2011, the PCA transmitted to the Parties the Court's instructions concerning the site visit, providing that: (1) the dates of 15-21 June 2011 would be set aside as the optimum dates for the conduct of the site visit; (2) the Court would be prepared to conduct the site visit in accordance with a "jointly agreed itinerary proposed by the Parties," which the Parties were requested to propose by no later than 29 April 2011; and (3) the Court had provisionally reserved 12-18 February 2012 for the possible conduct of a second site visit should such a visit be deemed necessary or appropriate.
36. Having considered further communications from the Parties regarding the site visit, the Court issued **Procedural Order No. 3** on 10 May 2011, deciding the itinerary of the proposed visit, the size of the delegations, matters concerning the confidentiality of the site visit and the manner in which the costs were to be apportioned between the Parties. The operative parts of Procedural Order No. 3 are as follows:

1. The Site Visit Program

- 1.1 The Court takes note of the Parties' agreement on the "broad outline of the itinerary", as follows:

DAY	DETAILS OF VISIT	PROPOSED DAY AND DATE	START TIME
Day 1	Arrival of members of [the Court] and Indian Delegation at Islamabad	Wednesday/Thursday, June 15/16, 2011	

⁴ See http://www.pca-cpa.org/showpage.asp?pag_id=1392.

Day 2	Visit to the Neelum Valley	Thursday, June 16, 2011	0800 hours
	Return to Hotel		1500 hours
Day 3	Visit to NJ Power House Sites	Friday, June 17, 2011	0800 hours
	Proceed to Chakothi Border on Muzaffarabad Srinagar Road, Crossing the [Line of Control] and immigration process		1300 hours
	Departure to Srinagar for night stay		1800 hours
Day 4	Visit to Dam Site of Kishenganga	Saturday, June 18, 2011	0800 hours
	Departure to Srinagar for night stay		1500 hours
Day 5	Visit to Kishenganga Power House Site	Sunday, June 19, 2011	0800 hours
	Departure to Srinagar for night stay		1530 hours
Day 6	Srinagar to Delhi, stay in New Delhi	Monday, June 20, 2011	1100-1400 hours
	Departure of members of [the Court] and Pakistan Delegation to their respective destinations		

- 1.2 Having found the foregoing acceptable, the Court hereby adopts the outline of the itinerary proposed by the Parties on April 29, 2011.

2. Size of Delegations

- 2.1 The Court takes note of the Parties' agreement that their respective delegations (including the Agent, Co-Agents, counsel, and experts) each be limited to not more than 10 persons for logistical reasons.
- 2.2 The Court's delegation shall similarly be comprised of not more than 10 persons, including all the Members of the Court, the Registrar, and the members of the Secretariat involved in documentation and logistical support to the Court.

3. Confidentiality; Press Release

- 3.1 While both Parties have affirmed the importance of the rules on confidentiality in relation to the site visit, the Court takes note of the Parties' lack of agreement on whether a press release should be issued by the Court upon the conclusion of the visit. India has proposed that a press release whose text has been agreed between the Parties be issued by the Court at the end of the visit, while Pakistan maintains that confidentiality is necessary under the circumstances and does not wish the Court to issue such a press release.
- 3.2 Recalling the principles on confidentiality that govern this arbitration (including Paragraph 7 of Procedural Order No. 1) and taking into account the lack of agreement between the Parties, the Court considers that no public disclosure of the site visit, including any statement to the press emanating from the Court, can be made.
- 3.3 The Court hereby orders that:

- (a) There shall be no advance public announcements of the fact that a site visit shall be conducted, nor of the dates and itineraries thereof. The Parties are enjoined to ensure the absolute confidentiality of all information relating to the site visit until the visit has been concluded.
- (b) If both Parties agree at any point before or during the site visit, the Court may issue a press release in consultation with the Parties, to be issued only after the conclusion of the visit on June 21, 2011. However, if both Parties do not so agree, then no press release nor other public statement shall be issued by the Court.

4. Hospitality/Social Events

- 4.1 The Court takes note of the Parties' agreement that the site visit "be as discreet as possible without any social events", of India's suggestion that "this should not exclude any reasonable hospitality by Government authorities", and of Pakistan's request that India clarify the meaning of "reasonable hospitality".
- 4.2 Without limiting the Parties' freedom to reach agreement on this matter, the Court expresses its availability to attend any simple dinner event that a Party may wish to prepare, if that dinner includes and is restricted to the members of both delegations participating in the site visit.

5. Presentations During the Site Visit

- 5.1 The Court takes note of the Parties' agreement that any presentations made during the site visit be limited to objective, technical presentations made by experts (whether members of the official delegations or other experts), and that legal issues or arguments should not be discussed at any point during such presentations. The Court agrees with this approach and wishes to emphasize that presentations should be succinct and remain neutral in tone.
- 5.2 The Members of the Court shall be free to put questions at any time during a presentation. No member of any delegation shall be permitted to ask questions during or after a presentation. With the Chairman of the Court's leave, the non-presenting delegation may respond to a point made in a presentation, such response shall be limited strictly to technical or factual matters.
- 5.3 Any materials meant to be distributed during such presentations (including maps, plans, technical illustrations, and similar documents), shall be provided to the Court and the other Party no later than May 31, 2011.
- 5.4 For the avoidance of doubt, the site visit (including the presentations made therein) shall not be considered "oral hearings" or "oral submissions" within the meaning of Article 14 of the Supplemental Rules of Procedure.

6. Record of the Site Visit

- 6.1 The Court takes note of Pakistan's statement that "on the matter of record of the site visit, no doubt that members of the delegation would be taking notes; however, we are of the view that it would be useful to have a permanent record" of the presentations made during the site visit, and of its proposal that the PCA "make necessary arrangements for a video recording of the entire visit." For its part, India has suggested that "[e]ither side will arrange videography/photography on its side" while expressing that it is "open to any directions from the Court" on this point.
- 6.2 Within their respective delegations, the Parties are free to take their own notes. These need not be shared with the Court or the other Party.
- 6.3 The Members of the Court and its Secretariat shall be free to take notes and photographs for exclusive use in internal deliberations. The Secretariat shall also take charge of producing a video recording of all presentations made, and shall make a copy thereof for each Party.

7. Costs of the Site Visit

- 7.1 The Court takes note of the Parties' agreement that each Party shall bear all costs of the site visit within their respective territories, including hotel accommodations and internal transportation.
- 7.2 Pursuant to Article 21 of the Supplemental Rules of Procedure, all other expenses relating to the site visit shall be borne equally by the Parties.

8. Further Arrangements

- 8.1 The Court takes note of India's statement that "[i]f the proposed outline programme of the visit to India and Pakistan is generally acceptable to the Court, then we can mutually discuss the further details, including the logistics", and Pakistan's observation that the Parties have yet to "reach agreement on some of the modalities" of the site visit.
- 8.2 Within the framework of this Order, the Court invites the Parties to continue conferring on the remaining logistical issues, and to report back to the Court with further points of agreement no later than May 23, 2011. The logistical issues to be agreed upon should include but not necessarily be limited to the following: (a) arrangements to ensure the security of each member of the Court at all times; (b) a detailed (by-the-hour) itinerary, to the extent possible; (c) provisions for medical support; (d) lists of the Parties' delegations and experts that will address the Court during the site visit, (e) hotel arrangements, and (f) modes of internal transportation.

37. By e-mail communications dated 12 June 2011, India and Pakistan submitted slides and visual aids to be used during the site visit. By e-mail communication of 13 June 2011, India objected to Pakistan's submitted presentations and on 14 June 2011, the Court informed India that it would be afforded the opportunity to raise its objections to any particular presentation of Pakistan after that presentation was made during the site visit. India's objections were subsequently expressed during Pakistan's presentations and were noted by the Court.
38. From 15 to 21 June 2011, a site visit to the KHEP, the NJHEP and surrounding areas located on the Kishenganga/Neelum River was conducted. Thirty persons, ten representatives from each Party⁵ plus a ten-member delegation from the Court of Arbitration,⁶ participated in it. The

⁵ Pakistan's delegation was comprised of: Mr Kamal Majidulla, Agent for Pakistan and Special Assistant to the Prime Minister on Water Resources and Agriculture; Mr Khalil Ahmad, Ambassador at Large, Co-agent; Mr Mohammed Karim Khan Agha, Additional Attorney General for Pakistan, Co-agent; Mr Sheraz Jamil Memon, Pakistan's Commissioner for Indus Waters, Co-agent; Prof. James Crawford, Counsel; Mr Samuel Wordsworth, Counsel; Ms Shamila Mahmood, Counsel; Mr Farhat Mir, Secretary of Planning and Development, Government of Azad Jammu and Kashmir; Mr Mirza Asif Baig, Expert; and Mr Mehr Ali Shah, Expert.

India's delegation was comprised of: Mr Dhruv Vijai Singh, Agent for India and Secretary, Ministry of Water Resources; Mr Narinder Singh, Co-agent; Mr G. Aranganathan, Co-agent; Mr A. K. Bajaj, Chairman, Central Water Commission; Mr R.K.P. Shankardass, Counsel; Prof. Stephen C. McCaffrey, Counsel; Prof. Daniel Magraw, Counsel; Mr Darpan Talwar, Senior Joint Commissioner (Indus), Ministry of Water Resources; Mr Balraj Joshi, Expert; and Dr S. Sathyakumar, Expert.

Court arrived in Islamabad on 15 June 2011, visited the Neelum Valley by helicopter, and inspected components of the NJHEP. The Court then crossed the Line of Control on 17 June 2011 and proceeded to Srinagar. On 18 and 19 June 2011, travelling by helicopter and ground transport, the Court inspected components of the KHEP located in the Gurez Valley and the area near Bandipura north of Wular Lake. It then departed from India by way of New Delhi on 20 and 21 June 2011.

39. On 22 June 2011, the PCA published a press release approved by both Parties concerning the site visit as well as a photograph of the Court taken during the site visit.
40. Pursuant to paragraph 6 of Procedural Order No. 3, on 2 August 2011, the PCA transmitted to the Parties and the Members of the Court a set of four DVD-format discs containing videos of the various presentations made during the site visit, and photographs of the site visit.

F. PAKISTAN’S APPLICATION FOR INTERIM MEASURES

41. Paragraph 28 of Annexure G to the Treaty provides:

28. Either Party may request the Court at its first meeting to lay down, pending its Award, such interim measures as, in the opinion of that Party, are necessary to safeguard its interests under the Treaty with respect to the matter in dispute, or to avoid prejudice to the final solution or aggravation or extension of the dispute. The Court shall, thereupon, after having afforded an adequate hearing to each Party, decide, by a majority, consisting of at least four members of the Court, whether any interim measures are necessary for the reasons hereinbefore stated and, if so, shall specify such measures: Provided that
 - a) the Court shall lay down such interim measures only for such specified period as, in its opinion, will be necessary to render the Award: this period may, if necessary, be extended unless the delay in rendering the Award is due to any delay on the part of the Party which requested the interim measures in supplying such information as may be required by the other Party or by the Court in connection with the dispute; and
 - b) the specification of such interim measures shall not be construed as an indication of any view of the Court on the merits of the dispute.

42. In paragraph 10 of its Request for Arbitration, Pakistan stated:

Accordingly, pursuant to Annexure G, paragraph 28 of the Treaty, Pakistan will request the Court at its first meeting to lay down, pending its Award, interim measures both to

⁶ The Court’s delegation included all the Members of the Court as well as three members of the Secretariat: Mr Aloysius Llamzon, Registrar and Legal Counsel; Mr Dirk Pulkowski, Legal Counsel; and Mr Garth Schofield, Legal Counsel.

safeguard Pakistan's interests under the Treaty with respect to the matters in dispute and to avoid prejudice to the final solution and aggravation or extension of the dispute.

43. Pakistan sought:

An interim order restraining India from proceeding further with the planned diversion of the river Kishenganga/Neelum until such time as the legality of the diversion is finally determined by a Court of Arbitration.⁷

44. During the Court's First Meeting, Pakistan made the following statement in respect of provisional measures:

Our assessment of the present situation along the Kishenganga is that while the plan certainly envisages works on the Indus that would breach the Indus Waters Treaty and cause great harm to Pakistan, the project is not yet so far advanced that such harm is imminent.

We are aware of the principle of international law, applied for example by the International Court [of Justice] in paragraphs 30-33 of its Order on provisional measures in the *Great Belt* case, that in cases such as the present a State engaged in works that may violate the rights of another State can proceed only at its own risk. The court may, in its decision on the merits, order that the works must not be continued or must be modified or dismantled.

We are content at this stage to rely upon that principle.

Major construction projects are, however, not easily reversible processes. The excavation of construction sites and the filling of dams cannot easily be undone. Equally importantly, costs are not incurred in a regular and uniform fashion. There are points at which major investments of capital and resources have to be made. Beyond those points a State might find it more difficult to abandon the project and restore the *status quo ante*.

We therefore invite India to give an undertaking to inform the Court, and at the same time the Government of Pakistan, of any actual or imminent developments or steps in relation to the Kishenganga project that it considers would have a significant adverse effect upon the practicality of abandoning the project and restoring the *status quo ante*, or would in any other way seriously jeopardize Pakistan's interests.

On that basis, and on the understanding that we may apply to the Court for provisional measures at any point in the future should it become apparent (whether as a result of a communication from India or otherwise) that the ordering of such measures is an urgent necessity, we have decided to make no application for provisional measures at this meeting.⁸

45. By e-mail communication dated 6 March 2011, Pakistan requested that India provide, by 17 March 2011, its comments on: (1) India's understanding of the "proceed at your own risk" principle outlined by the International Court of Justice in the *Great Belt* case;⁹ (2) the status of the undertaking to inform Pakistan and the Court of "any actual imminent steps in relation to

⁷ Pakistan's Request for Arbitration, para. 54(a).

⁸ First Meeting Tr., 14 January 2010, at 19:22 to 21:12.

⁹ *Passage through the Great Belt (Finland v. Denmark)*, Provisional Measures, Order of 29 July 1991, I.C.J. Reports 1991, p. 12.

the KHEP that it considers would have a significant adverse effect upon the practicability of abandoning the project and restoring the *status quo ante* or would in any other way seriously jeopardize Pakistan's interests"; (3) the current state of works at the site; and (4) the planned date for diversion of the river.

46. By e-mail communication dated 17 March 2011, India replied that: (1) in its understanding the "proceed at your own risk" principle was "covered by the existing International Law"; (2) as a consequence of Pakistan's decision, expressed at the First Meeting of the Court, to forego lodging an application for provisional measures, it would be inappropriate for Pakistan to be "seeking any unilateral undertakings on the part of India"; (3) India would address the question of the status of current construction in "substantive pleadings on the merits according to the schedule laid down by the Court"; and (4) the "planned date of diversion is not before 2015."
47. By e-mail communication dated 6 June 2011, Pakistan submitted an application for provisional measures.
48. On 7 June 2011, India requested "adequate time to respond to Pakistan's application" and submitted that Pakistan's application should have been filed earlier, especially because "India's last letter to Pakistan was on 17 March 2011." India also recalled that at the Court's First Meeting, Pakistan had stated that it would not make an application for provisional measures.
49. Through the Registrar, the Court communicated a proposed procedural schedule for considering Pakistan's application for provisional measures. After considering the comments of the Parties, the Court issued **Procedural Order No. 4** on 12 June 2011 deciding on a schedule for written submissions and on a hearing to be held at the Peace Palace in The Hague, from 25 to 27 August 2011.
50. By e-mail communication dated 30 June 2011, Pakistan recalled to the Court the statement made by India during the course of the site visit according to which "the temporary tunnel at the Kishenganga dam site is 100% complete" and the "river would be dammed at the site in November 2011." Pakistan submitted that a

section of the Kishenganga/Neelum River would be diverted as a result, however, the interference in the flow of the river at this section is intended to be permanent—the former riverbed would be lost, and would become a construction site for the permanent 37m high dam structure . . . Pakistan considers that the imminence of these works adds a further element of urgency to its Application.

51. On 22 July 2011, India submitted a response to Pakistan's application for provisional measures.

52. After consulting the Parties, on 26 July 2011, the Court issued **Procedural Order No. 5**, determining that the hearing on interim measures would be organized in two rounds of oral argument, starting with statements by Pakistan on the first day, by India on the second, and reply and closing statements by both Parties on the final day of the hearing.
53. On 3 August 2011, Pakistan submitted a reply to India's response to Pakistan's application for provisional measures. On 15 August 2011, India submitted a rejoinder to Pakistan's reply.
54. The Court held a hearing on interim measures at the Peace Palace in The Hague, from 25 to 27 August 2011. The following persons participated:

The Court of Arbitration

Judge Stephen M. Schwebel (Chairman)
 Sir Franklin Berman KCMG QC
 Professor Howard S. Wheeler FREng
 Professor Lucius Caflisch
 Professor Jan Paulsson
 H.E. Judge Bruno Simma
 H.E. Judge Peter Tomka

Pakistan

Mr Kamal Majidulla, Agent
 H.E. Khalil Ahmed, Ambassador at Large, Co-agent
 Mr Mohammad Karim Khan Agha, Additional Attorney General for Pakistan, Co-agent
 Mr Aijaz Ahmed Pitafi, Joint Commissioner for Indus Waters
 Prof. James Crawford (*by telephone conference*)
 Prof. Vaughan Lowe, Legal Counsel
 Mr Samuel Wordsworth, Legal Counsel
 Ms Shamila Mahmood, Legal Counsel
 H.E. Ambassador Aizaz Chaudhry, Ambassador for Pakistan to the Netherlands
 Mr Asif Baig, Technical Expert
 Mr Mehr Ali Shah, Technical Expert

India

Mr Dhruv Vijai Singh, Agent
 H.E. Bhaswati Mukherjee, Ambassador of India, The Hague
 Mr A.K. Bajaj, Chairman, Central Water Commission, Technical Advisor
 Dr Pankaj Sharma, Minister, Indian Embassy, The Hague
 Mr Fali S. Nariman, Counsel
 Mr R.K.P. Shankardass, Counsel
 Prof. Stephen C. McCaffrey, Counsel
 Mr Rodman Bundy, Counsel
 Prof. Daniel Magraw, Counsel
 Mr S.C. Sharma, Counsel
 Mr Y.K. Sinha, Co-Agent
 Mr Narinder Singh, Co-Agent
 Mr K.S. Nagaraja, Executive Director NHPC
 Mr G. Aranganathan, Co-Agent
 Mr Darpan Talwar, SJC (Indus), Technical Advisor

The Secretariat

Mr Aloysius Llamzon, Registrar and Legal Counsel
Mr Dirk Pulkowski, Legal Counsel
Mr Garth Schofield, Legal Counsel
Ms Anna Vinnik, Assistant Legal Counsel
Ms Willemijn van Banning, Legal Secretary

Court Reporters

Mr David Kasdan
Mr Randy Salzman

55. The following persons presented oral arguments before the Court on behalf of Pakistan:

Mr Kamal Majidulla, Agent for Pakistan
Prof. Vaughan Lowe, Legal Counsel
Mr Samuel Wordsworth, Legal Counsel

56. The following persons presented oral arguments before the Court on behalf of India:

Mr Dhruv Vijai Singh, Agent for India
Mr Fali S. Nariman, Counsel
Mr R.K. P. Shankardass, Counsel
Mr Rodman Bundy, Counsel
Prof. Stephen C. McCaffrey, Counsel
Prof. Daniel Magraw, Counsel

57. On 27 August 2011, Professor Wheeler requested India to provide information on the following points with respect to the technical aspects of the proposed KHEP dam:

- (1) One or more cross-sections of the dam.
- (2) A drawing of the dam elevation showing the location of the proposed spillways and any other discharge outlets with respect to design levels of water elevation, such as the drawing provided for the Baglihar dam in Volume 7 of Pakistan's Memorial at Figure 5.2.1. on Page 141.
- (3) Specification of the hydraulic design of the proposed spillways and any other downstream outlet works; that is, the capacity of the dam to transmit flows downstream as a function of the ponded water level.
- (4) The intended mode of operation of India, including the transmission of flows downstream to meet the needs of existing uses as specified in the Treaty, any environmental flows and for sediment flushing.
- (5) A diagram showing the upstream extent of inundation at the Full Pondage Level and under surcharge storage; that is, during the passage of the design flood, including the location of any nearby upstream riparian settlements, and such a document could be a plan view of the inundated areas.
- (6) India's Environmental Impact Assessment for the dam.
- (7) An outline schedule of the proposed construction works; that is including the currently proposed timing of the key phases of the construction of the dam.¹⁰

¹⁰ Interim Measures Hearing Tr., (Day 3), 27 August 2011, at 201:6 to 202:25.

58. The Chairman of the Court asked India to provide the technical data and construction schedules requested by Professor Wheeler at the latest by 2 September 2011, and Pakistan to submit its comments on those data, should it wish to do so, no later than on 7 September 2011.¹¹
59. On 2 September 2011, India wrote to the Court in relation to the data requested by Professor Wheeler. India's Agent confirmed that most of the documents requested had been provided earlier to Pakistan, and identified those that were included as documentary exhibits in Pakistan's Memorial. He also confirmed that apart from the documents already provided by India during the hearing on interim measures, further documentation (including that concerning India's environmental impact assessment for the dam) would be produced in India's Counter-Memorial.
60. On 7 September 2011, Pakistan commented on India's communication of 2 September 2011 and provided the Court with two additional documents previously referred to by Pakistan during the hearing.
61. The Court issued its Order on the Interim Measures Application of Pakistan dated June 6, 2011 (**"Order on Interim Measures"**) on 23 September 2011. The operative provisions of the Order read:
152. Having found that it is necessary to lay down certain interim measures in order to "avoid prejudice to the final solution . . . of the dispute" as provided under Paragraph 28 of Annexure G to the Indus Waters Treaty, the Court unanimously rules that:
- (1) For the duration of these proceedings up until the rendering of the Award,
 - (a) It is open to India to continue with all works relating to the Kishenganga Hydro-Electric Project, except for the works specified in (c) below;
 - (b) India may utilize the temporary diversion tunnel it is said to have completed at the Gurez site, and may construct and complete temporary cofferdams to permit the operation of the temporary diversion tunnel, such tunnel being provisionally determined to constitute a "temporary by-pass" within the meaning of Article I(15)(b) as it relates to Article III(2) of the Treaty;
 - (c) Except for the sub-surface foundations of the dam stated in paragraph 151(iv) above, India shall not proceed with the construction of any permanent works on or above the Kishenganga/Neelum River riverbed at the Gurez site that may inhibit the restoration of the full flow of that river to its natural channel; and

¹¹ Interim Measures Hearing Tr., (Day 3), 27 August 2011, at 294:10-16.

- (2) Pakistan and India shall arrange for periodic joint inspections of the dam site at Gurez in order to monitor the implementation of sub-paragraph 1(c) above. The Parties shall also submit, by no later than December 19, 2011, a joint report setting forth the areas of agreement and any points of disagreement that may arise between the Parties concerning the implementation of this Order.

153. The Court shall remain actively seized of this matter, and may revise this Order or issue further orders at any time in light of the circumstances then obtaining.

62. On 26 September 2011, as directed by the Court, the PCA made the Order on Interim Measures available to the public through the PCA's website, where it remains.¹²

G. THE IMPLEMENTATION OF THE ORDER ON INTERIM MEASURES

63. Pursuant to paragraph 152(2) of the Order on Interim Measures, providing that "Pakistan and India shall arrange for periodic joint inspections of the dam site at Gurez in order to monitor the implementation of sub-paragraph 1(c) above," the Parties exchanged communications in October and early November 2011 discussing the timing and other aspects of the joint inspections.
64. As the Parties were unable to agree on dates for the joint inspections, on 8 November 2011, India sent the Court a letter enclosing the communications exchanged by the Parties and requested that the Court give the Parties "suitable directions."
65. On 24 November 2011, after receiving the Parties' respective views on India's request for directions, the Court indicated that the joint report required by paragraph 152(2) of the Order on Interim Measures "is meant to provide an opportunity for the Parties to raise any issues they may have concerning the interpretation and implementation of the Order, including the timing and frequency of periodic joint inspections of the dam site at Gurez. . . . If the parties are unable to agree on such a schedule, that disagreement should be articulated in the Report."
66. After further correspondence discussing areas of agreement and disagreement, the Parties jointly submitted a report on 19 December 2011 pursuant to paragraph 152 of the Order on Interim Measures. In that report, the Parties stated that they disagreed about: (1) the scope of the Order; (2) the timing and frequency of the joint inspections; (3) the size of the delegations for the first joint inspection; and (4) the duration of that inspection. The Parties agreed that the expenses for any joint inspection would be borne equally by the Parties.

¹² See http://www.pca-cpa.org/showpage.asp?pag_id=1392.

67. On 30 December 2011, the Court issued **Procedural Order No. 6** (*Concerning the Joint Report dated December 19, 2011 Submitted Pursuant to Paragraph 152(2) of the Order on Interim Measures*), in which it decided that: (1) two joint inspections, one to be conducted at the earliest practicable time in spring 2012 and the other at the latest practicable time in fall 2012, would be sufficient to monitor the implementation of the Order on Interim Measures; (2) the delegation of each Party for the joint inspections would comprise up to three members; and (3) in good weather, the joint inspections would last two days if the delegations were to travel by helicopter and three to four days if they were to travel by road.
68. After a series of e-mail communications in April 2012, the Parties agreed to hold a joint inspection of the Gurez dam construction site during the week of 7 May 2012.
69. On 8 May 2012, a three-member delegation from each Party¹³ travelled to Srinagar and proceeded by helicopter to the Gurez dam site.
70. Pursuant to paragraph 152(2) of the Order on Interim Measures, the Parties notified the Court of their attempts to agree on a joint report on the joint inspection of 8 May 2012. In the absence of agreement on the content of a joint report, the Parties agreed to submit separate reports regarding the joint inspection. These were received by the Court on 31 May 2012.
71. In its report, Pakistan quoted paragraph 152 of the Order on Interim Measures and further stated:

Thus, the purpose of the inspection was to determine: (1) the status of the temporary diversion tunnel and cofferdam, (2) the status of sub-surface foundations, and (3) the status of any permanent works on or above the Kishenganga/Neelum River riverbed that may inhibit restoration of the full flow of that river to its natural channel.

Itinerary:

The site inspection was initiated by a thirty minute military helicopter flight which departed the Srinagar airport at approximately 8:30 AM. After landing, approximately thirty additional minutes were required for transport by automobile to the dam site.

Shortly after arrival at the dam site the Pakistan delegation walked the length of the works in the company of the Indian representatives, including representatives of the construction contractor. The works in progress were observed and queries were raised which were answered by the contractor's representatives. However, photography of the works, the surrounding area or the river was not allowed during the inspection. As such, there is no photographic documentation.

¹³ Pakistan's delegation was comprised of Mr Asif Baig, Dr Gregory Morris and Ms Shamila Mahmood. India's delegation was comprised of Mr G. Aranganathan, Mr Darpan Talwar and Prof. K.G. Rangaraju.

The site visit was concluded with refreshments and snacks. We began the road journey back to the helicopter at noon for the return flight.

Observations:

The following observations were made during the site visit.

1. Status of the temporary diversion tunnel and cofferdam. Excavation of the diversion tunnel was reportedly completed, but we did not enter the tunnel to confirm. The vertical sluice gate at the tunnel entrance was not yet installed, as concrete work was still in progress and neither the gate guides or other operating mechanisms had been installed or were visible on site. Work had not been initiated on the cofferdam.
2. Status of sub-surface foundations. There was no evidence that any foundation work for the dam had been initiated, and not having diverted the river such work would be essentially impossible to undertake in any event.
3. Status of any permanent works on or above the Kishenganga/Neelum River riverbed that may inhibit restoration of the full flow of that river to its natural channel. The only “permanent” work that was visible during the visit was rock excavation on the left abutment, in the general area where the spillway and related works will be located. There was a large mass of rock spoil on the left overbank of the river but there was no evidence that concrete work has been initiated in this area, other than the portals for the river diversion tunnel. Although the river channel was somewhat restricted by placement of the construction road, the rusted condition of the gabions running along the left riverbank gave evidence that this condition has been present for some time.

72. In its report, India also quoted from paragraph 152 of the Order on Interim Measures and further summarized as follows:

B. The areas of agreement between the Parties:

4. India has not proceeded with the construction of any permanent works on or above the Kishenganga/Neelum River riverbed at the Gurez site that may inhibit the restoration of the full flow of that river to its natural channel.

C. The areas of disagreement between the Parties:

5. Pakistan takes a broader view of the scope of inspection than is specified by the Court Order.

73. On 5 October 2012, after further correspondence between the Parties, the Court issued **Procedural Order No. 11** (*Concerning the Second Joint Inspection conducted pursuant to Paragraph 152(2) of the Order on Interim Measures and Paragraph 2.2 of Procedural Order No. 6*):

1 Scope of the Joint Inspection

- 1.1 The Court understands the disagreement between the Parties on the scope of the joint inspection to center on the parts of the dam site at Gurez that should be made available to Pakistan for inspection. India maintains that “*as per the Court’s Order [on Interim Measures] dated 23 September 2011 the visit would be limited to inspecting the status of construction of permanent works, if any, on or above the Kishenganga/Neelum riverbed that may inhibit the restoration of the full flow of that river to its natural channel. Temporary diversion tunnels and cofferdams are not permanent works and, in our view, do not fall within the ambit of the joint*

inspection.” By contrast, Pakistan “is of the considered view that the Order requires the Parties to conduct joint inspections of the dam site at Gurez and does not limit the extent of the inspection or exclude any works from inspection. An inspection of all works and the entire site is considered necessary to determine the permanence and capability of the works constructed and whether these works will or will not inhibit the restoration of the full flow of the river to its natural channel.”

- 1.2 Having considered the Parties’ positions, the Court determines that the monitoring of compliance with the Interim Measures Order necessitates the inspection of all works at the dam site at Gurez that are constructed on or above the Kishenganga/Neelum’s natural riverbed.
- 1.3 Accordingly, in carrying out the joint inspection of the dam site at Gurez pursuant to paragraph 152(2) of the Order on Interim Measures, the Parties may undertake the following:
 - (a) view and inspect the reach of the Kishenganga/Neelum River from the upstream cofferdam through to the downstream cofferdam; and
 - (b) view and inspect any works, existing or under construction, that are physically located on or above the Kishenganga/Neelum’s natural riverbed in the area between the upstream cofferdam and the downstream cofferdam.
- 1.4 For the avoidance of doubt, the Court emphasizes that although the Parties may see during the inspection the cofferdams and any excavation works or subsurface foundations of the dam located on the riverbed, such works are expressly permitted by the Court’s Order on Interim Measures and shall not be construed as a breach of the Order so long as they comply with paragraph 152(1)(c) of the Order.

2. Joint Inspection Report

- 2.1 In preparing any report to the Court on the conduct of the joint inspection, the Parties are not restricted to identifying the existence or otherwise of “permanent works on or above the Kishenganga/Neelum riverbed at the Gurez site that may inhibit the restoration of the full flow of that river to its natural channel.” The Parties may, to the extent necessary to give context to the joint report, briefly describe the condition of the river and its bed in the area between the cofferdams, along with the status of any works (existing or under construction) or features viewed over the course of the inspection that bear direct relevance to the monitoring of compliance with the Interim Measures Order.
- 2.2 In the event that the Parties are unable to reach agreement on the content of a joint report, they may submit a joint report setting forth the remaining areas of disagreement or, if necessary, submit separate reports.

74. On 14 October 2012, a second joint inspection was conducted, during which three-member¹⁴ delegations of the Parties visited the KHEP site at Gurez.
75. Having been unable to reach agreement on the content of a joint report on the second joint inspection, the Parties submitted separate reports to the Court on 26 and 30 November 2012. In its report, Pakistan quoted paragraph 159 of the Order on Interim Measures and from Procedural Order No. 11, and further stated:

¹⁴ Pakistan’s delegation was comprised of Mr Asif Baig, Dr Gregory Morris and Ms Shamila Mahmood. India’s delegation was comprised of Mr G. Aranganathan, Dr Neeru Chadha and Prof. K.G. Rangaraju.

Thus, the purpose of the inspection was to determine: (1) the status of the river diversion works, (2) the status of sub-surface foundations, and (3) the status of any permanent works on or above the Kishenganga/Neelum riverbed that may inhibit restoration of the full flow of that river to its natural channel.

A. Itinerary:

[...]

B. Observations:

The following observations were made during the site visit.

1. Status of the temporary diversion tunnel and cofferdam. The upstream cofferdam had been constructed of rock and earth, and contained a clay core. It was in operation and river flow was being diverted into the diversion tunnel. Based on the evidence of sediment deposits along the river banks, the backwater area created by the diversion tunnel extends approximately one kilometre upstream of the cofferdam.

The downstream cofferdam extended almost the full width of the river, but was stopped about two meters from the opposite bank so that water can still pass this cofferdam.

There was no evidence of disturbance to the riverbed upstream or downstream of the two cofferdams, except that a gravel crushing plant and stockpiles are located on the wide left-hand gravel bar a little more than a kilometre upstream of the dam, where the river starts to open into the Gurez Valley. This plant was also present during the May 2012 site visit.

2. Status of sub-surface foundations. There was no evidence that any foundation work for the dam had been initiated. Waste material from rock excavation on either abutment (including stones as large as 1.5 m diameter) had either fallen or been placed into the riverbed, and the riverbed extending approximately 100 meters downstream from the cofferdam had been filled with stone 2 to 3 meters deep. However, at the dam axis the original river bed was visible in places, and there was no evidence of any foundation work or other permanent structures. A concrete foundation approximately ½ meter thick had been placed along the axis of the cut-off wall, upstream of the dam axis. Upon enquiring, it was explained that this foundation was to support the drilling equipment that was going to determine the depth to bedrock, to create the template for cut-off wall construction. Although some drilling pipe was on the site, no drilling had been initiated and the drilling foundation was not yet completed.

3. Status of any permanent works on or above the Kishenganga/Neelum riverbed that may inhibit restoration of the full flow of that river to its natural channel. The only “permanent” work that was visible during the visit was rock excavation on both abutments, plus the diversion tunnel. A large mass of rock spoil had been placed along the left side of the river from the dam axis upstream for a distance of nearly one kilometre, but there is still ample width for the river to flow freely with inconsequential flow obstruction.

All of the stone that has been placed in the riverbed is loose material that can be removed by heavy equipment to restore the river to its pre-construction geometry. There is no evidence of any concrete or other permanent works in the riverbed.

76. In its report, India also quoted from paragraph 152 of the Order on Interim Measures and Procedural Order No. 11 and further stated:

4. The Parties inspected the following works:

- i. Upstream Cofferdam
 - ii. The reach of the river and river flow to the extent visible from its top.
 - iii. Inlet of the temporary diversion or by-pass tunnel with the river flow entering into it
 - iv. Reach between upstream cofferdam through to the downstream cofferdam
 - 1. Preparation for sub-surface excavation
 - 2. Hill slope on either side of the reach.
 - v. Downstream cofferdam
 - vi. The reach of the river and river flow to the extent visible from its top.
 - vii. Outlet of the temporary diversion or by-pass tunnel with the river flow being discharged from the diversion or by-pass tunnel into the natural course of the river downstream
5. There was no permanent work *on or above the Kishenganga/Neelum riverbed* that may inhibit the restoration of the full flow of that river to its natural channel at the dam site.
- 6 The Parties have no disagreement concerning the implementation of the “Court Order” as per the scope defined therein.¹⁵

H. THE COURT’S SECOND SITE VISIT

77. In an e-mail communication dated 6 December 2011, Pakistan requested the Court to conduct a second site visit in February 2012 as had been canvassed in the Court’s letter to the Parties dated 21 March 2011 concerning the June 2011 site visit (*see* paragraph 35 above). The Court invited India to comment on Pakistan’s request.
78. On 21 December 2011, India offered comments in an e-mail communication in which it stated that it would “leave the decision to the Court” about whether to conduct a second site visit.
79. On 30 December 2011, the Court transmitted to the Parties a draft of Procedural Order No. 7 (*Concerning the Second Site Visit*) for their comments, noting that it determined a second site visit to be appropriate.
80. The Parties provided their comments on the draft order on 9 January 2012. On 14 January 2012, Pakistan also provided the Court with a suggested itinerary for the second site visit.
81. The Court issued **Procedural Order No. 7** on 16 January 2012, providing that: (1) the second site visit would take place from 3 to 6 February 2012; (2) the Court’s delegation would be comprised of three persons: two Members of the Court, Sir Franklin Berman and Professor

¹⁵ Emphasis in the original.

Howard Wheeler, and one member of the Secretariat;¹⁶ (3) those Members of the Court not present would view the photos and video of the visit taken by the Secretariat; (4) experts who were not members of the official delegations would be allowed to brief and assist the delegations when *in situ*; and (5) there would be no advance public announcements of the visit, but a press release containing a text and photograph to be approved by the Parties and the Court would be prepared by the Secretariat for publication on the PCA website following the conclusion of the visit. In other respects, Procedural Order No. 7 provided that the arrangements for the second site visit would follow the practice established during the first site visit.

82. With the transmission of Procedural Order No. 7 and in response to India's comments of 9 January 2012 concerning potential factual presentations by Pakistan during the site visit and India's ability to reply, the Court indicated:

The purpose of the second site visit is to give the Members of the Court a background impression of the relevant projects and areas surrounding the Kishenganga/Neelum River. As the Secretariat will be providing both Parties with copies of the photographs and video recordings taken, the Parties are free to submit any evidence they deem relevant in their future submissions in accordance with the Supplemental Rules.

[...]

The Court is of the view that the second site visit does not constitute a "transaction of business" within the meaning of Paragraph 11 of Annexure G. The site visit is not an "oral hearing" in which "oral submissions" are made by the Parties, and those Members of the Court not present during the second visit will have an opportunity to review the video and photographic materials from the site visit (including videos of any presentations made) individually, just as they each review any submission or communication of the Parties. The Court also assures the Parties that its two physically participating Members shall not by themselves "transact business" at any point during the visit.

83. By e-mail communication dated 25 January 2012, India requested that the Court "direct Pakistan to make available to India by 27 January 2012 all presentations and all technical and factual matters proposed to be presented or briefed orally by Pakistan during the second site visit." India further commented that such a direction was necessary to "maintain the equality of

¹⁶ With respect to the size of the Court's delegation, the Court stated as follows:

The Court takes note of both Parties' willingness to accommodate a second site visit involving fewer than all Members of the Court if necessary, though the Court acknowledges that both Parties expressed their preference that the full Court or as many of its Members as possible attend. Regrettably, upon review of the calendar of its Members and other limiting factors, the Court has determined it would not be possible for all the Members of the Court to physically participate in the second site visit.

the Parties” so that India would not “be expected to respond spontaneously to the points to be made in Pakistan’s presentations and oral briefings.”

84. By e-mail communication dated 25 January 2012, Pakistan commented on India’s e-mail communication of the same date, arguing that India’s request was “superfluous” in light of the Parties’ prior opportunity to comment on the draft order.
85. On 27 January 2012, the Registrar conveyed to the Parties the following statement from the Chairman of the Court:

I acknowledge the Parties’ respective e-mail communications of January 25, 2012, regarding the conduct of the second site visit. I take particular note of the Agent of Pakistan’s assurance (i) that no formal presentations of the type made during the first site visit are anticipated, and (ii) that the experts would only conduct “an informal briefing at the site with the intention of describing what the Members of the Court happened to be looking at.”

On the basis of these representations from Pakistan, and noting that Pakistan’s experts will not discuss legal issues or arguments, and that the experts’ statements must be succinct and neutral in tone (para. 5.1, Procedural Order No. 7), I am of the view that:

- (1) the procedure to be followed with respect to any presentations or statements made during the second site visit—including the need for formal presentation materials (if any) to be provided in advance of the visit—has been addressed in Procedural Order No. 7, and no further directives from the Court are necessary in this regard; and
- (2) these proceedings afford the Parties no shortage of opportunity to address or comment on any matter arising from the second site visit; however, should any circumstance arise during the second site visit that one Party considers to be of grave prejudice that cannot be addressed over the ordinary course of the proceedings, immediate recourse to the Members of the Court present (and the Court itself, if necessary) is always available.

Finally, I trust that all representatives of the Parties understand the basic rule prohibiting *ex parte* discussions with Members of the Court during the course of these proceedings. In the case of the second site visit, I trust that any potentially contentious matter, whether of substance or procedure, will not be raised *ex parte* by any Party representative to any member of the Court or Secretariat.

86. From 3 to 6 February 2012, a site visit to the Neelum Valley was conducted. Arriving in Islamabad on 3 February 2012, the Court’s delegation, together with representatives from India and Pakistan,¹⁷ travelled to Muzaffarabad. On 4 February, the delegation proceeded by road into the Neelum Valley and visited the gauge-discharge observation site at Dudhnial. The delegation also visited a water-pumping installation in the vicinity of Athmuqam and was

¹⁷ Pakistan’s delegation for the second site visit comprised Mr Kamal Majidulla, Ms Shamila Mahmood and Mr Mirza Asif Baig. India’s delegation consisted of Mr Dhruv Vijai Singh, Mr Ram Chandra Jha and Mr Darpan Talwar. The Court’s delegation consisted of Sir Franklin Berman and Prof. Howard Wheeler, assisted by Mr Garth Schofield of the Secretariat.

briefed on lift irrigation practices in the Neelum Valley. The delegation returned to Islamabad on 5 February, and left Pakistan on 6 February 2012.

87. On 15 February 2012, the PCA published a press release approved by both Parties concerning the second site visit as well as three photographs taken during the visit.
88. Pursuant to Procedural Order No. 7, on 28 March 2012, the PCA transmitted to the Parties and the Members of the Court a set of two DVD-format disks containing videos of the presentations made during the second site visit, along with photographs.

I. THE PARTIES' WRITTEN SUBMISSIONS ON THE MERITS; REQUESTS FOR DOCUMENTS AND FURTHER INFORMATION

89. On 27 May 2011, Pakistan submitted its **Memorial**, accompanied by witness statements and expert reports. On 4 July 2011, Pakistan submitted a Volume 3 bis and a correction sheet addressing certain errata in the Memorial.
90. On 23 November 2011, India submitted its **Counter-Memorial**, accompanied by expert reports, technical documents, legal authorities and a list of errata.
91. By e-mail communication dated 22 December 2011, the Agent for Pakistan requested that the Agent for India provide copies of three documents referred to in India's Counter-Memorial: (1) a unredacted version of a letter dated 16 May 1960 from the Chairman of India's Central Water and Power Commission (the "**CWPC**") to India's Ministry for Irrigation and Power (known to the Parties as "Document IN-54" or "Annex IN-54" and hereinafter referred to as the "**CWPC Letter**"); (2) a letter dated 13 January 1958 referred to in the CWPC Letter; (3) the preliminary hydro-electric survey for the Indus basin which accompanied the letter of 13 January 1958; and (4) the revised or additional environmental impact assessments ("**EIAs**") and other surveys and reports prepared in respect of the reconfiguration of the KHEP in 2006.
92. By e-mail communication dated 5 January 2012, Pakistan also requested from India "further information as to the purpose for the construction of Adit 1 and the range of uses to which it could be put in the operation of the KHEP (including any use in diverting water from the valley in which its entrance is located into the KHEP plant)."
93. By e-mail communication dated 13 January 2012, India responded to Pakistan's request for documents. India further requested Pakistan to provide: (1) a copy of the EIA, environmental

management plan, and socio-economic impact assessment studies for the NJHEP; and (2) the technical details and EIAs of the four projects being planned upstream of the NJHEP.

94. On 21 January 2012, Pakistan submitted to the Court an application for production of a full copy of the CWPC Letter, arguing that an unredacted copy was essential for the presentation of its case.
95. Also on 21 January 2012, Pakistan responded to India's e-mail communication of 13 January 2012. Pakistan requested further information "as to where the [CWPC Letter] was located by India" as well as confirmation as to whether India's response regarding Pakistan's request for certain environmental reports "is that (i) the documents sought are not in existence or (ii) the documents are not being supplied for some other reason." Pakistan asked India for more specific information regarding its first request and referred India to paragraph 3.35 of Pakistan's Memorial for the identification of the four projects noted by India.
96. By e-mail communication dated 30 January 2012, India commented on Pakistan's application for production of a full copy of the CWPC Letter. Pakistan responded by e-mail communication dated 31 January 2012.
97. On 1 February 2012, the Court notified the Parties of the following procedure for consideration of Pakistan's application for production of the CWPC Letter:

India is requested to provide to all Members of the Court (through the Registrar) a full copy of [the CWPC Letter] at India's earliest convenience, but in no case later than Tuesday, February 7, 2012.

By no later than Tuesday, February 7, 2012, India is invited to provide its views on any applicable principle of State secrecy or privilege that the Court should take into account in deciding Pakistan's disclosure application.

Pakistan is invited to comment on India's submission by no later than Friday, February 10, 2012.
98. By letter dated 4 February 2012, India provided to the Court a full copy of the CWPC Letter, a copy of the Official Secrets Act 1923 (India), and a copy of the Official Secrets Act 1923 (Pakistan). India and Pakistan then re-stated their respective positions on 7 and 9 February 2012.
99. To resolve this impasse, on 14 February 2012 the Court issued **Procedural Order No. 8** which provided:

1. Procedural History

[. . .]

2. Summary of the Parties' Positions

- 2.1 Pakistan contends that India ought to produce an unredacted copy of Annex IN-54 because Annex IN-54 is “of central importance” to India’s argument. It maintains that India refers to the document “on multiple occasions in support of the contention that: ‘The planning, development, and construction of the [Kishenganga Hydro-Electric Plant (‘KHEP’)] dates back to a period when the Treaty was being negotiated, and was a key reason why specific provisions were included in Annexure D of the Treaty allowing India to engage in inter-tributary transfers for Run-of-River projects on tributaries of the Jhelum.’”
- 2.2 Pakistan argues that the Court is empowered to order the production of documents it considers “appropriate and necessary” pursuant to Paragraph 20 of Annexure G of the Treaty. Pakistan acknowledges that “redactions may be justified in appropriate cases, e.g. where dictated by issues of confidentiality or security” but argues that, based on India’s prior communications, such factors “do not apply in the current case.” On these grounds, Pakistan concludes that Annex IN-54 is likely to be relevant to the disputes before the Court, and that it is both appropriate and necessary for the Court to see the document in its entirety. Pakistan further asserts that it requires Annex IN-54 in its entirety to respond to India’s argument as articulated in the Counter-Memorial.
- 2.3 India makes three principal arguments. First, India maintains that the deleted passages of Annex IN-54 are not relevant to matters before the Court, noting that the redacted passages pertain to the Indus and the Chenab Rivers, not involved in the present dispute. Second, India argues the redacted passages need not be disclosed because India does not rely on them “in terms of Rule 11(i)(a) of the Supplemental Procedural Rules.” Third, India indicates that the disclosure of an unredacted copy of Annex IN-54 risks “prejudice to India.” India also makes reference to the Official Secrets Act, 1923 in force in both India and Pakistan. Referring to Paragraph 20 of Annexure G, India requests the Court not to disclose these redacted sections of Annex IN-54.
- 2.4 With respect to India’s arguments, Pakistan comments that India does not explain why the Official Secrets Act, 1923 is applicable in the instant case nor articulate what prejudice it might suffer.

3. Decision of the Court

- 3.1 As noted by the Parties, Paragraph 20 of Annexure G of the Treaty provides that the Court may “require from the Agents of the Parties the production of all papers and other evidence it considers necessary.”
- 3.2 The Court acknowledges Pakistan’s position concerning the potential relevance of the redacted passages of Annex IN-54 and the adverse impact redaction may have on Pakistan’s ability to respond to India’s arguments, as well as India’s position that the redacted passages contain “internal opinions with respect to matters that are not before this Court,” the disclosure of which may result in “prejudice to India.” The Court understands that India’s objection to Pakistan’s Application is based principally on the lack of relevance of the redacted portions of the document to this proceeding, and not on the Official Secrets Act, 1923.
- 3.3 As a general rule, the Court believes that any Party offering a document in evidence should provide the full document. The practice of redacting portions of exhibits has the understandable tendency to raise concerns on the part of the other Party, even where the material in question may be irrelevant. To address this concern, Paragraph 20 of Annexure G and Article 13(2) of the Supplemental Rules of

Procedure empower the Court to request, either *motu proprio* or upon application of a Party, the production of the full, unredacted document.

- 3.4 In the exercise of this power the Court would, in appropriate circumstances, seek an examination of the redacted material. Accordingly, India's offer to provide the Court with a copy of the unredacted Annex IN-54 *in camera* is a welcome development, as it allows the Court to determine for itself the degree of relevance of those redacted portions.
- 3.5 The Court has carefully reviewed the unredacted copy of Annex IN-54 in light of the Parties' concerns regarding prejudice to the interests of either Party that may result from the disclosure or non-disclosure of the redacted passages. In the Court's view, the unredacted passages of Annex IN-54 are not directly relevant to the issues in dispute as currently defined in the pleadings of the Parties, and the non-disclosure of the redacted passages will not hamper Pakistan's ability to respond to the arguments made in India's Counter-Memorial that refer to Annex IN-54.
- 3.6 The Court therefore concludes that at this stage in the proceedings, it is not necessary to order that India supply Pakistan a complete and unredacted copy of the communication affixed to India's Counter-Memorial as Annex IN-54.
- 3.7 The Court shall remain seized of the matter. Should further submissions by the Parties or other developments in the proceedings lead the Court to consider revisiting this determination, the Parties will be invited to provide further comments at that time. Pakistan may also renew its application for production of a full copy of Annex IN-54 should new matters arise in the course of proceedings that it believes justifies such disclosure.

100. By e-mail communication dated 15 February 2012, India asked Pakistan to be more specific regarding its request of 21 January 2012 for environmental reports. India further commented on the relevance of the environmental impact report requested by India in relation to the NJHEP and the discussion of that report during the first site visit. India also noted that, insofar as detailed project reports and environmental impact assessments did not exist for Pakistan's four potential projects, India considered any effect of the KHEP to be "speculative" and that such sites were not "existing" hydro-electric uses.
101. By e-mail communication dated 20 July 2012, Pakistan asked India for further technical information regarding the construction and use of Adit 1 of the KHEP construction.
102. At the hearing on the merits, in response to further queries made by Pakistan, India stated that Adit 1 is intended to be used for construction and maintenance, not for diversion of waters.¹⁸
103. On 21 February 2012, Pakistan submitted its **Reply**, accompanied by an annexure.
104. On 21 May 2012, India submitted its **Rejoinder**.

¹⁸ Hearing Tr., (Day 5), 24 August 2012, at 145:15 to 146:8.

J. EXPERT WITNESSES AND TESTIMONY BY VIDEO LINK

105. Pursuant to paragraph 3.2 of Procedural Order No. 9, on 15 June 2012, the Parties conveyed to each other and to the Court the names of witnesses and experts they intended to cross-examine at the hearing on the merits.
106. On 16 July 2012, Pakistan notified India that one witness India intended to cross-examine, Professor Michael Acreman, could not be present at the hearing in The Hague. Pakistan suggested the possibility of making Professor Acreman available by telephone or video-conference.
107. On 23 July 2012, India replied to Pakistan's message of 16 July, urging Pakistan to take steps to present Professor Acreman in person for cross-examination, noting that cross-examination "via a video link would obviously be less effective than an in person examination, and would thus result in prejudicing India."
108. By e-mail communication dated 9 August 2012, Pakistan asked the Registrar to place the matter of Professor Acreman's testifying by videoconference before the Court as India had not agreed to permit Professor Acreman's videoconference testimony. Pakistan confirmed that Professor Acreman was not available to come to The Hague.
109. India reiterated its objection to Pakistan's request by e-mail communication dated 13 August 2012, stating that Pakistan had known as far back as January 2011, when the dates of the hearing were finalized, that Professor Acreman could possibly be required to come to The Hague at that time. Referring to paragraph 3.3 of Procedural Order No. 9, which states that "(t)he Parties shall ensure that experts are present and available sufficiently in advance of the time they are anticipated to be called," India maintained that cross-examination by telephone or video link was not as effective as in-person examination and that it contravened the Court's Orders.
110. In an e-mail communication dated 13 August 2012, Pakistan pointed out that it accepted that prejudice may be caused to India by Professor Acreman's availability only by telephone, but that on balance, Pakistan would suffer more prejudice from Professor Acreman's unavailability to participate in person.

111. On 15 August 2012, the Court issued **Procedural Order No. 10** (*Concerning Pakistan's Request for Permission to Present Dr Acreman for Cross-Examination by Telephone Link*), in which it directed:

1. Articles 10 and 14 of the Supplemental Rules establish the procedure for the submission of expert evidence in support of the Parties' factual and legal arguments. A Party wishing to submit such evidence must append to its written pleadings the expert's witness report, which will stand as evidence in chief, while the other Party may request to cross-examine the expert. In accordance with Section 3.3 of Procedural Order No. 9, each Party is responsible for summoning to the hearing those of its experts that the other Party wishes to cross-examine. Consistent with these provisions and with general practice in international arbitration, the expert is expected to appear for cross-examination in person during the scheduled hearing. These provisions provide no guidance for a situation such as this one, where the expert is not presented in person due to a professed prior commitment.
2. At the outset, the Court notes that in international arbitration there are serious consequences to a party's failure to present an expert witness for cross-examination without cogent reasons: in general, that expert's report would be stricken from the record, and would form no part of the evidence on which an award can be based.
3. The Court considers that it is the norm for cross-examination of a witness or expert to be conducted in the physical presence of counsel for the other party and the tribunal. Where, as here, alternative means of cross-examination are proposed, to protect against a violation of the procedural due process rights of the other party, the Court would ordinarily need to be satisfied that: (1) at the time the expert report was presented, the Party did not know that the expert would not be available for cross-examination in person due to a prior commitment; (2) there is good reason, by virtue of the nature of the expert's duties at the time of examination, for excusing the expert's physical presence during the hearing; and (3) the alternative means of cross-examination satisfactorily approximates in-person cross-examination.
4. For reasons of liberality and because of the imminence of the hearing, the Court is willing to forego further analysis of requirements (1) and (2) on a *pro hac vice* basis.
5. As to (3), Pakistan offers to present Dr Acreman for cross-examination by telephone link. In the Court's view, cross-examination by telephone link does not satisfactorily approximate in-person cross-examination, as visual contact with the expert, possible in person but not by telephone, is essential for an effective cross-examination.
6. By contrast, the Court is of the view that video-conferencing is, under certain circumstances, an acceptable substitute for in-person cross-examination. By providing a synchronous audio and visual connection between the witness or expert, the cross-examining counsel, and the arbitral tribunal, video-conferencing can potentially approximate the conditions of in-person cross-examination. The Court notes in this regard that cross-examination of expert and fact witnesses by video-conferencing has been allowed in a number of international arbitral hearings.^{fn1} That said, based on the actual conduct of cross-examination by video-conferencing, the weight to be given to testimony made through that medium rests with the Court.^{fn2}
7. Pakistan contends that Dr Acreman is unable to make himself available for video-conferencing because his assignment involves fieldwork (which presumably requires frequent changes of location), the detailed schedule of which will not be known until some time during the week of August 13, 2012. In this context, it

appears that video-conferencing could be arranged once Dr Acreman's schedule and itinerary become known. The hearing is scheduled to take place from August 20 to August 31, 2012, and the Court would be prepared to allow Dr Acreman's cross-examination to take place on any weekday from August 20 to 28, provided that advanced notice of at least three working days is given.

8. The Court therefore *denies* Pakistan's Request and urges Pakistan to present Dr Acreman for cross-examination in person or, if not possible, by video-conferencing.
9. Should cross-examination of Dr Acreman occur not in person but through video-conference, the Court reserves the possibility, in the light of the quality of the video link achieved, of deciding to reconvene at a later stage in order to hear Dr Acreman in person. If so reconvened, the attendant cost consequences will follow.

^{fn1} See e.g. *Murphy Exploration and Production Company International v. Republic of Ecuador*, ICSID Case No. ARB/08/4, Award on Jurisdiction of December 15, 2010, para. 16; *S.D. Myers, Inc. v. Government of Canada*, UNCITRAL, Second Partial Award, 21 October 2002, para. 76; *Sergei Paushok, CJSC Golden East Company and CJSC Vostokneftegaz Company v. Government of Mongolia*, UNCITRAL, Award on Jurisdiction and Liability of 28 April 2011, para. 61; *Fraport AG Frankfurt Airport Services Worldwide v. Republic of the Philippines*, ICSID Case No. ARB/03/25, Award of 16 August 2007, para. 43; *EDF (Services) Limited v. Romania*, ICSID Case No. ARB/05/13, Award of 8 October 2009, para. 38; *SGS Société Générale de Surveillance S.A. v. Republic of Paraguay*, ICSID Case No. ARB/07/29, Award of 10 February 2012, para. 23.

^{fn2} Art. 13(1) of the Supplemental Rules provides that "[t]he Court shall determine the admissibility, relevance, materiality, and weight of the evidence adduced."¹⁹

112. In the course of the hearing on the merits, the Chairman announced that he was informed by Pakistan that it "proved impossible to link up with Dr Acreman in the remote reaches of Australia . . . and therefore his testimony has been withdrawn."²⁰
113. By e-mail communication dated 9 August 2012, Pakistan stated that it intended to "call Professor Jens Christian Refsgaard as an expert witness in the forthcoming hearing." It indicated that Professor Refsgaard was willing to "provide a brief note on his comments [that he wishes to make in light of the reports submitted by India with its Rejoinder]" for the Court's reference during his examination, should the Court wish to have such a written note.
114. By e-mail communication dated 13 August 2012, India objected to Pakistan's notification of 9 August concerning Professor Refsgaard, arguing that "any notification by a Party that it intends to call a particular expert-witness to be heard was required to be filed by 21 July 2012 at the latest" according to the Supplemental Rules of Procedure (Article 14, paragraph 3). India recalled its e-mail communication dated 17 July 2012 in which it notified the Court and

¹⁹ Emphasis in the original.

²⁰ Hearing Tr., (Day 2), 21 August 2012, at 1:3-7.

Pakistan that it did not seek to cross-examine Professor Refsgaard. Thereafter Pakistan had given no indication that it wished to call Professor Refsgaard. India argued, thus, that calling Professor Refsgaard “at this late stage would also be fundamentally prejudicial to India.”

115. Pakistan responded to India’s objection by e-mail communication dated 14 August 2012, in which it acknowledged its “inadvertent and minor failure to comply with Article 14.3” of the Supplemental Rules of Procedure but submitted that it was not appropriate to prevent Professor Refsgaard from testifying at the hearing, given that Article 14.3, unlike some other articles of the Rules, did not stipulate a strict consequence for a failure to comply. Further, Pakistan contended that India would not be prejudiced by Pakistan’s failure to make an Article 14.3 communication as India had planned to cross-examine Professor Refsgaard until “late July.” To the contrary, to prevent Professor Refsgaard from testifying at the hearing would not be consistent with the requirements of equality and the need to give each Party a full opportunity to be heard because India would have had the opportunity to criticize Professor Refsgaard without giving him a chance to respond.
116. India reiterated its objection to Professor Refsgaard’s participation by e-mail communication dated 15 August 2012, arguing that granting Pakistan the opportunity to present a written submission by Professor Refsgaard would severely prejudice India, as would giving him the opportunity to testify.
117. In a letter to the Parties dated 17 August 2012, the Court denied Pakistan’s request for direct oral examination of Professor Refsgaard during the hearing on the merits, stating that permitting such testimony would raise serious issues of procedural fairness. The Court’s full communication of 17 August 2012 reads as follows:
 1. The Court acknowledges receipt of the Parties’ respective communications of August 9, 13, and 14, 2012 concerning the proposed direct testimony of the expert witness put forth by Pakistan, Professor Jens Christian Refsgaard, at the Hearing on the Merits.
 2. Pakistan has indicated its intention to directly examine Professor Refsgaard during the Hearing and has sought guidance as to whether a written note outlining Professor Refsgaard’s additional comments would be preferred. India has objected to the Court hearing further testimony from Professor Refsgaard. The Court recalls that India originally indicated, on June 15, 2012, its intention to cross-examine Professor Refsgaard. However, on July 17, 2012 India informed the Court that it no longer considered Professor Refsgaard’s presence to be necessary.
 3. As a general matter, Articles 10 and 14 of the Supplemental Rules of Procedure establish the procedure for the submission of expert evidence in support of the Parties’ factual and legal arguments. A Party wishing to submit such evidence must append to its written pleadings the expert’s witness report, which will stand as

evidence in chief, while the other Party may request to cross-examine the expert. Article 14(5) establishes that, “subject to the control of the Court”, the examination of expert witnesses during the Hearing “will be limited to cross-examination and re-direct, and to questions that may be put by the Court.” This procedure was established to minimize the possibility of surprise to either Party during the Hearing—cross-examination would be based on expert reports provided to the other Party well before the Hearing is to take place. It follows from this that an expert witness would not testify on direct examination in the ordinary course of events, absent a request for cross-examination from the other Party *or* an application for leave to conduct direct examination by the Party which is granted by the Court. Although not expressed in these terms, the Court will interpret Pakistan’s August 9 and 14, 2012 communications as such an application.

4. India has also raised the failure of Pakistan to indicate its intention to conduct direct examination of Mr Refsgaard at least 30 days prior to the Hearing, in violation of Article 14(3) of the Supplemental Rules. Pakistan has admitted that it had inadvertently failed to comply with this rule, but maintains that such a failure is minor and that the appropriate remedy “could not conceivably be the draconian measure that India calls for”. The Court agrees that if a Party can demonstrate the necessity of allowing one of its witnesses or experts to be directly examined during a hearing, a violation of the 30 day rule embodied in Article 14(3) would alone not be fatal to that application.
5. There is a more fundamental point on procedural fairness raised by India, however, that merits serious consideration from the Court. In approaching Pakistan’s application, the Court considers that its paramount duty is to maintain *both* Parties’ due process rights, in particular the right to be heard on the matters on which the Court will render its decision, and the equally important right of the other Party to have adequate opportunity to contradict all those matters. Procedures and time limits for the identification of witnesses and experts in advance of a hearing are intended to insure that neither party is surprised by the issues to be raised and that counsel are able to adequately prepare.
6. In this instance, Professor Refsgaard’s reports consist of expert commentary on the methodologies employed in the hydrology reports prepared respectively by National Engineering Services Pakistan (Pvt) Limited (“NESPAK”) and by the Indian Central Waters Commission (“CWC”). To the extent that the CWC report or the report of Dr George Annandale (which touches on the same subject)—both appended to India’s Rejoinder—raise issues not adequately addressed by Professor Refsgaard’s earlier testimony, the Court considers that the appropriate procedure would have been for Pakistan to call Dr Annandale and a representative of the CWC for cross-examination, and if necessary, to also apply for leave to either submit a further expert report or, if not possible, for direct testimony from Professor Refsgaard. Pakistan did not call for the cross-examination of the CWC Report or of Dr Annandale.
6. Under these circumstances, the Court is of the view that permitting additional direct testimony from Professor Refsgaard would raise serious issues of procedural fairness, as it would introduce additional evidence in a manner that would not allow India an adequate opportunity for contradiction. Professor Refsgaard would be given the opportunity to criticize the testimony of Dr Annandale and the CWC experts and lay out new testimonial evidence in support of his view; and crucially, neither the CWC experts nor Dr Annandale would be able to respond, not being in attendance at the Hearing as far as the Court can tell.
7. In view of these considerations, the Court *denies* Pakistan’s request for direct oral examination of Professor Refsgaard during the Hearing. The Court notes that it is open to Pakistan to raise any issues it may have concerning India’s Rejoinder in its

oral pleadings, including any concerns it may have on the expert reports contained in the Rejoinder.

8. Nonetheless, in order to ensure every orderly opportunity for each Party to present its case, *if*, within five days after the conclusion of the Hearing (i.e., by September 5, 2012), Pakistan believes that there are critical matters Dr Refsgaard would have raised that could not be dealt with through agent/counsel argument at the Hearing, Pakistan may submit a further expert report from Professor Refsgaard, which shall be limited to matters raised in India's Rejoinder. India would then be given a period of three weeks (i.e., until September 26, 2012) to submit any additional expert reports it wishes to in response.
9. Finally, the Court wishes to emphasize that at any time during or after the Hearing, if the Court considers that it would benefit from further expert assistance from either or both Parties, then the Court will require a supplementary procedure at that time.²¹

118. On the first day of the hearing, Pakistan reiterated a request for the direct examination of Professor Refsgaard, to which India objected.²² The Court reaffirmed its ruling of 17 August 2012 denying Pakistan's request while noting that Pakistan would have the option of applying to the Court for leave to submit a further expert report by Professor Refsgaard if it "believes there are critical matters to Professor Refsgaard's testimony that cannot be adequately dealt with through counsel argument during this hearing."²³

K. THE HEARING ON THE MERITS

119. Pursuant to paragraph 5.2.2 of Procedural Order No. 1, a two-week hearing was scheduled to be held from 20 to 31 August 2012.
120. On 4 June 2012, after receiving the views of the Parties, the Court issued **Procedural Order No. 9**, which provided for the conduct of the hearing.
121. The hearing on the merits took place at The Hague as scheduled. The following persons were present:

The Court of Arbitration
Judge Stephen M. Schwebel (Chairman)
Sir Franklin Berman KCMG QC
Professor Howard S. Wheeler FREng
Professor Lucius Caflisch
Professor Jan Paulsson
Judge Bruno Simma

²¹ Emphasis in the original.

²² Hearing Tr., (Day 1), 20 August 2012, at 57:17-20.

²³ Hearing Tr., (Day 1), 20 August 2012, at 57:20 to 28:5.

H.E. Judge Peter Tomka

Pakistan

Mr Kamal Majidulla, Agent
Special Assistant to the Prime Minister for Water Resources and Agriculture

Mr Khalil Ahmad, Co-agent
Ambassador at Large

Mr Karim Khan Agha, Co-agent
Prosecutor General, National Accountability Bureau

Mr Asif Baig, Co-Agent
Pakistan Commissioner for Indus Waters

Mr Vaqar Zakaria, Technical Expert
Managing Director, Hagler Bailly Pakistan

Dr Muhammad Rafiq, Technical Expert
Hagler Bailly Pakistan

Mr Manzar Naeem Qureshi, Power Economics Expert

Mr Syed Muhammad Mehr Ali Shah, Technical Expert
Principal Engineer, NESPAK

Mr Faris Qazi, Technical Expert
Deputy Commissioner for Indus Waters

Mr Saleem Warsi, Flow Measurement Expert
Water Resources and Power Development Authority

Mr Sardar Raheem, Representative of the Government of Azad Jammu and Kashmir
Secretary of Irrigation and Agriculture

Dr Gregory Morris, Technical Expert

Dr Jens Christian Refsgaard, Technical Expert

Dr Jackie King, Technical Expert

Mr Hans Beuster, Technical Expert

Dr Cate Brown, Technical Expert

Prof. James Crawford, Counsel

Prof. Alan Vaughan Lowe, Counsel

Ms Shamila Mahmood, Counsel

Mr Samuel Wordsworth, Counsel

Mr Aamir Shouket, Counsellor
Embassy of Pakistan

India

Mr Dhruv Vijai Singh, Agent
Secretary to the Government of India, Ministry of Water Resources

Dr Neeru Chadha, Co-agent
Joint Secretary and Legal Adviser, Ministry of External Affairs

Mr G. Aranganathan, Co-agent
Indian Commissioner for Indus Waters

H.E. Bhaswati Mukherjee
Ambassador of India to the Netherlands

Mr Raj Kumar Singh, Deputy Chief of Mission, Embassy of India, The Hague
Dr A. Sudhakara Reddy, First Secretary (Legal), Embassy of India, The Hague
Mr Fali S. Nariman, Counsel
Mr R.K.P. Shankardass, Counsel
Prof. Stephen C. McCaffrey, Counsel
Mr Rodman Bundy, Counsel
Prof. Daniel Magraw, Counsel
Mr S.C. Sharma, Counsel
Mr Jesper Goodley Dannisøe, Expert Witness
Dr Niels Jepsen, Expert Witness
Dr S. Sathyakumar, Expert Witness and Advisor
Dr K.G. Rangaraju, Expert Witness and Advisor
Dr Alka Upadhyay, Advisor
Mr Darpan Talwar, Advisor
Senior Joint Commissioner, Ministry of Water Resources
Mr P.K. Saxena, Advisor
Director, Central Water Commission
Mr Balraj Joshi, Advisor
Dr Shahid Ali Khan, Advisor
Mr Rajeev Baboota, Advisor
Ms Swarupa Reddy, Research Assistant
Mr S.P. Bhatt, Attaché (Legal)

The Secretariat

Mr Aloysius P. Llamzon, Registrar and Legal Counsel
Mr Garth Schofield, Legal Counsel
Ms Kathleen Claussen, Assistant Legal Counsel
Ms Evgeniya Goriatcheva, Assistant Legal Counsel
Ms Willemijn van Banning, Case Manager

Court Reporter

Mr Trevor McGowan

122. The following persons presented oral arguments before the Court on behalf of Pakistan:

Mr Kamal Majidulla, Agent
Prof. James Crawford, Counsel
Prof. Alan Vaughan Lowe, Counsel
Ms Shamila Mahmood, Counsel
Mr Samuel Wordsworth, Counsel

123. The following persons presented oral arguments before the Court on behalf of India:

Mr Dhruv Vijai Singh, Agent
Dr Neeru Chadha, Co-agent
Mr Fali S. Nariman, Counsel
Mr R.K.P. Shankardass, Counsel
Mr Rodman Bundy, Counsel

Prof. Stephen C. McCaffrey, Counsel
Prof. Daniel Magraw, Counsel

124. Pursuant to the Parties' notifications of 15 June 2012, Pakistan presented the following experts for cross-examination:²⁴

Mr Mehr Ali Shah
Dr Jackie King
Mr Vaqar Zakaria, and
Dr Gregory Morris

India presented the following experts for cross-examination:

Dr K.G. Rangaraju
Dr S.K. Sathyakumar
Mr Jesper Goodley Dannisøe, and
Dr Niels Jepsen

125. By letter dated 12 September 2012, the Court distributed the certified transcript for the hearing on the merits, which constituted minutes for the purpose of Paragraph 19 of Annexure G and "pronounced the discussions closed" in accordance with Paragraph 22 of Annexure G.²⁵

²⁴ See also paras. 106-110 of this Partial Award concerning the presentation of Dr Acreman.

²⁵ Paragraph 22 of Annexure G provides:

When the Agents and Counsel of the Parties have, within the time allotted by the Court, submitted all explanations and evidence in support of their case, the Court shall pronounce the discussions closed. The Court may, however, at its discretion re-open the discussions at any time before making its Award. The deliberations of the Court shall be in private and shall remain secret.

II. BACKGROUND

126. This arbitration marks the first instance that a court of arbitration has been constituted since the Indus Waters Treaty was concluded over half a century ago. The proceedings have arisen out of a dispute between Pakistan and India concerning the interpretation and implementation of the Treaty in relation to the construction and operation of the Kishenganga Hydro-Electric Project. The Treaty sets forth the rights and obligations of the Parties on the use of the waters of the Indus system of rivers. The KHEP is an Indian hydro-electric project located on one such river—known as the “**Kishenganga**” in India-administered Jammu and Kashmir and as the “**Neelum**” in Pakistan-administered Jammu and Kashmir (the “**Kishenganga/Neelum River**,” “**Kishenganga/Neelum**,” or “**River**”).²⁶
127. The KHEP is designed to generate power by diverting water from a dam site on the Kishenganga/Neelum River (within the Gurez valley, an area of higher elevation) to another river of the Indus system (lower in elevation and located near Wular Lake) through a system of tunnels, with the water powering turbines having a capacity of up to 330 megawatts. In essence, the Parties disagree as to whether the planned diversion of water and other technical design features of the KHEP are in conformity with the provisions of the Treaty. The Parties also disagree over the permissibility under the Treaty of the use of the technique of drawdown flushing for sediment control in Run-of-River Plants.

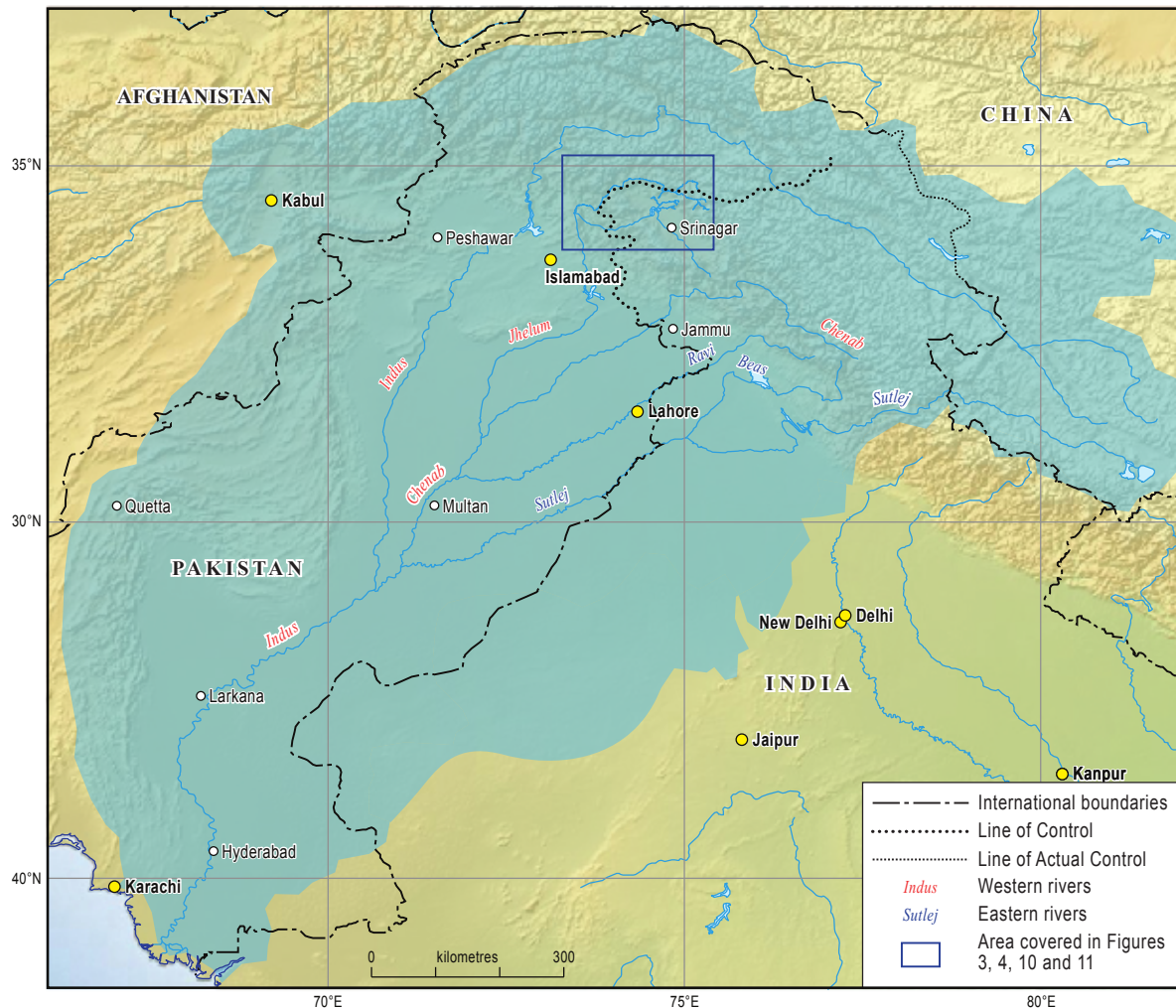
A. THE GEOGRAPHY

128. The Indus system of rivers is composed of six main rivers: the Indus, the Jhelum and the Chenab (together with their tributaries, the “**Western Rivers**”), and the Sutlej, the Beas and the Ravi (together with their tributaries, the “**Eastern Rivers**”).²⁷ These rivers and their tributaries rise primarily in the Himalayas and course through Afghanistan, China, India and Pakistan before merging into the Indus river and draining into the Arabian Sea south-east of the port of

²⁶ The terminology used in this Partial Award to denote geographic locations is intended to be neutral and should not be construed as the adoption by the Court of any position with regard to any matters of territorial sovereignty. *See* the discussion of the territorial scope of the Treaty at paras. 359-363 of this Partial Award. Pakistan-administered Jammu and Kashmir is sometimes referred to by the Parties as “Azad Jammu and Kashmir” or “Pakistan Occupied Kashmir.” India-administered Jammu and Kashmir is sometimes referred to by the Parties as “India,” “Indian-occupied Kashmir” or “Indian-held Kashmir.”

²⁷ Treaty, Arts. 1(5)-(6); India’s Counter-Memorial, para. 2.2.

Karachi in Pakistan.²⁸ The Indus system of rivers and its catchment area are depicted on the following map provided by Pakistan:



Source: Pakistan's Memorial, volume 2, Figure 2.

129. The Kishenganga/Neelum River, on which the KHEP is located, is a tributary of the Jhelum. The River originates in India-administered Jammu and Kashmir at latitude 34°33'N and longitude 75°20'E at an elevation of 4400 metres.²⁹ It flows through India-administered Jammu and Kashmir, crosses the Line of Control separating India-administered Jammu and Kashmir from Pakistan-administered Jammu and Kashmir, and joins the Jhelum River at Muzaffarabad in Pakistan-administered Jammu and Kashmir. The flow in the Kishenganga/Neelum River is

²⁸ Pakistan's Memorial, para. 1.14; India's Counter-Memorial, para. 2.2.

²⁹ India's Counter-Memorial, para. 2.8.

strongly seasonal. The highest flows occur from May to August, associated with seasonal snowmelt in the upper catchment, and monsoon rain in the lower reaches. In contrast, there is a long low flow season from early October to the middle of March.³⁰

B. THE INDUS WATERS TREATY

130. The need for a treaty regulating the use of the waters of the Indus river system arose in 1947 with the independence of India from British rule and its partition 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).³¹
131. Before partition, use of the waters was negotiated between the relevant provinces and states of British India, and any disputes were resolved by the British Secretary of State for India, and later by the Government of India.³² After partition, parts or all of the upper reaches of the six main rivers of the Indus system were located in India, with their downstream stretches flowing through Pakistan.³³ A temporary agreement for the allocation of the use of these waters between East Punjab (an Indian state from 1947 to 1956) and West Punjab (a province of Pakistan from 1947 to 1955) expired on 31 March 1948.³⁴
132. In April 1948, an incident occurred during which East Punjab discontinued the flow of water in the canals leading to West Punjab.³⁵ An agreement was reached by the two states and the flow of water in the canals concerned was restored within one month, but this incident exposed the two states' differing views on their respective rights and obligations regarding the waters of the Indus river system.³⁶

³⁰ See Pakistan's Memorial, para. 3.21; India's Counter-Memorial, para. 2.11.

³¹ Pakistan's Memorial, paras. 1.26-1.27; India's Counter-Memorial, paras. 2.22, 2.24.

³² Pakistan's Memorial, para. 1.28; India's Counter-Memorial, para. 2.23.

³³ Pakistan's Memorial, para. 1.26; India's Counter-Memorial, para. 2.24.

³⁴ Pakistan's Memorial, paras. 1.27, 1.33, referring to Marjorie M. Whiteman, *Digest of International Law*, vol. 3, 1963, pp. 1022-1023, (Annex PK-LX-18).

³⁵ Pakistan's Memorial, para. 1.33, referring to Marjorie M. Whiteman, *Digest of International Law*, vol. 3, 1963, pp. 1022-1023, (Annex PK-LX-18); India's Counter-Memorial, paras. 2.25-2.28.

³⁶ Pakistan's Memorial, para. 1.34, referring to Inter-Dominion Agreement, Between the Government of India and the Government of Pakistan, on the Canal Water Dispute Between East and West Punjab, 4 May 1948, 54 U.N.T.S. 45, included in Annexure A to the Treaty; India's Counter-Memorial, para. 2.28.

133. In August 1951, Mr David E. Lilienthal, the former head of the Tennessee Valley Authority in the United States, visited the region at the invitation of the Prime Minister of India Mr Jawaharlal Nehru and after his visit published an article recommending that the World Bank facilitate the negotiation of the joint development of the Indus waters basin by India and Pakistan.³⁷
134. In pursuance of Mr Lilienthal's proposal, on 6 September 1951, the World Bank offered to assist India and Pakistan in elaborating a cooperative regional approach to the development of the Indus river system's water resources.³⁸ Both States accepted this offer.³⁹
135. The first two years of negotiations were not successful. The two States were unable to prepare jointly a comprehensive plan and, when invited to each prepare their own comprehensive plan, made proposals that "differed widely in concept and in substance."⁴⁰ From the World Bank's perspective, the difficulties resulted not from technological complexity, but from: (1) the inadequacy of the resources of the Indus system of rivers to satisfy all the needs of the area; (2) the involvement of two sovereign States in the development of the Indus basin as an economic unit; and (3) the fact that while Pakistan considered that existing uses of the waters should be continued from existing sources, India believed that, although existing uses should be continued, they did not need to be continued from existing sources (i.e., that some waters of the Eastern Rivers used by Pakistan could be released for use by India and replaced by waters from the Western Rivers).⁴¹
136. To end the impasse, on 24 February 1954, the World Bank put forward a substantive proposal (the "**1954 Proposal**"), suggesting a division of the waters of the Indus river system between the two States. The 1954 Proposal allocated to Pakistan the "exclusive use and benefit" of the "entire flow of the Western Rivers (Indus, Jhelum and Chenab)," and to India the "exclusive use and benefit" of the "entire flow of the Eastern Rivers (Ravi, Beas and Sutlej)." It also provided for a transitional period during which India would continue to supply Pakistan with its

³⁷ Letter from Eugene R. Black, President of the World Bank, to Pakistan's Prime Minister Liaquat Ali Khan, 6 September 1951, (Annex IN-31), (an identical letter was sent to India's Prime Minister Jawaharlal Nehru).

³⁸ *Ibid.*

³⁹ India's Counter-Memorial, para. 2.46.

⁴⁰ Proposal by the International Bank Representative for a Plan for the Development and Use of the Indus Basin Waters, 5 February 1954, (Annex PK-2), paras. 1-2 ("1954 Proposal").

⁴¹ 1954 Proposal, (Annex PK-2), paras. 5-16.

“historic withdrawals” from the Eastern Rivers, while Pakistan constructed link canals that would allow it to replace water it had previously secured from the Eastern Rivers by water from the Western Rivers.⁴²

137. Four years of intensive negotiation and discussion followed, at the conclusion of which agreement was reached on the Treaty’s general principles, largely in keeping with the 1954 Proposal. Beginning in August 1959, the World Bank proposed and the Parties exchanged views on increasingly detailed drafts.⁴³ Among other matters, agreement was reached on the restricted uses India would be permitted to make of the waters of the Western Rivers.⁴⁴
138. The Parties, as well as the World Bank, finally signed the Treaty on 19 September 1960. The Treaty entered into force on 12 January 1961, upon the exchange of documents of ratification, with retroactive effect from 1 April 1960.⁴⁵
139. In addition to regulating the allocation of the use of the waters of the Indus system of rivers, the Treaty created the Permanent Indus Commission (the “**Commission**”) to establish and maintain cooperative arrangements for the implementation of the Treaty. The Commission is formed of a Commissioner for Indus Waters appointed by India (the “**Indian Commissioner**”) and a Commissioner for Indus Waters appointed by Pakistan (the “**Pakistani Commissioner**”) (together, the “**Commissioners**”), each acting as a representative of his Government and as the regular channel of communications for all matters related to the Treaty. The full range of the Commission’s duties is set out in Article VIII of the Treaty. Sub-paragraph 4 of this provision specifies that these functions include:

- (a) to study and report to the two Governments on any problem relating to the development of the waters of the Rivers which may be jointly referred to the Commission by the two Governments: [. . .]
- (b) to make every effort to settle promptly, in accordance with the provisions of Article IX(1), any question arising thereunder;
- (c) to undertake, once in every five years, a general tour of inspection of the Rivers for ascertaining the facts connected with various developments and works on the Rivers;

⁴² 1954 Proposal, (Annex PK-2), para. 24.

⁴³ Pakistan’s Memorial, paras. 1.50-1.69; India’s Counter-Memorial, paras. 2.60-2.61.

⁴⁴ Pakistan’s Memorial, paras. 1.54-1.63.

⁴⁵ See Treaty, Art. XII(2).

- (d) to 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 fact connected with those works or sites;

[. . .]

C. THE HISTORY OF THE DISPUTES

140. The documentary history of the present disputes within the Commission dates back to 1988. At that time, it came to the Pakistani Commissioner's notice that "work on a scheme envisaging diversion of the waters of the Kishenganga River into Wullar Lake had been taken in hand."⁴⁶ By telegram dated 14 December 1988, the Pakistani Commissioner requested that India interrupt its work and provide Pakistan with information on the project. In the same telegram, the Pakistani Commissioner stated his view that "the scheme if implemented would adversely affect Pakistan's hydro-electric projects and other uses on the [Kishenganga/Neelum River]."⁴⁷
141. By telegram dated 16 December 1988, the Indian Commissioner explained that geological investigations regarding the proposed project on the Kishenganga/Neelum River had only just begun and that India "would communicate to Pakistan information specified in the Treaty at least six months in advance of beginning of work on the project."⁴⁸
142. By letter dated 22 April 1989, the Pakistani Commissioner, recalling a meeting of the Commission on 17-20 December 1988, informed India "again" of the construction by Pakistan of the NJHEP on the Kishenganga/Neelum River in Pakistan-administered Jammu and Kashmir.⁴⁹
143. By letter dated 12 May 1989, the Indian Commissioner recalled that, in accordance with Paragraph 10 of Annexure E to the Treaty, which regulates Indian Storage Works on the Western Rivers, any Indian Storage Work located on a tributary of the Jhelum must be "so designed and operated as not to adversely affect the then existing Agricultural Use or hydro-electric uses on that Tributary." The Indian Commissioner therefore requested the Pakistani Commissioner to provide information regarding Pakistan's agricultural and hydro-electric uses

⁴⁶ Pakistani Commissioner's telegram to the Indian Commissioner, 14 December 1988, (Annex PK-38).

⁴⁷ *Ibid.*

⁴⁸ Indian Commissioner's telegram to the Pakistani Commissioner, 16 December 1988, (Annex PK-39).

⁴⁹ Pakistani Commissioner's letter to the Indian Commissioner, 22 April 1989, (Annex PK-40).

on the Kishenganga/Neelum River and, in particular, the NJHEP.⁵⁰ By letter dated 15 March 1990, the Pakistani Commissioner provided the requested information.⁵¹

144. By letter dated 2 June 1994, the Indian Commissioner furnished the Pakistani Commissioner with the details of the KHEP “in accordance with Paragraph ‘12’ of Annexure ‘E’” to the Treaty.⁵²
145. From that time, the Commissioners exchanged voluminous correspondence setting forth their respective positions with regard to the KHEP. The Pakistani Commissioner objected to the KHEP on the grounds that: (1) the planned diversion was not permitted by Annexure E to the Treaty; (2) the KHEP would have a significant adverse impact on Pakistan’s agricultural and hydro-electric uses on the Kishenganga/Neelum River, and in particular on the NJHEP, thus contravening Paragraph 10 of Annexure E to the Treaty; and (3) the KHEP’s design did not conform to the design criteria of Paragraph 11 of Annexure E to the Treaty.⁵³ The Pakistani Commissioner also stated that India had provided insufficient information with respect to the KHEP.⁵⁴ The Indian Commissioner, by contrast, was of the view that the KHEP was permitted by Annexure E to the Treaty, so long as the KHEP did not affect Pakistan’s pre-existing agricultural and hydro-electric uses. The Indian Commissioner further argued that Pakistan had continuously failed to substantiate its agricultural and hydro-electric uses on the Kishenganga/Neelum River.⁵⁵ On the basis of the information provided by Pakistan and of the 1991 and 1996 tours of inspection to the Neelum Valley, the Indian Commissioner contended that the NJHEP did not constitute a “then existing” hydro-electric use on the

⁵⁰ Indian Commissioner’s letter to the Pakistani Commissioner, 12 May 1989, (Annex PK-41).

⁵¹ Pakistani Commissioner’s letter to the Indian Commissioner, 15 March 1990, (Annex PK-53).

⁵² Indian Commissioner’s letter to the Pakistani Commissioner, 2 June 1994, (Annex PK-63).

⁵³ Pakistani Commissioner’s letter to the Indian Commissioner, 8 September 1994, (Annex PK-64); Pakistani Commissioner’s letter to the Indian Commissioner, 11 October 1997, (Annex PK-77).

⁵⁴ Indian Commissioner’s letter to the Pakistani Commissioner, 21 February 1991, (Annex PK-56); *see also* Pakistani Commissioner’s letter to the Indian Commissioner, 8 September 1994, (Annex PK-64), para. 4; Pakistani Commissioner’s letter to the Indian Commissioner, 11 October 1997, (Annex PK-77), para. 7.

⁵⁵ India’s Counter-Memorial, paras. 3.11, 3.98-3.104, 3.114-3.122, referring to Pakistani Commissioner’s letter to the Indian Commissioner, 9 September 1991, (Annex IN-88); Pakistani Commissioner’s letter to the Indian Commissioner, 7 November 1991, (Annex PK-59); Pakistani Commissioner’s letter to the Indian Commissioner, 11 May 1992, (Annex PK-62); Record of the 92nd Meeting of the Commission, Lahore, 27-29 November 2004, (Annex PK-28), para. 5; Record of the 97th Meeting of the Commission, New Delhi, 30 May to 4 June 2007, (Annex PK-33), pp. 11-12, 17-18; Indian Commissioner’s letter to the Pakistani Commissioner, 26 May 2007, (Annex PK-174), pp. 3-4.

Kishenganga/Neelum River, as it was no more than a “proposed” project, and that little, if any, agricultural use of the River’s water was being made in the Neelum Valley.⁵⁶

146. Pakistan’s objections to the KHEP were discussed at meetings of the Commission held in 2004 and 2005 without leading to any settlement of the Parties’ disagreement.⁵⁷
147. By letter dated 7 February 2006, the Pakistani Commissioner informed the Indian Commissioner that, in his view, a dispute had arisen with respect to the KHEP.⁵⁸ On 26 March 2006, in accordance with Article IX(3) of the Treaty, he provided a draft report to be submitted to the Governments of India and Pakistan.⁵⁹
148. By letter dated 20 April 2006, the Indian Commissioner informed the Pakistani Commissioner that, due to local concerns over the submergence of villages, the KHEP had been re-configured to a Run-of-River Plant falling under Article III(2)(d) and Annexure D of the Treaty.⁶⁰ Accordingly, “any proposal for reference of any dispute . . . would no longer be relevant or necessary.”⁶¹ On 19 June 2006, the Indian Commissioner provided information concerning the re-configured KHEP “as specified in Appendix II to Annexure D” to the Treaty.⁶²
149. By letters dated 21 July and 24 August 2006, the Pakistani Commissioner observed that the KHEP was a new Run-of-River Plant, and that India was accordingly required to submit information under the relevant provisions of Annexure D. He raised specific objections to the re-configured KHEP on the basis that: (1) the proposed diversion of the Kishenganga/Neelum River would violate India’s obligation under the Treaty to “let flow” the waters of the Western Rivers; and (2) the new design of the KHEP contravened the design criteria of Paragraph 8 of Annexure D to the Treaty.⁶³ By letter dated 25 May 2007, the Indian Commissioner rejected all

⁵⁶ Indian Commissioner’s letter to Pakistani Commissioner, 21 February 1991, (Annex PK-56); Indian Commissioner’s letter to the Pakistani Commissioner, 7 February 1992, (Annex PK-61); Indian Commissioner’s letter to the Pakistani Commissioner, 29 January 1997, (Annex PK-76).

⁵⁷ Pakistan’s Memorial, para. 2.18, referring to Record of the 92nd Meeting of the Commission, Lahore, 27-29 November 2004, (Annex PK-28).

⁵⁸ Pakistani Commissioner’s letter to the Indian Commissioner, 7 February 2006, (Annex PK-157).

⁵⁹ Pakistani Commissioner’s letter to the Indian Commissioner, 26 March 2006, (Annex PK-159).

⁶⁰ Indian Commissioner’s letter to the Pakistani Commissioner, 20 April 2006, (Annex PK-161).

⁶¹ Indian Commissioner’s letter to the Pakistani Commissioner, 20 April 2006, (Annex PK-161).

⁶² Indian Commissioner’s letter to the Pakistani Commissioner, 19 June 2006, (Annex PK-163).

⁶³ Pakistani Commissioner’s letter to the Indian Commissioner, 24 August 2006, (Annex PK-166).

of Pakistan's objections.⁶⁴ The Indian Commissioner nevertheless communicated some updated details and plans to Pakistan in May 2007 and in May and June 2008.⁶⁵

150. Pakistan's objections to the re-configured KHEP were discussed at the 99th, 100th and 101st meetings of the Commission held respectively from 30 May to 4 June 2007, 31 May to 4 June 2008 and 25 to 28 July 2008. However, no agreement was reached.⁶⁶
151. By letter dated 11 March 2009, the Pakistani Commissioner informed his Indian counterpart of his view that the First Dispute and the Second Dispute had arisen between the Parties in relation to the KHEP (the "**11 March 2009 Letter**"). The Letter enclosed a draft report for submission to the Governments of India and Pakistan in accordance with Article IX(3) of the Treaty.⁶⁷ Upon request by the Government of India, Pakistan agreed, without prejudice to its position that disputes had arisen under Article IX of the Treaty, that the KHEP be discussed again at the 103rd meeting of the Commission that was to be held from 31 May to 5 June 2009.⁶⁸ Yet again, the Parties did not reach agreement during that meeting. Moreover, India maintained its position that no dispute had arisen.⁶⁹
152. By Note Verbale dated 10 July 2009, in accordance with Article IX(4) of the Treaty, Pakistan invited India to resolve the disputes by agreement and nominated two negotiators for this purpose.⁷⁰ By Note Verbale dated 20 August 2009, India indicated that in its view appointment of negotiators was "not warranted at present."⁷¹
153. By a Request for Arbitration dated 17 May 2010, Pakistan commenced the present arbitration.

⁶⁴ Indian Commissioner's letter to the Pakistani Commissioner, 25 May 2007, (Annex PK-174/IN-98).

⁶⁵ *Ibid.*; Indian Commissioner's letter to the Pakistani Commissioner, 1 June 2009, (Annex IN-101).

⁶⁶ Pakistan's Memorial, paras. 2.27-2.32.

⁶⁷ Pakistani Commissioner's letter to the Indian Commissioner, 11 March 2009, (Annex PK-194).

⁶⁸ India's Note Verbale, 19 May 2006, (Annex PK-206); Pakistan's Note Verbale, 30 May 2009, (Annex PK-210).

⁶⁹ Record of the 103rd Meeting of the Commission, New Delhi, 31 May to 5 June 2009, (Annex PK-36), item (xi).

⁷⁰ Pakistan's Note Verbale, 10 July 2009, (Annex PK-212).

⁷¹ India's Note Verbale, 20 August 2009, (Annex PK-214).

D. THE KHEP AND THE NJHEP – TECHNICAL CHARACTERISTICS

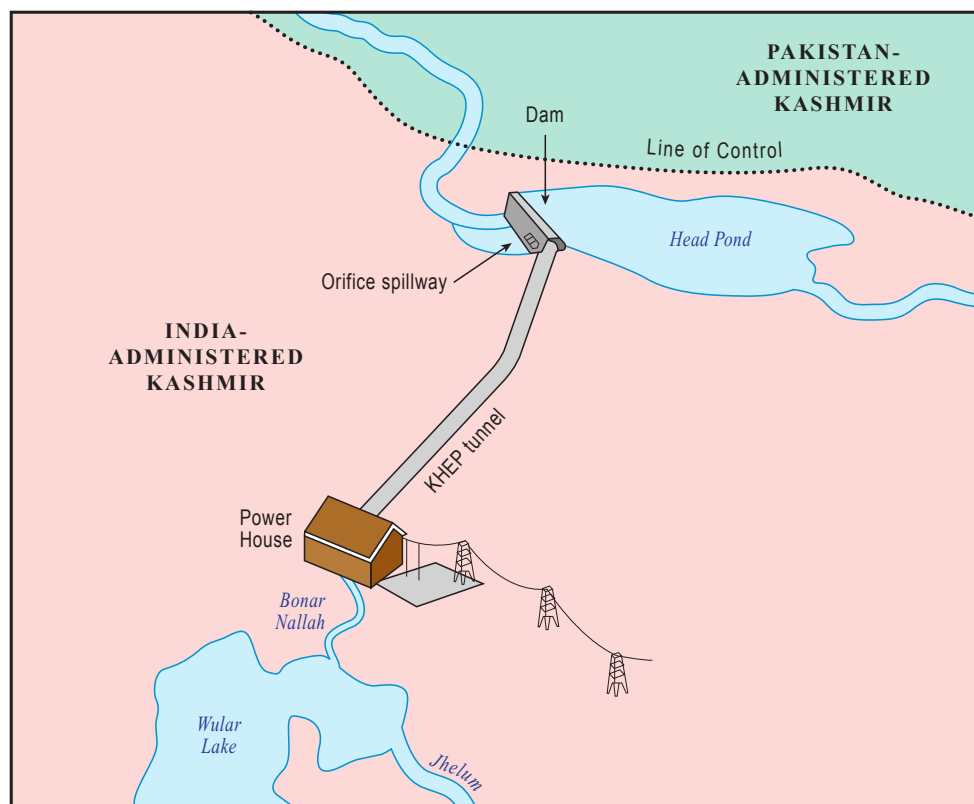
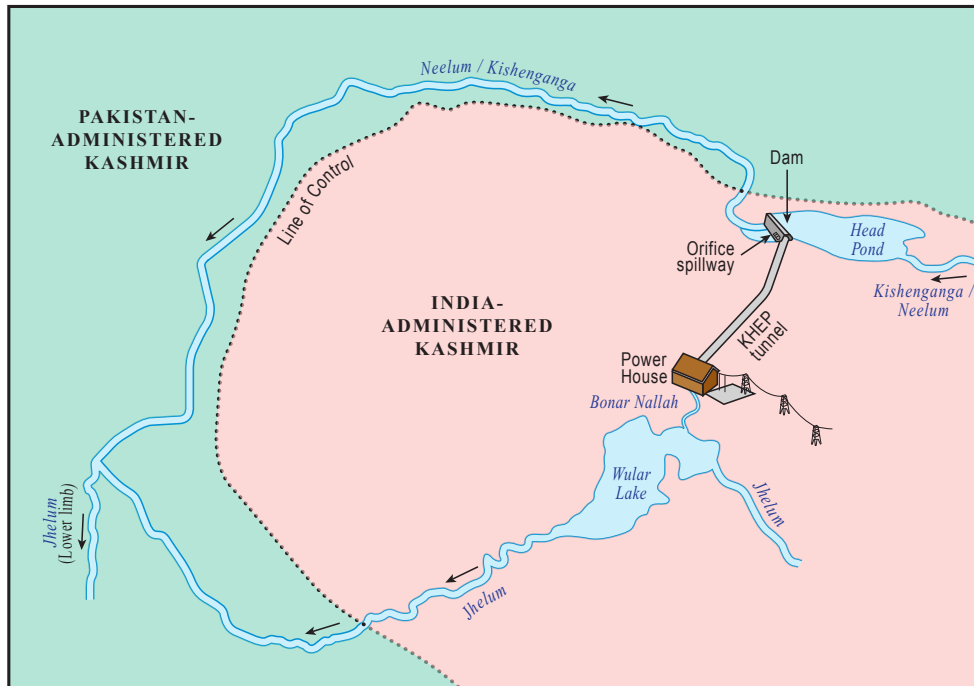
154. The Parties agree that the KHEP was first conceived as a Storage Work within the meaning of Annexure E to the Treaty. According to its original design, the KHEP was intended to store water during the high flow season in a reservoir with a gross storage capacity of 220.00 million cubic metres (“MCM”) behind a 77-metre high dam. The stored water was intended to be used for enhanced power generation during the winter months when the natural flow of the river was at its lowest.⁷²
155. The KHEP was re-designed in 2006.⁷³ As described in India’s letter of 19 June 2006⁷⁴ and in Annex I and Appendix 2 to India’s Counter-Memorial, the new design comprises: (1) a 35.48 metre high dam over the Kishenganga/Neelum River located in the Gurez valley in India-administered Jammu and Kashmir, at latitude 34°39’00”N and longitude 75°45’08”E, approximately 12.07 kilometres upstream of the Line of Control; (2) a reservoir with a gross storage capacity of 18.35 MCM, located behind the dam; (3) a 23.5 kilometre head-race tunnel through which up to 58.4 m³/s of water can be diverted from the Kishenganga/Neelum River at the dam site to the powerhouse; (4) a powerhouse at the downstream end of the tunnel at latitude 34°28’18”N and longitude 75°38’28”N; and (5) a tail-race channel which, after power generation, will deliver water diverted from the Kishenganga/Neelum River into the Bonar Nallah, another tributary of the Jhelum. The diverted water will then rejoin the Jhelum River through Wular Lake, at a point upstream of the Jhelum River’s juncture with the Kishenganga/Neelum River. The design of the KHEP thus makes use of the natural 666-metre denivelation between the dam and the powerhouse for the generation of power.⁷⁵
156. Pakistan renders the KHEP schematically as follows:

⁷² India’s Counter-Memorial, Appendix 2, paras. 5-7; *see also* India’s Counter-Memorial, Annex 1.

⁷³ The re-designed KHEP is a Run-of-River Plant within the meaning of Annexure D to the Treaty. *See* para. 383 of this Partial Award.

⁷⁴ Indian Commissioner’s letter to the Pakistani Commissioner, 19 June 2006, (Annex PK-163).

⁷⁵ India’s Counter-Memorial, Appendix 2, para. 2.

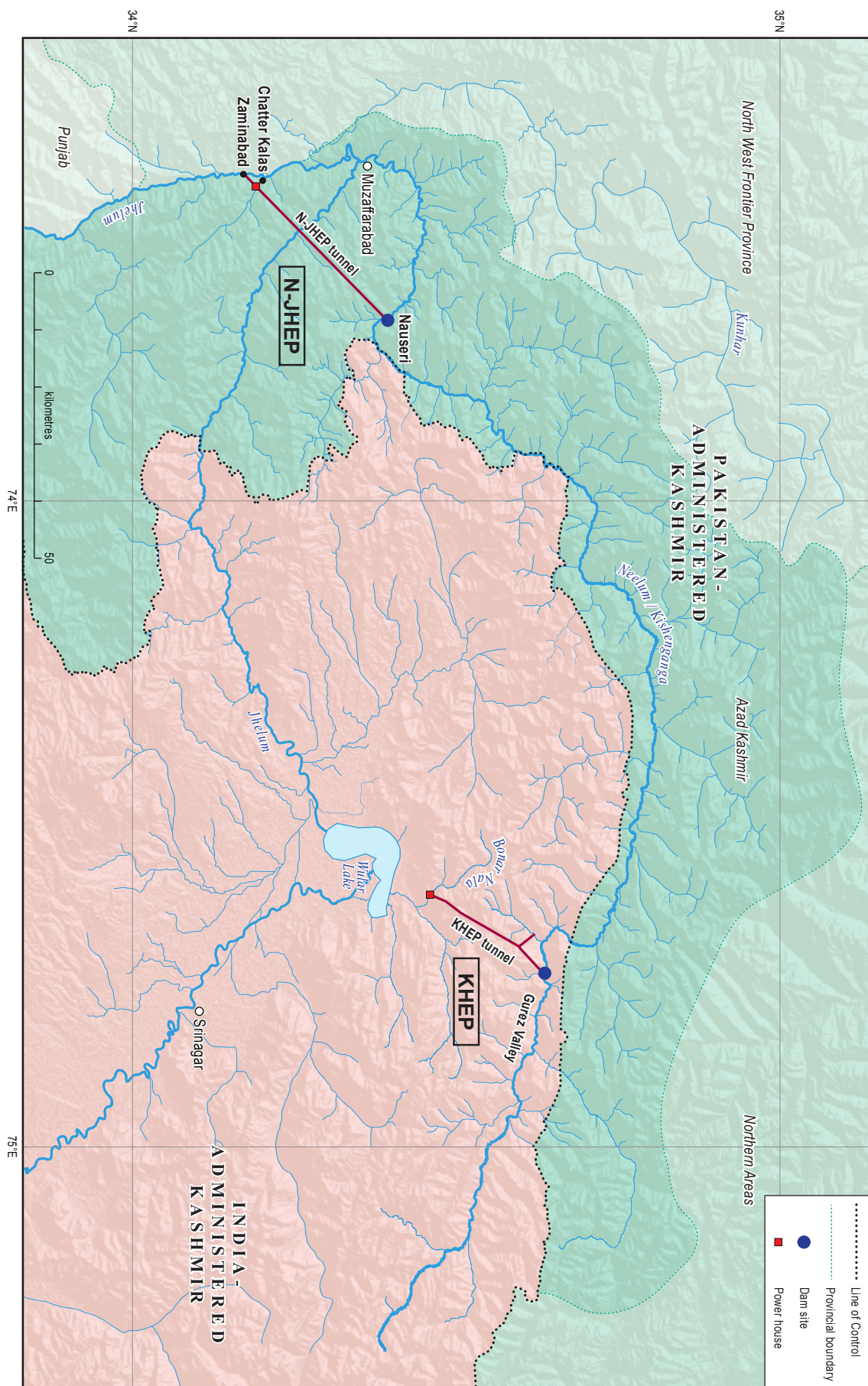


Source: *Pakistan's Memorial*, volume 2, Figure 9.

157. As stated by India, the KHEP is designed to have an installed capacity of 330 megawatts and is intended to generate 1350 gigawatt hours in a 90 percent dependable year for India's northern regional grid, comprising the states of Himachal Pradesh, Punjab, Haryana, Uttar Pradesh, Uttaranchal, Rajasthan, Union Territory of Chandigarh & Delhi and India-administered Jammu and Kashmir.⁷⁶
158. As described in Pakistan's Memorial, the NJHEP's design includes: (1) a 41.5-metre dam to be constructed on the Kishenganga/Neelum River at Nauseri, in Pakistan-administered Jammu and Kashmir, 158 kilometres downstream of the KHEP and a short distance upstream of Muzaffarabad; and (2) a tunnel of approximately 30 kilometres through which water will be diverted from the Kishenganga/Neelum River to an underground powerhouse at Chatter Kalas. After power generation, the water will be returned to the Jhelum River near Zaminabad. The NJHEP has a design capacity of 969 megawatts and is intended to provide peaking power from 18:00 to 22:00 hours throughout the year and full-time operation during the high flow season.⁷⁷
159. The respective locations of the KHEP and the NJHEP can be seen on the following map:

⁷⁶ India's Counter-Memorial, Appendix 2, para. 3.

⁷⁷ Pakistan's Memorial, paras. 3.19-3.20; Pakistan's Memorial, vol. 3, Tab B, National Engineering Services Pakistan Limited, "Kishenganga/Neelum River: Hydrology and Impact of Kishenganga Hydroelectric Plant on Energy Generation in Pakistan," April 2011, p. ES-1.



Source: Pakistan's Memorial, volume 2, Figure 3.

E. THE IMPACT OF THE KHEP ON THE NJHEP

160. It is undisputed between the Parties that the operation of the KHEP would to some extent affect the power-generating capacity of the NJHEP, although the precise numbers cited by the Parties differ somewhat.⁷⁸ The Parties' contentions as to the potential effect of the KHEP on the volume of water in the Kishenganga/Neelum River available for power generation at Nauseri (from where water is diverted to the NJHEP's power station) and on potential energy production by the NJHEP may be summarized as follows:⁷⁹

	Average Flow Reduction at Nauseri (in percent)		Average Energy Production Reduction at NJHEP (in percent)	
	In Pakistan's submission	In India's submission	In Pakistan's submission	In India's submission
October to March	33	29.88	35	29.9
April to September	11	4.59	6	4.6
Annually	14	11.2	13	11.2

⁷⁸ See paras. 247 and 252 of this Partial Award for a discussion of the reasons for this discrepancy.

⁷⁹ Pakistan's Memorial, paras. 3.29-3.33, referring to Pakistan's Memorial, vol. 3, Tab B, National Engineering Services Pakistan Limited, "Kishenganga/Neelum River: Hydrology and Impact of Kishenganga Hydroelectric Plant on Energy Generation in Pakistan, April 2011, p. 86, table 14, p. 89, table 16; Pakistan's Memorial, Tab A, Jens Christian Refsgaard, "Review of NESPAK Report: Hydrology and Impact of Kishenganga Hydroelectric Plant on Energy Generation in Pakistan," 12 May 2011, para. 2.5; India's Counter-Memorial, paras. 5.13, 5.16, table 5.2, referring to India's Counter-Memorial, Tab A, Central Water Commission, Government of India, "Hydrology Report on Kishenganga Hydro-Electric Project," October 2011, p. 48.

III. ARGUMENTS OF THE PARTIES

161. This Chapter first summarizes the Parties' arguments on the First Dispute (Part A) and then those on the Second Dispute (Part B).

A. THE DIVERSION OF THE KISHENGANGA/NEELUM RIVER UNDER THE TERMS OF THE TREATY

162. As stated in Pakistan's Request for Arbitration and at the outset of its Memorial, the First Dispute concerns the following:

Whether India's proposed diversion of the river Kishenganga (Neelum) into another Tributary, i.e. the Bonar-Madmati Nallah, being one central element of the Kishenganga Project, breaches India's legal obligations owed to Pakistan under the Treaty, as interpreted and applied in accordance with international law, including India's obligations under Article III(2) (let flow all the waters of the Western rivers and not permit any interference with those waters) and Article IV(6) (maintenance of natural channels).⁸⁰

163. The First Dispute thus centers on whether the intended diversion of water from the Kishenganga/Neelum River as part of the KHEP is prohibited under the Treaty. Pakistan alleges three principal Treaty violations: (1) breach of the general obligation to "let flow" the waters of the Western Rivers; (2) breach of requirements pertaining to the permissible use of the waters for the generation of hydro-electric power; and (3) breach of the obligation to use best endeavours to maintain the natural channels of the Western Rivers.

1. The Parties' arguments on the governing principles of the Treaty for use of the waters of the Western Rivers

164. Underlying the Parties' disagreement on hydro-electric projects such as the KHEP is a more fundamental divergence about the principles established by the Treaty for the use of the waters of the Western Rivers. Before turning to the Treaty's specific treatment of hydro-electric power generation, this section outlines the Parties' contrasting views on the governing principles through which the Treaty regulates the use of the Western Rivers.

⁸⁰ Pakistan's Request for Arbitration, para. 4(a); Pakistan's Memorial, para. 1.12.

165. Article III of the Treaty provides that:

- (1) Pakistan shall receive for unrestricted use all those waters of the Western Rivers which India is under obligation to let flow under the provisions of Paragraph (2).
- (2) India shall be under an obligation to let flow all the waters of the Western Rivers, and shall not permit any interference with these waters, except for the following uses, restricted (except as provided in item (c)(ii) of Paragraph 5 of Annexure C) in the case of each of the rivers, The Indus, The Jhelum and The Chenab, to the drainage basin thereof:
 - (a) Domestic Use;
 - (b) Non-Consumptive Use;
 - (c) Agricultural Use, as set out in Annexure C; and
 - (d) Generation of hydro-electric power, as set out in Annexure D.

166. Pakistan contends that the KHEP's proposed diversion of water from the Kishenganga/Neelum River into the Bonar Nallah tributary violates India's obligation under Article III(1) to "let flow" the waters of the Western Rivers (including those of the Jhelum and its tributaries) and constitutes an "interference" with those waters prohibited by Article III(2).⁸¹ Pakistan stresses that India's obligations to "let flow" and "not permit any interference with" the waters of the Western Rivers limit the scope of the exceptions to these obligations listed in Article III(2).⁸²

167. In India's view, Pakistan's interpretation of Article III nullifies the four Article III(2) exceptions to the "let flow" obligation,⁸³ the fourth of which permits the construction of the KHEP. According to India, Pakistan's reading of the Article would destroy India's right to build and operate any hydro-electric project on the Western Rivers.⁸⁴ India contends that the Treaty intends to create a distribution that achieves the "most complete and satisfactory utilisation of the waters" rather than to mandate any guiding principle with respect to the appropriate flow of the waters.⁸⁵

⁸¹ Pakistan's Memorial, para. 5.6; Hearing Tr., (Day 4), 23 August 2012, at 11:5-8.

⁸² Pakistan's Memorial, para. 5.8.

⁸³ India's Counter-Memorial, paras. 1.5, 1.7, 1.24, 4.16.

⁸⁴ India's Rejoinder, paras. 1.4, 2.15.

⁸⁵ India's Counter-Memorial, paras. 1.4, 4.61, 4.62, quoting Treaty, Preamble.

(a) The meaning of the Treaty text

Pakistan's arguments

168. Pakistan argues that Article III imposes two general obligations on India. The first and most important, which Pakistan refers to as the “let flow” obligation, is a positive obligation according to which “all the waters of each River must be permitted to flow, i.e., to flow in accordance with their natural patterns.”⁸⁶ In Pakistan’s view, India’s obligation to “let flow all the waters” constitutes a right for Pakistan to the unrestricted flow of the water “at the time when, and in the location where, it would naturally flow.”⁸⁷ The obligation refers not only to the volume of water but also to the maintenance and timing of the flow.⁸⁸
169. The second general obligation that Pakistan identifies is the prohibition in Article III(2) of “any interference with the waters” of the Western Rivers (including the waters of the Jhelum and its tributaries). As an initial matter, Pakistan notes that “interference with the waters” is a term of art in the Treaty, defined in Article I(15) as “[a]ny act of withdrawal [from the waters]” or “[a]ny man-made obstruction to their flow which causes a change in the volume . . . of the daily flow of the waters.” Pakistan submits that “the diversion of waters to an entirely different location would be inimical to this prohibition.”⁸⁹
170. Although Pakistan recognizes certain exceptions to the “let flow” and non-interference obligations, which are stated in Article III(2), it emphasizes that the foregoing obligations, as made clear by both Articles II and III, are the “fundamental principle underlying the Treaty.”⁹⁰ The flow of the waters of the Western Rivers is, to Pakistan, a matter of “existential importance.”⁹¹ Thus, Pakistan contends that the exceptions in Article III(2) should be

⁸⁶ Pakistan’s Memorial, para. 5.6a.

⁸⁷ Pakistan’s Memorial, para. 5.6a.

⁸⁸ Pakistan’s Memorial, paras. 1.7, 1.94.

⁸⁹ Pakistan’s Memorial, para. 5.6b.

⁹⁰ Pakistan’s Memorial, para. 1.97. Article II of the Treaty provides, in relevant part:

(1) All the waters of the Eastern Rivers shall be available for the unrestricted use of India, except as otherwise expressly provided in this Article.

(2) Except for Domestic Use and Non-Consumptive Use, Pakistan shall be under an obligation to let flow, and shall not permit any interference with, the waters of the Sutlej Main and the Ravi Main in the reaches where these rivers flow in Pakistan and have not yet finally crossed into Pakistan.

⁹¹ Pakistan’s Memorial, para. 5.7.

interpreted in light of India's central obligations under the Treaty to "let flow" and "not permit any interference with" those waters.⁹² Moreover, it is an elementary concept of legal drafting, Pakistan maintains, that "exceptions should not be given a wide interpretation."⁹³ Pakistan's position is that the burden of demonstrating that its project falls within the "very limited exceptions" available under the Treaty rests with India.⁹⁴

171. While the language of the Preamble acknowledges the importance of attaining the "most complete and satisfactory" utilization of the waters of the Indus river system, for Pakistan, the phrase does not carry as much significance as India attributes to it.⁹⁵ In Pakistan's view, it is the Treaty's "precise stipulation of rights and obligations" that "give[s] definition to what is complete and satisfactory."⁹⁶ At the same time, Pakistan maintains, other restrictions specified in the Treaty "cannot be interpreted away on the basis of the Preamble's reference to complete and satisfactory utilisation."⁹⁷

India's arguments

172. India disagrees with Pakistan's interpretation of the "let flow" and non-interference obligations. India's position is that Pakistan has a right under Article III(1) to receive for its unrestricted use in Pakistan "all those waters of the Western Rivers which India is under an obligation to let flow . . . but *only* those waters, and Pakistan has a right to their unrestricted use *only* after she has actually received them."⁹⁸
173. Contrary to Pakistan's position, India insists that there is no absolute principle in the Treaty of non-interference and of letting flow all the waters. Rather, the obligation to "let flow" the waters is subject to specific exceptions within which the KHEP squarely falls.⁹⁹ Likewise, the prohibition in Article III(2) of "any interference with" is followed by the phrase "except for the

⁹² Pakistan's Reply, para. 2.45.

⁹³ Pakistan's Memorial, para. 1.97.

⁹⁴ Pakistan's Memorial, para. 2.33.

⁹⁵ Pakistan's Reply, para. 2.30.

⁹⁶ Pakistan's Reply, para. 2.30.

⁹⁷ Pakistan's Reply, para. 2.30.

⁹⁸ India's Counter-Memorial, para. 4.26. Emphasis in the original. *See also* India's Rejoinder, para. 2.30.

⁹⁹ India's Counter-Memorial, para. 2.71.

following uses,” the effect of which is, India submits, to reverse the obligations preceding it so that India may “interfere” to carry out any of the uses enumerated thereafter.¹⁰⁰

174. India considers that the words of the Treaty “must be presumed to be the authentic expression of the intentions of the parties”¹⁰¹ and be interpreted in accordance with their ordinary meaning as prescribed by the customary international law of treaty interpretation.¹⁰² Thus, the text of Article III(2) should be taken on its face, as a whole; and at most, the Preamble should be taken into account to provide context.¹⁰³ According to India, the Preamble guides the Court to the goals pursued by the Parties at the time of signature, namely, to achieve the “most complete and satisfactory utilisation of the waters.”¹⁰⁴

(b) The Treaty’s drafting history

Pakistan’s arguments

175. Pakistan maintains that draft texts and communications exchanged during the negotiation of the Treaty support its reading. Relying on these documents, Pakistan asserts that the Treaty is premised on the idea that “the flow of the waters that make up the Indus Basin system should be definitively and permanently divided between the two States.” Each State was to receive control of three rivers and their tributaries and to be bound by certain obligations regarding the flow in its territory of the rivers allocated to the other State.¹⁰⁵ Pakistan argues that this approach constitutes the “control/let flow” principle—a “primary point of reference in the Treaty”¹⁰⁶ that was carefully crafted to safeguard the water supply on which the people of Pakistan depend.¹⁰⁷

¹⁰⁰ India’s Counter-Memorial, paras. 4.28, 4.30.

¹⁰¹ India’s Counter-Memorial, para. 4.50, quoting *Commentary of the International Law Commission on what became art. 31 of the Vienna Convention*, Y.B. Int’l L. Comm’n, vol. II, 1966, (Annex IN-LX-8), p. 220. As a general proposition, India acknowledges that while neither Party is a party to the Vienna Convention on the Law of Treaties, 23 May 1969, 1155 U.N.T.S. 331 (“VCLT”), the principles of that Convention are part of customary international law. India’s Counter-Memorial, para. 4.48.

¹⁰² India’s Counter-Memorial, para. 4.47.

¹⁰³ India’s Counter-Memorial, para. 4.57; India’s Rejoinder, para. 2.8.

¹⁰⁴ Hearing Tr., (Day 5), 24 August 2012, at 17:2-25..

¹⁰⁵ Pakistan’s Memorial, paras. 1.88-1.89.

¹⁰⁶ Pakistan’s Memorial, para. 1.92.

¹⁰⁷ Pakistan’s Memorial, paras. 1.90-1.91.

176. Highlighting the unique features of the Indus river system, Pakistan emphasizes that the Treaty drafters never considered an equal division of the waters between the two States and that India never suggested such a division during the negotiations. Pakistan notes that India, unlike Pakistan, does not depend on the rivers of the Indus system for its principal water supplies.¹⁰⁸ Moreover, Pakistan's position as a downstream State puts it in a permanent position of vulnerability. Pakistan submits that this position explains its willingness to agree to the division set out in the Treaty.¹⁰⁹ In particular, the restrictions imposed by Annexure D on the design, construction and operation of new hydro-electric plants were important to Pakistan at the time of signing because without them, India could have controlled the flow of the waters at will; that is, India would have been able to "turn off the tap" of Pakistan's water supply.¹¹⁰
177. Pakistan puts emphasis on the World Bank's 1954 Proposal, which, in its view, introduced the "control/let flow" principle; it suggests that this proposal gave rise to the Treaty's overall approach that control of the rivers would be divided.¹¹¹ According to Pakistan, the two central principles of the 1954 Proposal were that: (1) historical withdrawals must be continued but not necessarily from existing sources; and (2) control over the rivers would be divided.¹¹² Pakistan also relies on the 1957 "Head of Agreement" prepared by the World Bank, which states that "the entire flow of the three Western Rivers . . . shall be available for the exclusive use and benefit of Pakistan";¹¹³ in Pakistan's view, this indicates the Treaty's concern with ensuring that India would not diminish the flow of water to Pakistan.¹¹⁴
178. Pakistan further argues that India's reliance on the 8 November 1951 letter from the World Bank to argue that the object and purpose of the Treaty is one of cooperative development ("in such a manner as most effectively to promote the development of the Indus basin viewed as a

¹⁰⁸ Pakistan's Reply, para. 2.41.

¹⁰⁹ Pakistan's Reply, para. 2.5.

¹¹⁰ Pakistan's Memorial, para. 6.3.

¹¹¹ Pakistan's Reply, paras. 2.33-2.34.

¹¹² Pakistan's Reply, para. 2.34; *see also* Pakistan's Memorial, paras. 1.37-1.54.

¹¹³ Pakistan's Memorial, para. 1.51, quoting Letter of the World Bank, 13 May 1957, Annex Setting Out Some Suggestions for "Head of Agreement," (Annex PK-5), Art. 1.

¹¹⁴ Pakistan's Reply, paras. 2.36-2.38. Pakistan argues that the World Bank's press release on the conclusion of the Treaty contains a "clear statement of the control/let flow principle," contrary to India's argument. Pakistan's Reply, para. 2.38, referring to World Bank's press release, 19 September 1960, (Annex IN-51), p. 6.

unit”) is misplaced and neglects the tenor of subsequent negotiations and the Treaty that was actually concluded.¹¹⁵

179. To the extent that maximization of development was an objective of the Treaty, Pakistan maintains that it led “to an obligation of cooperation, not unilateral rights of use or development.”¹¹⁶ This is apparent from the only specific Treaty provision dedicated to the subject—Article VII(1), which states:

The two Parties recognize that they have a common interest in the optimum development of the Rivers, and, to that end, they declare their intention to co-operate, by mutual agreement, to the fullest possible extent. [. . .]

Thus, it is not for India to impose on Pakistan what it considers to be optimal for development.¹¹⁷

180. Pakistan argues that its interpretation of the Treaty is supported by the World Bank’s communications with the Parties. Pakistan points to a letter dated 6 February 1960 from the President of the World Bank to the Pakistani Finance Minister in which the former stated that he was “satisfied that there is no doubt and no reservation in the mind of any one, either in the Indian delegation, or the Bank, that the present language of Article III(1) and (2) imposes the treaty obligation on India to allow to flow down *all* waters of the Western Rivers. . . .”¹¹⁸

181. Pakistan disputes that the 1957 *Lake Lanoux* arbitral award (delivered while the Treaty was being negotiated), to which India refers, bears any relevance to the determination of the permissibility under the Treaty of the planned diversion of the Kishenganga/Neelum waters.¹¹⁹ In that case, France had developed a plan to divert water for the generation of hydro-electricity from Lake Lanoux, which is situated in the French Pyrenees near the border with Spain, and to return an equivalent amount of water to the Carol River before it flows into Spain.¹²⁰ Spain objected, claiming that the French project breached the treaty governing the parties’ use of the

¹¹⁵ Pakistan’s Reply, para. 2.33.

¹¹⁶ Pakistan’s Reply, para. 2.31.

¹¹⁷ Pakistan’s Reply, para. 2.32.

¹¹⁸ Pakistan’s Memorial, para. 5.6, fn. 175, quoting President of the World Bank’s letter to the Pakistani Finance Minister, 6 February 1960, (Annex PK-16). Emphasis in the original.

¹¹⁹ Pakistan’s Reply, paras. 2.6-2.7, referring to *Affaire du Lac Lanoux (France v. Spain)*, Award of 16 November 1957, 12 R.I.A.A. 281 (French original), 1974 Y.B. Int’l L. Comm’n, vol. 2, part 2, p. 194 (1976) (English translation) (Annex IN-LX-2) (“*Lake Lanoux*”).

¹²⁰ *Ibid.*

waters by removing water from its natural flow into Spain.¹²¹ The *Lake Lanoux* Tribunal ruled that France's diversion was compliant with its treaty obligations toward Spain. In Pakistan's view, even assuming its relevance, *Lake Lanoux* can be distinguished from the present situation as the waters in that case were to be pumped back into the Carol River before they reached Spain.¹²² In contrast, the KHEP contemplates a diversion of the waters that does not allow those waters to rejoin the Kishenganga/Neelum River.

182. In sum, for Pakistan, concern over India's control of the waters was a constant element of the Treaty-drafting process. The balance achieved was the result of many years of negotiations aimed at bridging the Parties' conflicting interests; the result of that process should be maintained.¹²³

India's arguments

183. In India's view, Pakistan misconstrues the *travaux préparatoires* of the Treaty. India maintains that evidence from the Treaty's negotiating history suggests that Pakistan wanted "control/let flow" to be a purpose of the Treaty, but India "would never have agreed to that, and even the Bank firmly rejected it."¹²⁴ Not once, India argues, does the drafting history state or imply that the Treaty drafters had the objective of ensuring that India not diminish the flow of water to Pakistan.¹²⁵ The word "control" does not appear in the relevant articles.¹²⁶
184. According to India, Pakistan agreed to proceed on the basis of the principles set out in the World Bank's letter of 8 November 1951 which stated that "[t]he water resources of the Indus basin should be co-operatively developed and used in such a manner as most effectively to promote the economic development of the Indus Basin as a unit."¹²⁷ The World Bank rejected Pakistan's proposal to structure the Treaty around a concept of "protecting existing uses from existing sources" and instead proposed that the waters be divided; both Parties agreed to this

¹²¹ *Ibid*, p. 196.

¹²² Pakistan's Reply, para. 2.7, fn. 5.

¹²³ Pakistan's Memorial, paras. 1.47, 1.55.

¹²⁴ India's Counter-Memorial, para. 2.77.

¹²⁵ India's Counter-Memorial, para. 2.75.

¹²⁶ Hearing Tr., (Day 5), 24 August 2012, at 36:1-2.

¹²⁷ India's Counter-Memorial, para. 2.47, quoting Letter from Eugene R. Black, President of the World Bank to Pakistan's Prime Minister Khawaja Nazimuddin, 8 November 1951, (Annex IN-33), (an identical letter was sent to India's Prime Minister Jawaharlal Nehru).

approach which formed the basis for the further conclusion of the Treaty.¹²⁸ India considers that the Treaty was purposefully designed around a “principle of freedom of action,” while also giving the Parties different rights, as appropriate to their differing interests and geographies.¹²⁹

185. India additionally maintains that a key principle to the Treaty was that “there should be nothing in the [T]reaty which would stand in the way of optimum utilisation of the water resources allocated to either party.”¹³⁰ This fundamental principle was affirmed, in India’s view, in the determination made in 2007 by a neutral expert regarding a difference arising under the Treaty in relation to India’s Baglihar hydro-electric project located on the Chenab river (“*Baglihar*”).¹³¹ The Neutral Expert determined that both States’ “rights and obligations . . . should be read in the light of new technical norms and new standards as provided for by the Treaty.”¹³²

186. India contends that the production of hydro-electric power has “always been contemplated as an integral part, and indeed objective,” of the approach to the development of the Indus basin taken by the Treaty.¹³³ India relies on a 1951 letter from the President of the World Bank, referring to power generation, and to similar exchanges during the course of the nine-year negotiation period.¹³⁴ It also refers to a statement by India’s principal representative to the negotiations that to deny India the right to develop hydro-electric power would be “contrary to the purposes and the spirit of the Bank Proposal.”¹³⁵ India asserts that by 1959 Pakistan had accepted India’s right to generate hydro-electric power on the Western Rivers, as reflected in the Heads of Agreement of 15 September 1959.¹³⁶ India also cites the press release issued on

¹²⁸ India’s Counter-Memorial, paras. 2.55, 2.57.

¹²⁹ India’s Counter-Memorial, paras. 2.75-2.76, 2.81-2.85.

¹³⁰ India’s Counter-Memorial, para. 4.14, quoting Niranjana Das Gulhati, *Indus Waters Treaty: an exercise in international mediation* (Allied Publishers, 1973), p. 266.

¹³¹ India’s Counter-Memorial, para. 4.15, referring to Raymond Lafitte, *Determination of Neutral Expert on the Baglihar Project*, 12 February 2007, (Annex PK-230), (“*Baglihar Determination*”).

¹³² India’s Counter-Memorial, para. 4.15, quoting *Baglihar Determination*, executive summary p. 5.

¹³³ India’s Counter-Memorial, para. 4.4.

¹³⁴ India’s Counter-Memorial, paras. 4.4, referring to Letter from Eugene R. Black, President of the World Bank to Pakistan’s Prime Minister Khawaja Nazimuddin, 8 November 1951, (Annex IN-33), (an identical letter was sent to India’s Prime Minister Jawaharlal Nehru).

¹³⁵ India’s Counter-Memorial, para. 4.9, quoting Niranjana Das Gulhati’s letter to W.A.B. Iliff, Vice President of the World Bank, 24 December 1957, (Annex IN-47).

¹³⁶ India’s Counter-Memorial, para. 4.12, referring to Heads of Agreement, 15 September 1959, (Annex PK-10).

the signing of the Treaty which specifically mentions that the Treaty permits India's use of the upstream water for the generation of hydro-electric power, as well as for irrigation.¹³⁷

187. India compares this case to the 1957 *Lake Lanoux* arbitration between France and Spain. In India's view, *Lake Lanoux* is similar insofar as Spain argued there that the French project was "calculated to enable it . . . to bring pressure to bear on the other signatory" and sought to prevent it.¹³⁸ In that case, the Tribunal stated that it was not for it

to judge the reasons or experiences which might lead the Spanish Government to give expression to a certain anxiety. . . . Moreover, the French Government's proposals . . . include 'the assurance that it will not in any case, interfere with the regime thus established.' . . . The Tribunal must, therefore, answer the question submitted by the *compromis* on the basis of this assurance.¹³⁹

Like Spain, Pakistan cannot insist on a further guarantee that India does not intend to harm Pakistan: bad faith cannot be presumed.¹⁴⁰ India believes that "fifty years of interference-free practice" under the Treaty "should be assurance enough for Pakistan"¹⁴¹ and that Pakistan's "tap" concern is an unjustified preoccupation with the 1948 East Punjab/West Punjab incident.¹⁴² Since that initial, isolated incident, India emphasizes, no further interference with deliveries to Pakistan has occurred.¹⁴³

188. India also refers to the *Lake Lanoux* Tribunal's concluding observation that there is not, "in the generally accepted principles of international law, a rule which forbids a State, acting to protect its legitimate interests, from placing itself in a situation which enables it in fact, in violation of its international obligations, to do even serious injury to a neighbouring State."¹⁴⁴ Although India emphasizes that it has no intention to harm Pakistan in this way, international law does not prohibit activities merely on the basis of a potential to harm. "If it did, no State could situate

¹³⁷ India's Counter-Memorial, para. 2.20, referring to World Bank's press release, 19 September 1960, (Annex IN-51).

¹³⁸ India's Counter-Memorial, para. 4.19, quoting *Lake Lanoux*, p. 196.

¹³⁹ *Lake Lanoux*, p. 196.

¹⁴⁰ India's Counter-Memorial, para. 4.21, referring to *Lake Lanoux*, p. 196.

¹⁴¹ India's Counter-Memorial, para. 4.21.

¹⁴² India's Counter-Memorial, para. 4.51; *see also* para. 132 of this Partial Award.

¹⁴³ India's Counter-Memorial, paras. 2.34-2.41.

¹⁴⁴ India's Counter-Memorial, para. 4.22, quoting *Lake Lanoux*, p. 196.

a chemical plant, a nuclear power plant, or any other kind of potentially hazardous activity in a border region.”¹⁴⁵

189. Finally, India contends that Pakistan has not identified any support for its claim that India has no right permanently to divert the entirety of the waters of the Kishenganga/Neelum.¹⁴⁶ Subject to the express conditions for diversion, India maintains that the Treaty gives it an “unrestricted” right in this regard,¹⁴⁷ as discussed further in the next section.

2. The Parties’ arguments on the Treaty provisions governing hydro-electric projects

190. Consistently with the Parties’ disagreement on the governing principles of the Treaty (outlined in the previous section), the Parties also disagree on the Treaty’s regulatory framework for hydro-electric projects on the Western Rivers. Both Parties accept that the construction of the KHEP is permitted by the Treaty only if it falls under Article III(2)(d) which allows for “[g]eneration of hydro-electric power, as set out in Annexure D.” Annexure D elaborates specifically on the “Generation of Hydro-electric Power by India on the Western Rivers.” The Parties accept that the KHEP would be permitted if it met the requirements of Annexure D, but differ as to the nature of those requirements.¹⁴⁸
191. The Parties’ arguments focus, first, on analyzing the language of Article III(2) concerning the permitted uses of the waters within the drainage basin of the river in question.¹⁴⁹ Next, they turn to the purpose and meaning of the relevant paragraphs of Annexure D, particularly Paragraph 15, which dictates the scope of permissible diversion of waters for purposes of a

¹⁴⁵ India’s Counter-Memorial, para. 4.22.

¹⁴⁶ India’s Counter-Memorial, paras. 4.80-4.81

¹⁴⁷ India’s Counter-Memorial, para. 4.81.

¹⁴⁸ Pakistan’s Memorial, paras. 5.10-5.17; India’s Counter-Memorial, para. 4.79; Pakistan’s Reply, para. 2.50.

¹⁴⁹ Article III(2) provides:

India shall be under an obligation to let flow all the waters of the Western Rivers, and shall not permit any interference with these waters, except for the following uses, restricted (except as provided in item (c)(ii) of Paragraph 5 of Annexure C) in the case of each of the rivers, The Indus, The Jhelum and The Chenab, to the drainage basin thereof:

- (a) Domestic Use;
- (b) Non-Consumptive Use;
- (c) Agricultural Use, as set out in Annexure C; and
- (d) Generation of hydro-electric power, as set out in Annexure D.

hydro-electric power plant.¹⁵⁰ Finally, the Parties disagree about the conditions governing whether the water released below a hydro-electric plant may be delivered into another tributary.

192. Pakistan's view is that the KHEP's planned diversion of the Kishenganga/Neelum River is incompatible with the meaning of the term "Run-of-River Plant" under the Treaty. Pakistan argues that the provision of Annexure D permitting delivery of water released below a hydro-electric plant into another tributary does not establish a right to divert permanently the entirety of the waters. Even if the KHEP is permitted under this provision, Pakistan contends that the use of the electricity generated must be restricted to the Jhelum River's drainage basin. India contests each of Pakistan's assertions.

(a) "Restricted . . . to the drainage basin thereof"

193. The Parties first disagree on the scope of the language in Article III(2) that restricts permissible Indian uses of the waters of the Western Rivers to the drainage basin of the appropriate river—here, the Jhelum.

Pakistan's arguments

194. Pakistan submits that Article III(2) prohibits India from utilizing the waters of any tributary of the Jhelum River (including the Kishenganga/Neelum) for the generation of power for general use outside the drainage basin of the Jhelum, as is envisaged with respect to the power to be generated by the KHEP. Put differently, any electricity generated under the exception to the "let flow" obligation of Article III(2) must be used within the drainage basin of the Jhelum.¹⁵¹ Pakistan maintains that under India's alternative interpretation, the drainage basin restriction

¹⁵⁰ Paragraph 15 of Annexure D provides:

. . . [T]he works connected with a Plant shall be so operated that (a) the 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, and (b) in any one period of 24 hours within that seven-day period, the volume delivered into the river below the Plant shall be not less than 30%, and not more than 130%, of the volume received in the river above the Plant during the same 24-hour period: Provided however that:

[...]

(iii) Where a Plant is located on a Tributary of the Jhelum on which Pakistan has any Agricultural use or hydro-electric use, the water released below the Plant may be delivered, if necessary, into another Tributary but only to the extent that the then existing Agricultural Use or hydro-electric use by Pakistan on the former Tributary would not be adversely affected.

¹⁵¹ Pakistan's Memorial, para. 5.26.

would “add nothing so far as the generation of hydroelectric power is concerned.”¹⁵² Pakistan is particularly concerned that were the Treaty to be interpreted otherwise, India’s potential uses on the Western Rivers would be limitless, depleting a resource that is critical for Pakistan.¹⁵³

195. Pakistan refers to the 15 September 1959 Head of Agreement draft of what became Article III, which treated hydro-electric uses separately from the other three exceptions.¹⁵⁴ According to a table of amendments prepared by Pakistan, the language appearing in the final version of the Treaty reflects a purposeful change, describing the generation of hydro-electric power “more mildly as a use and not as something to which India is ‘entitled’” and restricting this use “in the case of each of the Western Rivers to the drainage basin thereof.”¹⁵⁵
196. By way of comparison, Pakistan discusses how Annexure C to the Treaty contains an express exception to Article III(2)’s drainage basin restriction with respect to India’s agricultural use of the Western Rivers. According to Pakistan, Annexure C permits India to withdraw specified maximum quantities of water for a small area outside the drainage basin of the Chenab. This

¹⁵² Pakistan’s Reply, paras. 2.46-2.47.

¹⁵³ Pakistan’s Memorial, para. 5.25.

¹⁵⁴ Pakistan’s Memorial, referring to Article IV of the Heads of Agreement, 15 September 1959, (Annex PK-10), provides as follows:

ARRANGEMENTS CONCERNING WESTERN RIVERS

(1) India shall let flow the waters of the Western Rivers free from any interference except for the following uses restricted in the case of each river to the drainage basin of that river.

- (i) Domestic uses;
- (ii) Non-consumptive uses; and
- (iii) Consumptive uses as set out below

The question of consumptive uses is being approached on the basis of fixing a quantum of use to be specified in the treaty.

(2) India shall be entitled to generate hydro-electric power on the Western Rivers in accordance with the provisions of Annex. “B”.

(3) Pakistan shall be entitled to the unrestricted use of the waters of the Western Rivers, except to the extent specified in Paragraphs (1) and (2) of this Article.

This text was modified in the final text of the Treaty to include hydro-electric use alongside other uses restricted to the drainage basin of a particular river.

¹⁵⁵ Pakistan’s Memorial, paras. 5.29-5.32, quoting Comparative Table of Provision of the Heads of Agreement of 15 September 1959 and the Draft Indus Waters Treaty, (Annex PK-14), (originally appended to Mueeneddin’s letter to W. Shaikh, 15 December 1959, (Annex PK-13)).

exception is, in Pakistan's view, the only deviation from the foundational principle prohibiting use outside the drainage basin.¹⁵⁶

India's arguments

197. India argues that Pakistan misinterprets the word "use" in the phrase "except for the following uses." For India, the "use" in question under Art. III(2)(d) is the use *of the waters* for the generation of hydro-electric power, not the use *of the electricity* generated. Power generation must take place in the drainage basin, but the power can be transported elsewhere.¹⁵⁷ India maintains that there is no textual support for Pakistan's argument. Rather, Treaty provisions allowing the return of water to another tributary confirm the framers' intent to control the water rather than the electricity produced by the water.¹⁵⁸ Referring to Article XI(1)(a) of the Treaty, which provides: "(1) It is expressly understood that (a) this Treaty governs the rights and obligations of each Party *with respect only to the use of the waters of the Rivers* and matters incidental thereto," India argues that it is clear that how India makes use of the electricity generated from the KHEP is not governed by the Treaty.¹⁵⁹
198. India further observes that Pakistan has not previously raised this objection in relation to at least four projects in other locations which contribute their generated power to locations outside their respective drainage basins.¹⁶⁰

(b) Run-of-River Plants

199. In light of India's present design of the KHEP as a Run-of-River Plant, both Parties look to the Treaty provisions regulating this type of hydro-electric project as the criteria for assessing the legality of the design and operation of the KHEP. Part 3 of Annexure D sets out considerations for the design and operation of new Run-of-River Plants such as the KHEP. Paragraph 15, on which the Parties focus their attention, provides:

Subject to the provisions of Paragraph 17, the works connected with a Plant shall be so operated that (a) the volume of water received in the river upstream of the Plant, during

¹⁵⁶ Pakistan's Memorial, para. 5.28.

¹⁵⁷ India's Counter-Memorial, para. 4.39.

¹⁵⁸ India's Counter-Memorial, para. 4.76.

¹⁵⁹ India's Rejoinder, para. 1.37, quoting Treaty, Art. XI(1)(a), emphasis added by India.

¹⁶⁰ India's Counter-Memorial, paras. 4.40-4.41.

any period of seven consecutive days, shall be delivered into the river below the Plant during the same seven-day period, and (b) in any one period of 24 hours within that seven-day period, the volume delivered into the river below the Plant shall be not less than 30%, and not more than 130%, of the volume received in the river above the Plant during the same 24-hour period: Provided however that:

[. . .]

- (iii) where a Plant is located on a Tributary of The Jhelum on which Pakistan has any Agricultural Use or hydro-electric use, the water released below the Plant may be delivered, if necessary, into another Tributary but only to the extent that the then existing Agricultural Use or hydro-electric use by Pakistan on the former Tributary would not be adversely affected.

200. Pakistan argues that the KHEP does not meet the criteria of Part 3 of Annexure D and therefore falls outside the realm of permissible projects. India asserts the contrary, maintaining that the KHEP meets the relevant provisions of Annexure D and that Pakistan's present position contradicts its earlier representation—upon which India appropriately relied—that the diversion of waters into another tributary is permitted under Annexure D.

Pakistan's arguments

201. According to Pakistan, Part 3 of Annexure D contains two sets of provisions: one addressing the design of a Run-of-River Plant and a second concerning the operation of such a Plant. In this respect, Pakistan submits that Paragraphs 8 to 13 of Part 3 of Annexure D relate to design, while Paragraphs 14 to 17 deal with the operation of the Plant.¹⁶¹ In particular, Paragraph 15 “presumes and provides for the operation of a plant.”¹⁶²

202. Pakistan argues that the KHEP is not designed to operate within the bounds of Paragraph 15, particularly the criteria on the delivery of water into another tributary. In Pakistan's view, this provision allows the occasional delivery of waters to another tributary but does not provide for a project based on a large-scale and permanent diversion to a “quite different location.”¹⁶³ Pakistan considers that Paragraph 15(iii) “does not seek to establish the basis for a right to design a wholly new type of plant, i.e. a plant that does not allow the river to flow, but instead dams that river [and] permanently channels the entirety of its waters.”¹⁶⁴ The KHEP does not

¹⁶¹ Pakistan's Memorial, para. 5.14; Hearing Tr., (Day 4), 23 August 2012, at 15:10 to 16:4, 16:15 to 18:1..

¹⁶² Pakistan's Memorial, para. 5.17; Hearing Tr., (Day 4), 23 August 2012, at 18:1-3.

¹⁶³ Pakistan's Memorial, para. 5.17. *See also* para. 220 of this Partial Award concerning Pakistan's argument that Paragraph 15 permits diversion in case of an emergency.

¹⁶⁴ Pakistan's Memorial, para. 5.20; Pakistan's Reply, para. 2.55. In speaking of the diversion of the “entirety” of the waters, Pakistan refers to the 58.4 m³/s that will be diverted at the KHEP dam.

even meet India's own definition of a Run-of-River Plant, Pakistan notes; the Bureau of Indian Standards states that "[i]n such stations, the normal course of the river is not materially altered."¹⁶⁵

203. In further support of the incompatibility of the KHEP with the provisions for Run-of-River Plants, Pakistan points out that Appendix II to Annexure D sets out particular information regarding new projects that India is obliged to submit to Pakistan and that—although such information includes statistics related to the design of the head-race and tail-race of the new Plant—there is “no equivalent category to allow for details of a power tunnel such as India seeks to construct.”¹⁶⁶ For this reason, Pakistan asserts that such an arrangement was not contemplated and is therefore not permitted by the Treaty.
204. Turning to the Treaty's drafting history, Pakistan rejects India's premise that Paragraph 15(iii) was introduced into the Treaty with the Kishenganga project in mind. Pakistan insists that the CWPC Letter on which India relies reveals nothing about the meaning of Annexure D and the subject of this dispute. Pakistan points out that the part of the CWPC Letter on which India places emphasis discusses “Storage Works,” which are regulated by Annexure E, and offers no insight into the drafters' intentions regarding Annexure D. A draft of Paragraph 15(iii), Pakistan observes, had already been introduced into Annexure D on 23 April 1960; thus, “[i]f a comment with respect to a Kishenganga project had been intended to influence the wording of Annexure D, it is evident that a comment would have been made by reference to the draft of Annexure D that the Chairman [of the CWPC] had before him.”¹⁶⁷ Accordingly, Pakistan concludes, the CWPC Letter cannot shed light on the meaning of Paragraph 15(iii) of Annexure D.¹⁶⁸
205. As to India's assertion that no prohibition of inter-tributary transfers was incorporated into Annexure E in anticipation of a project like the KHEP, Pakistan submits that if India had genuinely intended in 1960 to realize such a project, India would have sought its express inclusion.¹⁶⁹ India identified no record of such an attempt. Pakistan also contests India's submission that Paragraph 10 of Annexure E was included in the Treaty to make the

¹⁶⁵ Pakistan's Reply, para. 1.35, referring to India's Counter-Memorial, para. 7.30.

¹⁶⁶ Pakistan's Memorial, para. 5.20, fn. 185.

¹⁶⁷ Pakistan's Reply, para. 1.12, referring to Draft of Treaty, Annexure D, 23 April 1960, (Annex PK-20).

¹⁶⁸ Pakistan's Reply, para. 2.62.

¹⁶⁹ Pakistan's Reply, para. 1.15.

implementation of the KHEP possible. Paragraph 10 of Annexure E provides that “any Storage Work to be constructed on a Tributary of The Jhelum on which Pakistan has any Agricultural Use or hydro-electric use shall be so designed and operated as not to adversely affect the then existing Agricultural Use or hydro-electric use on that Tributary.” Nothing in Paragraph 10, Pakistan emphasizes, suggests permission for an inter-tributary transfer.¹⁷⁰

India’s arguments

206. India maintains that the KHEP conforms to the specifications of Annexure D and submits that there is no basis for Pakistan’s argument that Paragraph 15(iii) does not establish a right to divert permanently the entirety of the waters of the Kishenganga/Neelum into another tributary. First, India disputes Pakistan’s contention that the latter portion of the Annexure, including Paragraph 15, pertains to the Plant’s operation rather than to considerations of design. India argues that the design and operation of a Plant are inextricably linked;¹⁷¹ to disregard Paragraph 15 because it supposedly addresses operation rather than design would, in India’s view, be senseless, as India must necessarily refer to provisions regarding operation in the course of arriving at the design of the project. Furthermore, India considers Pakistan’s interpretation of Paragraph 15(iii) to be incompatible with the “unrestricted” nature of India’s right to use the waters of the Western Rivers. Provided that India complies with the express restrictions of Annexure D, the latter makes clear that its ability to generate hydro-electric power is to be unrestricted.¹⁷² India also notes that Pakistan’s complaint that the KHEP will divert the entirety of the waters is in conflict with the river flow data and fails to take into account the waters contributed to the Kishenganga/Neelum from tributaries below the Gurez site.¹⁷³ It would be impossible for India to divert the “entirety” of the waters.¹⁷⁴

¹⁷⁰ Pakistan’s Reply, para. 1.16.

¹⁷¹ India’s Rejoinder, para. 1.52.

¹⁷² India’s Counter-Memorial, para. 4.31.

¹⁷³ India’s Counter-Memorial, paras. 4.82-4.85. According to India, the data, and the geography, make clear that additional waters not accounted for in Pakistan’s data will contribute to the flow below Gurez. Even without accounting for these, Pakistan’s own studies show that the KHEP will not divert the entirety of the waters (showing an average 3.1 m³/s of water would be available from the catchment downstream of the KHEP up to the Line of Control even in January, the month of lowest flow). India maintains that even with the KHEP, 89 percent of the flows would still be available for power generation at NJHEP.

¹⁷⁴ India’s Counter-Memorial, para. 4.83.

207. According to India, inter-tributary transfer was envisaged at the time of the Treaty's drafting.¹⁷⁵ India contends that it "knew in the mid-1950s" that a diversion project on the Kishenganga/Neelum was possible and that it ensured that the Treaty contained a provision designed to permit the implementation of such a project.¹⁷⁶ India argues that the CWPC Letter shows that India was contemplating hydro-electric projects on the Kishenganga/Neelum "that would involve inter-tributary deliveries of water, and that the Treaty framers were aware that such a project was envisaged in the Jhelum Basin."¹⁷⁷
208. In India's view, Pakistan also recognized the possibility of inter-tributary transfers in 1960. The Pakistani Cabinet decisions of 15 February 1960 recommended that a protection against prejudice to downstream use of the waters be reflected in Annexure D, "so that the uses in the Azad Kashmir [are] not affected adversely by inter-tributary diversions."¹⁷⁸ Thus, Pakistan "may be said to have implicitly accepted the fact that the KHEP could be constructed on the basis of . . . Pakistan's acceptance of that provision [Paragraph 15(iii)]."¹⁷⁹
209. Since 1960, India observes, Pakistan has repeatedly accepted that inter-tributary transfer is permitted by Annexure D.¹⁸⁰ In one instance, in 2005, the Pakistani Commissioner stated Pakistan's belief that inter-tributary transfers were not permitted under Annexure E for Storage Works, but were permitted under Annexure D for Run-of-River Plants.¹⁸¹ After having agreed that inter-tributary transfer was permitted for Run-of-River Plants, however, Pakistan changed

¹⁷⁵ India's Counter-Memorial, para. 4.77.

¹⁷⁶ India's Counter-Memorial, para. 4.23. According to India, Paragraph 15(iii) was intentionally inserted in the Treaty on the basis of a 1954 hydro-electric survey of the Indus basin carried out by India's CWPC, which identified the possibility of building a hydro-electric scheme on the Kishenganga. *See* India's Counter-Memorial, para. 4.70.

¹⁷⁷ India's Counter-Memorial, para. 3.19-3.20. India also considers that the CWPC Letter makes clear that "there is only one tributary of the Jhelum' where a scheme such as the KHEP is possible." India's Counter-Memorial, para. 4.92. A proposal by the Jammu and Kashmir State Government in 1981 stated that "a project delivering waters from the Kishenganga through a[n] underground tunnel to a point just above Lake Wullar was the only suitable location based on engineering and geological considerations." India's Counter-Memorial, para. 3.23, referring to Outline Proposal on KHEP, December 1981, (Annex IN-57).

¹⁷⁸ India's Rejoinder, para. 2.76, quoting Decisions of the Cabinet Committee on the Draft of the Treaty, Meeting, 15 February 1960, (Annex PK-17).

¹⁷⁹ India's Counter-Memorial, para. 4.70.

¹⁸⁰ India's Rejoinder, para. 2.44.

¹⁸¹ India's Counter-Memorial, para. 4.78, referring to Record of the 93rd Meeting of the Commission, New Delhi, 9-13 February 2005, (Annex PK-29), para. 38.

its position (upon learning of India's change in design) to argue that diversion is not permitted under the Treaty.¹⁸²

(c) "Where a Plant is located on a Tributary of the Jhelum . . . water released below the Plant may be delivered . . . into another Tributary"

210. Pakistan argues that the planned KHEP diversion delivers the water from upstream of the Plant into another tributary despite the Treaty's requirement that only "the water released below the Plant" be diverted. Pakistan also contests India's reading of the words "another tributary."

Pakistan's arguments

211. In Pakistan's view, the KHEP does not fall within the scheme laid out by Paragraph 15(iii) because the KHEP is not a "Plant located on a Tributary of The Jhelum" as required by that Paragraph. Only the KHEP's dam is located on a tributary of the Jhelum (the Kishenganga/Neelum), as the "power plant" is 23 kilometres away in a separate catchment area.¹⁸³ Pakistan maintains that with this design the KHEP "cannot correctly be characterized as a 'Plant located on a Tributary of The Jhelum.'"¹⁸⁴
212. Pakistan also refers to the requirement in Appendix II to Annexure D that India provide a map "showing the location of the site" and "the catchment area of the Tributary above the site."¹⁸⁵ As both provisions refer to "the site" of the Plant, Pakistan argues that the Treaty drafters and Parties accepted that the powerhouse and the "Tributary above the site" are to be located in the same catchment area. The KHEP powerhouse, however, is located in the Bonar Nallah catchment area rather than that of the "Tributary above the site" of the dam, the Kishenganga.¹⁸⁶
213. Even if the KHEP were to be characterized as a Plant on the Kishenganga, Pakistan maintains that it falls outside the scheme of Paragraph 15(iii) because it is not designed in compliance with the Paragraph's requirement that "water released below the Plant may be delivered, if

¹⁸² India's Rejoinder, para. 2.44.

¹⁸³ Pakistan's Reply, paras. 1.32-1.33.

¹⁸⁴ Pakistan's Reply, para. 1.32.

¹⁸⁵ Pakistan's Reply, para. 1.33, quoting Treaty, Annexure D, Appendix II, Paras. 1 and 2(a).

¹⁸⁶ Pakistan's Reply, para. 1.33.

necessary, into another Tributary”; rather, in the case of the KHEP, the water only reaches the Plant *after* it has been delivered elsewhere.¹⁸⁷ According to Pakistan, India plans to deliver the water to another tributary upstream of the Plant, rather than below it. Pakistan considers that such delivery is only permitted after the water has passed through the turbines of the Plant.¹⁸⁸

214. Furthermore, Pakistan contends that the Bonar Nallah is not “another Tributary,” as intended by the Treaty, as it is not within the watershed of the Kishenganga. According to Pakistan, the “basic rule” of Paragraph 15 is that “water in a given river above/below a given Plant should equal out over a seven day period.” To be consistent with this principle, the tributary into which the water is released below the Plant must be located within the same watershed as the tributary where the Plant is located.¹⁸⁹ Here, unless the waters flow into a tributary of the Kishenganga, these flow provisions will be ineffectual. In other words, Pakistan contends that waters that pass through the KHEP should go back into the same river, “hence balancing out the overall impacts of operation of the Plant.”¹⁹⁰
215. Finally, Pakistan submits that the design of the KHEP also violates the Treaty by creating storage in the Wular Lake, after the water flows from the KHEP into the Bonar Nallah. Storage on the Jhelum Main (which includes the Wular Lake as a “connecting lake”) is not permitted to India at all, and neither Paragraph 15(iii) nor Annexure D generally create an exception to this rule.¹⁹¹

India’s arguments

216. India asserts that the KHEP falls within the express terms of Paragraph 15(iii) of Annexure D because the Plant is located on the Kishenganga—a “Tributary” within the meaning of Paragraph 15(iii). In India’s view, Pakistan misinterprets the term “Plant,” which properly refers to the entire complex from the dam, through the tunnel and powerhouse, and to the tail-race.¹⁹² Therefore, the water released below “the Plant” will indeed be delivered into another

¹⁸⁷ Pakistan’s Reply, para. 1.30.

¹⁸⁸ Hearing Tr., (Day 4), 23 August 2012, at 35:8-25.

¹⁸⁹ Pakistan’s Reply, para. 1.34.

¹⁹⁰ Pakistan’s Reply, para. 1.34. Hearing Tr., (Day 4), 23 August 2012, at 19:4-19.

¹⁹¹ Hearing Tr., (Day 3), 22 August 2012, at 178:11-18, 191:9 to 192:24; (Day 4), 23 August 2012, at 68:15-17.

¹⁹² India’s Rejoinder, paras. 2.60-2.70, referring to a 1959 draft of the Article that uses “powerhouse” rather than “Plant” before the drafters concluded that “Plant” was more appropriate. Heads of Agreement, 15 September 1959, (Annex PK-10); Hearing Tr., (Day 9), 30 August 2012, at 28:15-32:23.

tributary as required by the Treaty: “it will be released from the tailrace of the Plant into the Bonar Nallah.”¹⁹³

217. India also interprets “another Tributary” differently. India maintains that the construction of Paragraph 15(iii) makes it clear that “another Tributary” means any other tributary of the Jhelum and is not limited to a tributary within the watershed of the river on which the Plant is located. In India’s view, Pakistan’s argument contradicts the terms of Paragraph 15(iii), which first refers to “a Tributary of the Jhelum” and then refers to “another Tributary,” implying a further reference to tributaries of the Jhelum.¹⁹⁴
218. To make use of the difference in elevation to generate power, it is inevitable, India claims, that the release of the waters below the Plant into another tributary will involve delivery into a different catchment area.¹⁹⁵ Annexure D is not an obstacle. India’s obligation to provide a map of the “catchment area of the Tributary above site” pursuant to Appendix II to Annexure D is unrelated to the location of the powerhouse.¹⁹⁶ When Paragraph 15(iii) refers to the location of a “Plant” on a tributary, it is referring to the dam. When it refers to the water released below the “Plant,” it is referring to the powerhouse.¹⁹⁷ Accordingly, Pakistan’s argument that the powerhouse and the “Tributary above the site” are to be located in the same catchment area is unfounded. Moreover, to interpret this provision as Pakistan suggests would defy gravity, requiring the powerhouse to be located upstream of the dam.¹⁹⁸

(d) “If necessary”

219. The Parties also diverge as to the meaning of the phrase “if necessary” under Paragraph 15(iii), which limits circumstances under which diversion of water is permitted.

¹⁹³ India’s Rejoinder, para. 1.46(ii); *see also* Hearing Tr., (Day 5), 24 August 2012, at 159:1-2.

¹⁹⁴ India’s Rejoinder, para. 2.73.

¹⁹⁵ India’s Rejoinder, paras. 1.34-1.35.

¹⁹⁶ India’s Rejoinder, para. 2.74.

¹⁹⁷ India’s Rejoinder, para. 2.70.

¹⁹⁸ India’s Rejoinder, para. 2.74.

Pakistan's arguments

220. The ordinary meaning of “necessary,” Pakistan argues, is “indispensable, requisite, needful; that cannot be done without.”¹⁹⁹ Pakistan contends that India has not shown that the KHEP diversion is “necessary” pursuant to Paragraph 15(iii), in accordance with this ordinary meaning; rather, Pakistan maintains, India has given a misguided interpretation to the term “necessary.” Pakistan notes that the Indian Commissioner’s letter dated 25 May 2007 defines “necessity” in terms of maximizing the utility of the natural head difference for hydro-electric power.²⁰⁰ From this, Pakistan concludes that India (wrongly) seeks to define “necessary” as “desirable.” According to Pakistan, India’s proposed low-threshold meaning would make any hydro-electric project possible under the Treaty by reference to its engineering or economic feasibility.²⁰¹ In Pakistan’s view, by interpreting “necessary” as meaning only what is necessary for the generation of hydro-electric power, India arrives at too narrow a restriction that is without basis in the Treaty or elsewhere.²⁰² Rather than focusing on India’s energy needs, Pakistan submits that the scope of “necessity” must be reasoned and based on evidence, which leads to the conclusion that diversion is to be used only in case of emergency.²⁰³
221. Pakistan turns to a variety of sources to elaborate the scope of necessity. It first refers to the meaning of “necessary” in the context of treaties of “Friendship, Commerce, and Navigation.” The necessity-based exceptions of several of these treaties were discussed in the *Nicaragua*²⁰⁴ and *Oil Platforms*²⁰⁵ cases by the International Court of Justice, where that Court emphasized that conduct alleged to fall within such a provision must be necessary—in the sense of “essential”—to the purpose of the provision.²⁰⁶ Looking also to the interpretation of necessity in arbitrations under bilateral investment treaties and in the context of the World Trade

¹⁹⁹ Pakistan’s Memorial, para. 5.39, quoting the Shorter Oxford Dictionary.

²⁰⁰ Pakistan’s Memorial, para. 5.36, referring to the Indian Commissioner’s letter to the Pakistani Commissioner, 25 May 2007, (Annex PK-174), at pp. 2-3.

²⁰¹ Pakistan’s Memorial, para. 5.37.

²⁰² Pakistan’s Reply, para. 2.65.

²⁰³ Hearing Tr., (Day 4), 23 August 2012, at 27:23 to 28:20.

²⁰⁴ *Case Concerning the Military and Paramilitary Activities in and Against Nicaragua (Nicaragua v. United States of America)*, Merits, Judgment, I.C.J. Reports 1986, p. 14, pp. 141-142.

²⁰⁵ *Oil Platforms (Islamic Republic of Iran v. United States of America)*, Judgment, I.C.J. Reports 2003, p. 161, p. 183.

²⁰⁶ Pakistan’s Memorial, para. 5.40.

Organisation, Pakistan submits that the term carries a “continuum” of meanings.²⁰⁷ Within such a continuum, however, the diversion could only be necessary in the very broadest sense, insofar as India (like any other State) needs electricity.²⁰⁸ In Pakistan’s view, however, the Treaty contemplates far more urgent necessity.²⁰⁹

222. Pakistan further posits that an element of proportionality is inherent in the term “necessary,” as developed in international law jurisprudence.²¹⁰ The effect of the KHEP on Pakistan’s rights under international law, in particular international environmental law, is relevant, in Pakistan’s view, to whether the KHEP is proportionate, and therefore necessary.²¹¹ Pakistan notes “the general obligation of States to ensure that activities within their jurisdiction and control respect the environment of other States or of areas beyond national control,” as stated by the Tribunal in the *Iron Rhine* arbitration and by the International Court of Justice in the *Gabčíkovo-Nagymaros* judgment.²¹² According to Pakistan, that principle is relevant in the present case and requires “a strict approach to the question of what is necessary and/or proportionate,” insofar as any adverse impact on the environment resulting from India’s acts would be contrary to customary international law.²¹³
223. To make any proportionality analysis possible, Pakistan submits that India should have taken a number of steps. First, Pakistan contends that to establish what is “proportionate and/or necessary,” India would have had to conduct an environmental impact assessment (or work with Pakistan to carry out one) to evaluate downstream effects.²¹⁴ In Pakistan’s view, India has not made the compulsory assessment because the EIA that took place does not address the area

²⁰⁷ Pakistan’s Memorial, para. 5.41.

²⁰⁸ Pakistan’s Memorial, para. 5.42

²⁰⁹ Pakistan’s Memorial, para. 5.42. Pakistan posits the example of a drought in the basin of one tributary, giving rise to a need for inter-tributary transfer.

²¹⁰ Pakistan’s Memorial, para. 5.43. Hearing Tr., (Day 4), 23 August 2012, at 114:8-11; 117:7-9.

²¹¹ Pakistan’s Memorial, para. 5.44; Hearing Tr., (Day 4), 23 August 2012, at 115: 14-15.

²¹² Pakistan’s Memorial, para. 5.44; Pakistan asserts that the principle articulated by the International Court of Justice in the *Pulp Mills* judgment that States must exercise due diligence with respect to activities bearing an impact on the environment of other States is also relevant to the interpretation of “necessary.” Pakistan’s Memorial, para. 5.44, referencing *Pulp Mills on the River Uruguay (Argentina v. Uruguay)*, Judgment, I.C.J. Reports 2010, p. 14.

²¹³ Pakistan’s Memorial, para. 5.45.

²¹⁴ Pakistan’s Memorial, paras. 5.44-5.49.

below the dam site.²¹⁵ Second, Pakistan argues that India should have applied a precautionary approach to its activities, in line with the Rio Declaration on Environment and Development of 1992, particularly in light of the pristine environment below the dam site.²¹⁶

224. Finally, Pakistan submits that “necessary” cannot be understood to be self-judging or subjective. Where other provisions of the Treaty were intended to be self-judging this was expressly indicated; with no such qualification in Annexure D, “necessary” must be understood as an objective test.²¹⁷

India’s arguments

225. Based on the Treaty Preamble’s attention to “complete and satisfactory utilisation of the waters” and the negotiating record of the Treaty, India argues that “necessary” was intended to refer to that which was “optimal for power generation.”²¹⁸ The “most complete and satisfactory utilisation” of the waters, India argues, cannot be attained without taking advantage of the difference in elevation between the Kishenganga/Neelum and the Bonar Nallah.²¹⁹ Moreover, India notes, the term “necessary” was introduced only late in the negotiations, at the time when Paragraph 15(iii) was modified from a prohibitory to an enabling provision; before that change, necessity was not an element in determining whether diversion was permissible. This was, indeed, a change proposed by India, and India submits that it did not intend for the term to be used in the strict sense of “cannot be done without.”²²⁰ On the contrary, India submits that it had in mind during the negotiation of Paragraph 15(iii) the possibility of a transfer from the Kishenganga/Neelum to Wular Lake.²²¹

²¹⁵ Pakistan’s Reply, para. 4.41. Pakistan refers to its expert assessment of India’s EIA which “highlights a long series of shortcomings” in the EIA, but in particular, Pakistan notes that the most important area was not part of the Assessment at all. Pakistan’s Reply, para. 4.42.

²¹⁶ Pakistan’s Memorial, para. 5.48.

²¹⁷ Pakistan’s Memorial, para. 5.39. Hearing Tr., (Day 4), 23 August 2012, at 31:7-16.

²¹⁸ India’s Counter-Memorial, paras. 4.91-4.108, 4.116. India considers Pakistan’s recourse to other treaties and case law to interpret “necessary” to be inapposite and is of the view that the meaning of the term can be ascertained within the terms of the Treaty and its negotiating record. In India’s view, the other cases and treaties mentioned by Pakistan provide no guidance to the present arbitration as they involved neither the Parties nor the subject-matter of the case at hand. *See* India’s Counter-Memorial, para. 4.86 and accompanying footnotes.

²¹⁹ India’s Counter-Memorial, para. 4.91.

²²⁰ India’s Counter-Memorial, paras. 4.100, 4.102.

²²¹ India’s Counter-Memorial, para. 4.103.

226. India refers to the Court’s 23 September 2011 Order on Interim Measures, noting that therein the Court defined “necessary” as meaning that an action is “required, needed, or essential for a particular purpose”²²² and that this is consistent with India’s textual reading that diversion is required for “much needed” power generation.²²³ In India’s view, Pakistan has failed to consider the area’s topography, which makes it necessary to have the water delivered into a second tributary of the Jhelum; production of significant hydro-electric power would not be feasible otherwise.²²⁴ Further, India argues that “necessary” should be seen together with the fact that India’s use of the waters “shall be unrestricted”; as India’s use is unrestricted, it follows that it is for India to decide whether delivery into another tributary is necessary.²²⁵
227. India rejects Pakistan’s importation of environmental harm principles into the meaning of “necessary” as, in its view, “necessary” concerns the generation of hydro-electric power—not the protection of the environment.²²⁶ Pakistan is wrong, according to India, to say that any harm caused to it by the KHEP is a violation of the Treaty. At the outset, India contends that it conducted an appropriate EIA with respect to all areas for which it was able to obtain information.²²⁷ Next, India submits that, contrary to Pakistan’s assertion, no obligation is set forth in the *Pulp Mills* judgment or elsewhere that requires it to seek the assistance of another State to arrange a joint EIA.²²⁸ Moreover, even if the contrary were true, India could only decide what is “necessary” with full details from Pakistan—which Pakistan refused to provide.²²⁹ Finally, India disputes Pakistan’s position that a precautionary approach is mandated by the applicable customary law. According to India, “some major countries take the strongly held view that precaution is not customary international law.”²³⁰ Moreover, India

²²² Order on Interim Measures, para. 139.

²²³ India’s Rejoinder, paras. 1.46, 2.80.

²²⁴ India’s Rejoinder, para. 2.84.

²²⁵ India’s Rejoinder, para. 2.81.

²²⁶ India’s Counter-Memorial, para. 4.116.

²²⁷ India’s Counter-Memorial, para. 6.47.

²²⁸ India’s Counter-Memorial, para. 6.48. Moreover, in India’s view, the *dicta* from the *Pulp Mills* case on which Pakistan relies could not apply to the present dispute because the region affected here is part of India’s territory under India’s Constitution. India’s Counter-Memorial, para. 6.49.

²²⁹ India’s Rejoinder, para. 2.104.

²³⁰ India’s Counter-Memorial, para. 6.102.

argues that the concept of precaution could not be applied in a principled manner here due to its many possible meanings.²³¹

(e) **Interpretation of the phrase “then existing Agricultural Use or hydro-electric use”**

228. The Parties dispute the nature of the requirement that delivery into another tributary not cause adverse impact on the “then existing Agricultural Use or hydro-electric use by Pakistan.” In particular, the Parties disagree on the meaning of the terms “then existing.”

Pakistan’s arguments

229. With respect to the timing indicated by the word “then,” Pakistan submits that a “then existing use” is—in the ordinary meaning of the words—the use existing at the time of the water’s release into the other tributary. Pakistan maintains that this reading of the phrase is consistent with the nature of an operational provision; that is, the question of adverse impact is to be tested “at the time of operation.”²³² Pakistan contends that this point in time is further evidenced by the use of the present tense in the qualifier “where a Plant is located,” which indicates that the Plant is already built and in operation.²³³

230. Pakistan notes that the phrase “then existing” appears in Annexures C, D and E, but submits that there is no common meaning across the different provisions; rather, each contemplates the “moment of action relevant to the particular provision.”²³⁴ In Annexure C, which governs agricultural use, “then existing use” refers to the time at which India makes a new agricultural use.²³⁵ The phrase also appears in Annexure E, regarding Storage Works in the following terms:

Notwithstanding the provisions of Paragraph 7 [which concerns the aggregate storage capacity of all Reservoirs], any Storage Work to be constructed on a Tributary of The Jhelum on which Pakistan has any Agricultural Use or hydro-electric use shall be so

²³¹ India’s Counter-Memorial, para. 6.102.

²³² Pakistan’s Memorial, para. 5.52.

²³³ Pakistan’s Reply, paras. 2.74, 2.75.

²³⁴ Hearing Tr., (Day 3), 22 August 2012, at 186 *et seq.*

²³⁵ Paragraph 9 of Annexure C provides in full: “On those Tributaries of The Jhelum on which there is any Agricultural Use or hydro-electric use by Pakistan, any new Agricultural Use by India shall be so made as not to affect adversely the then existing Agriculture Use or hydro-electric use by Pakistan on those Tributaries.”

designed and operated as not to adversely affect the then existing Agricultural Use or hydro-electric use on that Tributary.²³⁶

231. The use of the phrase in Annexure E, Pakistan emphasizes, is different from that in Annexure D. Annexure E requires a cut-off date because it addresses a Storage Work “to be constructed” and expressly applies to the design of the Storage Work. In contrast, Paragraph 15(iii) of Annexure D addresses a Run-of-River Plant that “is located” and operating on a given tributary and refers to the time at which water is released from the Plant. Accordingly, Pakistan rejects India’s contention of any “common thread” across the meaning of “then existing use” in the different Annexures.²³⁷

India’s arguments

232. India interprets the phrase “then existing use” to mean that any new development by India should not disturb downstream activity by Pakistan as of the date when India communicates to Pakistan its “firm intention” to proceed with a project.²³⁸ To interpret the Treaty as Pakistan suggests, as referring to the time the water is released or “whenever Pakistan might undertake [its use],” would have a chilling effect on any new construction and supplant construction already underway, leading to substantial economic waste.²³⁹
233. India maintains that Pakistan’s position regarding the operational focus of the provision in interpreting “then existing use” is untenable. In Pakistan’s operational perspective, “existing use” would have to be read as “intended use”—contrary to the plain meaning of the phrase.²⁴⁰ India further contends that Pakistan’s interpretation would deprive India of its legitimate expectation to be entitled to the most complete and satisfactory utilization of the waters as guaranteed by the Treaty.²⁴¹
234. According to India, the *travaux préparatoires* indicate that a cut-off date was intended by the Treaty drafters.²⁴² India relies on a letter from the President of the World Bank to the Prime

²³⁶ Treaty, Annexure E, Para. 10.

²³⁷ Pakistan’s Reply, paras. 2.77-2.83.

²³⁸ India’s Counter-Memorial, para. 4.139.

²³⁹ India’s Counter-Memorial, paras. 4.127, 4.128-4.134.

²⁴⁰ India’s Rejoinder, paras. 2.51, 2.53, 2.55, 2.105.

²⁴¹ India’s Rejoinder, para. 1.18.

²⁴² India’s Counter-Memorial, para. 4.139.

Ministers of India and Pakistan dated 8 November 1951 identifying as an “essential principle” that the “Indus basin water resources are sufficient to continue all existing uses and to meet the further needs of both countries.”²⁴³ In India’s view, this demonstrates that “existing” refers to “historic” uses and is distinct from those which might be developed to meet future—or “further”—needs. In its 1954 Proposal, the Bank outlined the Parties’ views on the approach to “existing uses” and, according to India, “rejected Pakistan’s concept of ‘protecting existing uses from existing sources’ because this would render a ‘fair and adequate comprehensive plan’ impossible of achievement and unduly limit the flexibility need[ed] for the efficient use of the waters.”²⁴⁴

235. To identify the appropriate cut-off date, India notes that the provisions of Annexure D require India to provide Pakistan with complete information about its intended design six months before beginning construction. In synchrony with that point in time, India maintains that “uses by Pakistan have to be frozen at the stage when the design is being finalized.”²⁴⁵ In the case of the KHEP, India submits that the cut-off date was—at the latest—June 1994 when the finalized KHEP design (as a Storage Work) was provided to Pakistan.²⁴⁶
236. While India did not announce to Pakistan that the KHEP would be a Run-of-River Plant until 2005–2006, India maintains that the change should not affect the cut-off date for ascertaining downstream uses.²⁴⁷ In any case, the revised Run-of-River design is largely the same as the earlier design: “neither the axis of the dam, the location and layout of the project, nor its installed capacity or diversion works have changed . . . [nor has the] delivery of water to Bonar-Madmati Nallah.”²⁴⁸ Moreover, India considers the revisions advantageous to Pakistan: the height of the dam and the pondage capacity upstream of the dam were reduced.²⁴⁹

²⁴³ India’s Counter-Memorial, para. 4.128, referring to Letter from Eugene R. Black, President of the World Bank to India’s Prime Minister Jawaharlal Nehru, 8 November 1951, (Annex IN-33).

²⁴⁴ India’s Counter-Memorial, para. 4.133.

²⁴⁵ India’s Counter-Memorial, para. 4.123.

²⁴⁶ India’s Counter-Memorial, para. 4.124.

²⁴⁷ India also argues, in the alternative, that even if the cut-off date were determined by reference to the change of the KHEP to a Run-of-River Plant, the NJHEP would still not have been a “then existing use” as construction on the NJHEP was initiated only in 2008. India’s Counter-Memorial, para. 4.124.

²⁴⁸ India’s Counter-Memorial, para. 3.50.

²⁴⁹ India’s Counter-Memorial, para. 3.16.

237. In support of its interpretation, India emphasizes the context given to “then existing” by the word “located” in the opening phrase of Paragraph 15(iii), which begins with “where a Plant is located on a Tributary.” Appendix II to Annexure D, India notes, requires India to provide to Pakistan—in advance of construction—information on the Plant’s planned design, including a section of information relating to the “Location of Plant.” In India’s view, “[h]aving identified the location of the planned Plant and having provided that information to Pakistan . . . , India is deemed to have ‘located’ the Plant.”²⁵⁰ A Plant does not need to be in operation to be “located,” and the time at which a Plant is located through the exchange of information with Pakistan provides the time by reference to which “then existing” uses are to be assessed.
238. As further support, India compares the meaning of “then existing use” in Paragraph 15 to the context of the phrase in other provisions of the Treaty. India argues that it is clear from the placement of the phrase in Annexures C and E that a common meaning was intended: any new development by India should avoid disturbing the activities by Pakistan downstream which are already using the water of the river.²⁵¹

(f) Whether Pakistan has established an “existing . . . use”

239. Turning to the concept of “existing use,” the Parties agree that where Pakistan has shown an agricultural or hydro-electric use to exist at the relevant time, India’s Run-of-River Plant cannot have an adverse impact on that use. The Parties disagree, however, as to what constitutes an “existing . . . use” and as to whether Pakistan has demonstrated existing uses on the Kishenganga/Neelum that must be taken into account.

Pakistan’s arguments

240. Pakistan argues that India’s plans to build a hydro-electric project in accordance with the Treaty must take account of “specific plans for uses” of the waters at specific locations to which Pakistan is “firmly committed.”²⁵² Pakistan notes that India was aware that it was engaged in

²⁵⁰ India’s Rejoinder, para. 2.57.

²⁵¹ India’s Counter-Memorial, para. 4.136.

²⁵² Pakistan’s Reply, para. 5.15.

the planning of the NJHEP from December 1988.²⁵³ Indeed, India had requested details about the NJHEP in 1989, “specifically in the context of the determination of ‘existing . . . uses.’” Pakistan then provided such details in March 1990.²⁵⁴

241. With respect to agricultural uses, Pakistan argues that “agriculture downstream” of the KHEP depends on the flow from India and that the KHEP would “disrupt current projects aimed at the improvement of irrigated agriculture in Pakistan.”²⁵⁵ Pakistan points to the aerial photography of the Neelum Valley included in its EIA as evidence of extensive agricultural activity. Although much of this activity is dependent upon tributaries, Pakistan submits that irrigation is also drawn from the Kishenganga/Neelum itself, and that “plans have been developed to expand the area under irrigation by pumping water” from the main river.²⁵⁶

India’s arguments

242. India submits that Pakistan has not shown the existence of any agricultural use that would be relevant for Paragraph 15(iii).²⁵⁷ India maintains that it requested information from Pakistan regarding any “then existing” agricultural or hydro-electric uses both when it contemplated a Storage Work (as early as 1994²⁵⁸) and again when the KHEP was changed to a Run-of-River Plant.²⁵⁹ Pakistan’s only response was to provide, in 1990, the figure of 133,000 hectares of irrigated land, but without specifying the location of irrigation works or the areas irrigated by them. Nor were such works observed during a tour of the area.²⁶⁰ In fact, India argues that Pakistan’s own evidence and its submission in this arbitration demonstrates that the “very

²⁵³ Pakistan’s Memorial, para. 2.13; Pakistan’s Memorial, para. 2.12, citing the Pakistani Commissioner’s letter to the Indian Commissioner, 22 April 1989, informing him of the construction of the NJHEP: “the waters of the Neelum (Kishenganga) River [stand] committed to this project.”

²⁵⁴ Pakistan’s Reply, para. 3.36.

²⁵⁵ Pakistan’s Memorial, para. 1.21.

²⁵⁶ Pakistan’s Memorial, para. 3.51; Pakistan’s Memorial, Hagler Bailly Pakistan, Water Matters, Southern Waters & Beuster, Clarke and Associates, “Kishenganga/Neelum River Water Diversion: Environmental Assessment” at exhibits 1.4, 1.5, 6.10, 6.11 (May 2011).

²⁵⁷ Hearing Tr., (Day 5), 24 August 2012, at 174 to 180.

²⁵⁸ India’s Rejoinder, para. 1.55-1.56; India’s Rejoinder, para. 2.129 *et seq.*

²⁵⁹ India’s Counter-Memorial, para. 3.54.

²⁶⁰ India’s Counter-Memorial, para. 4.142, India’s Rejoinder, paras. 2.115-2.117.

limited” agriculture in the Neelum Valley is “observed to be based on rainfall” and on channels fed by side streams, rather than on the Kishenganga/Neelum itself.²⁶¹

243. India recognizes the NJHEP as a potential hydro-electric use but argues that Pakistan only announced its commitment to build the NJHEP in 2008 (14 years after the finalization of the KHEP under its original design and two years after the revised design had been submitted to Pakistan).²⁶² India traces the timeline of the development of the plan for the KHEP, beginning in 1960 with the CWPC Letter. At that time, India notes, nothing in the record indicates a possible project at Nauseri.²⁶³ By 1971, India had produced a document entitled “Kishenganga Hydroelectric Project” which, in its view, demonstrates that it had the project in mind.²⁶⁴ During this period, there was no evidence of a Pakistani project on the river. Thereafter, and through the 1980s, India continued collecting data and carrying out exploratory work.²⁶⁵ In comparison, it was not until 1989, when Pakistan wrote to India regarding the NJHEP, that the record indicates anything with respect to a Pakistani project.²⁶⁶
244. According to India, following India’s communication to Pakistan of technical information concerning the KHEP in 1994, and as late as 2005, Pakistan only assured India that it would provide “relevant information” concerning the impact of the KHEP on the NJHEP.²⁶⁷ Thus, India concludes that the NJHEP fails Pakistan’s own definition of an “existing use” as Pakistan made no “firm commitment” or “active engagement” in the project until 2007-2008.²⁶⁸ Even during an inspection in 2008, India submits, there was no evidence that preparatory construction work was under way.²⁶⁹

²⁶¹ India’s Counter-Memorial, para. 4.143.

²⁶² India’s Counter-Memorial, para. 4.148.

²⁶³ Hearing Tr., (Day 9), 30 August 2012, at 51:2-11.

²⁶⁴ Hearing Tr., (Day 9), 30 August 2012, at 51:12-21, referencing Comments of the CWPC, 13 May 1971, (Annex IN-55) and Communication of the Government of Jammu and Kashmir to the Indian Ministry of Irrigation and Power, 3 April 1973, (Annex IN-56).

²⁶⁵ Hearing Tr., (Day 9), 30 August 2012, at 51:25 to 53:13.

²⁶⁶ Hearing Tr., (Day 5), 24 August 2012, at 148:15 *et seq.*

²⁶⁷ Hearing Tr., (Day 5), 24 August 2012, at 150:3-5.

²⁶⁸ India’s Rejoinder, para. 1.59.

²⁶⁹ India’s Counter-Memorial, para. 4.147, noting that during two tours of inspection to the NJHEP site in 1991 and 1996, no construction was observed.

(g) Whether the diversion of the Kishenganga/Neelum River would cause an adverse effect

245. The Parties strongly disagree about the content and weight of evidence suggesting any potential adverse effect to Pakistani uses as a result of the KHEP. While they agree that the effect must be more than a minimal (“*de minimis*”) effect, they again differ with respect to the meaning of “*de minimis*” in this context.

Pakistan’s arguments

246. Pakistan considers it “self-evident that the planned diversion . . . would materially reduce the flows downstream” which would lead to a reduction in planned electricity generation at the NJHEP, as well as at other sites that have been considered for future hydro-electric development. Potential sites of future hydro-electric projects include Suti/Taobat, Followai, Kel and Dudhnial.²⁷⁰ Overall, Pakistan predicts an annual loss in electricity generation of 13 percent at the NJHEP, equivalent to a loss of USD 141.3 million,²⁷¹ and a further annual loss of USD 74.1 million at its other planned sites.²⁷²

247. Insofar as the hydrological flow data presented by the Parties differs, Pakistan maintains that its daily data series of the flow at the NJHEP site is more accurate and gives a more representative understanding of the impact of the KHEP than does India’s monthly series.²⁷³ Pakistan rejects the suggestion that its statistical processing of observed data is somehow inappropriate. In Pakistan’s view, raw data must be subjected to such analysis to produce useable results.²⁷⁴

²⁷⁰ Pakistan’s Memorial, paras. 5.56, 5.58.

²⁷¹ Pakistan makes its calculation on the basis of an oil price of USD 115 per barrel. Pakistan’s Memorial, para. 3.33.

²⁷² Pakistan’s Memorial, paras. 5.57-5.58. Pakistan relies on the data presented in the National Engineering Services Pakistan Limited Report (NESPAC Report). This Report was then submitted for peer review to Prof. Jens Christian Refsgaard of the Geological Survey of Denmark and Greenland who provided a Review Report. In his Review Report, Prof. Refsgaard concludes:

A diversion of 58.4 m³/s at Kishenganga will reduce the annual flow at the NJHEP site at Nauseri in Pakistan by 14%, while the winter and summer season flows will be reduced by 33% and 11%, respectively. The corresponding reduction figures at upstream sites closer to the [KHEP] will be much higher, e.g. 33% (annual), 74% (winter) and 26% (summer) at Suti/Taobat.

²⁷³ Pakistan’s Reply, paras. 4.16, 4.25-4.27.

²⁷⁴ Pakistan’s Reply, para. 4.12. For example, Pakistan argues that the seasonal regression equations in the NESPAC Report that India argued were unreliable, having been based on an assessment of the annual hydrological relationship, are in fact more reliable than India’s figures, which are based on only six or seven data points. Pakistan’s Reply, para. 4.9. Likewise, Pakistan objects to India’s argument that the data from the

Pakistan also notes that in attempting to minimize the effect on power generation at the NJHEP, India misconstrues the planned mode of operation of the Plant, supposing that Pakistan seeks to generate only “peaking power” during a portion of the day, rather than full-time operation.²⁷⁵ In addition, Pakistan observes that even India’s own data show significant reduction in flows at the NJHEP due to the operation of the KHEP.²⁷⁶

248. Pakistan further rejects India’s argument that the impact at the NJHEP would be mitigated by an overall increase in power generation in the region. Pakistan maintains that arguments concerning alleged beneficial impacts on other hydro-electric projects, such as the planned Kohala hydro-electric project, are irrelevant. Those projects are located on other tributaries and do not fall within the scope of this dispute.²⁷⁷ Furthermore, India assumes wrongly that storage at the proposed Pakistani Dudhnial hydro-electric project would offset the impact of reduced flow at the NJHEP. This is incorrect, Pakistan argues, first because it is unlikely that the Dudhnial project will be constructed as a storage scheme, as India assumes,²⁷⁸ and second because India’s calculation in this respect does not account for the fact that the Dudhnial project would itself suffer reduced water availability and an adverse impact from the KHEP.²⁷⁹
249. Additionally, Pakistan submits that the diversion will affect its agricultural use of the waters by “depriv[ing] the riverine communities of [the water that will be diverted].”²⁸⁰ In particular, according to Pakistan, there will be no flow immediately below the dam site for six months of the year.²⁸¹ The impact on agricultural activities in the region will “depend on the precise location of given crop areas . . . where irrigation is dependent on water taken from the Kishenganga/Neelum River,” but an adverse impact would be expected to current and planned irrigation projects.²⁸²

Muzaffarabad gauge site are unreliable, contending that its streamflow measurement methodology is in accordance with good hydrological practice. Pakistan’s Reply, para. 4.11.

²⁷⁵ Pakistan’s Reply, para. 4.24.

²⁷⁶ Pakistan’s Reply, para. 4.15.

²⁷⁷ Pakistan’s Reply, para. 4.29.

²⁷⁸ Pakistan’s Reply, para. 4.31.

²⁷⁹ Pakistan’s Reply, para. 4.32.

²⁸⁰ Pakistan’s Memorial, para. 3.52.

²⁸¹ Pakistan’s Memorial, para. 3.26.

²⁸² Pakistan’s Memorial, para. 5.55.

250. In Pakistan's view, the evaluation of adverse effect under the Treaty "does not invite a general balancing act that seeks to bring into account alleged positive impacts to Agricultural Use or hydroelectric use on other Tributaries," as India implies through its analysis of "compensation" effects at other hydro-electric plants.²⁸³ Pakistan urges the Court to bear in mind the scale of harm that would result from what may appear as an insignificant overall reduction in flow and argues that the data bear out that the overall adverse effect is significant.²⁸⁴ As Pakistan stated at the hearing on the merits, "there is no particular size below which farmers or hydro-electric plants can simply be ignored by India."²⁸⁵ In Pakistan's view, if there is an interference with the flow that is not insignificant and incidental, and that does have an adverse effect upon downstream uses, India is no longer permitted to divert the river pursuant to Paragraph 15(iii).²⁸⁶

India's arguments

251. India maintains that the KHEP will not have any significant adverse effect on the NJHEP.²⁸⁷ To the contrary, India contends that the KHEP would have a net positive effect on the generation of hydro-electric power in the region: it will increase the flow of water going into Pakistan's planned Kohala hydro-electric project, thereby increasing its capacity to generate electricity during the winter months and substantially offsetting the loss of capacity at the KHEP.²⁸⁸ Such offset effects, along with a gain in energy at the NJHEP as a result of Pakistan's planned Dudhnial Storage Work, will increase total power output.²⁸⁹ Accounting for these two projects in calculating the effect of the KHEP on Pakistan, as well as additional projects planned further downstream, it is India's view that "the impact of the KHEP will be largely moderated."²⁹⁰ Even without such offsets, India submits that the relevant flow data from the area do not

²⁸³ Pakistan's Reply, paras. 2.86, 4.29.

²⁸⁴ Pakistan's Reply, para. 2.85.

²⁸⁵ Hearing Tr., (Day 4), 23 August 2012, at 45:7-9.

²⁸⁶ Hearing Tr., (Day 4), 23 August 2012, at 46:18-23.

²⁸⁷ India's Counter-Memorial, para. 4.150.

²⁸⁸ India's Counter-Memorial, paras. 5.31, 5.33.

²⁸⁹ India's Counter-Memorial, para. 5.38. India notes that Pakistan informed India in 1990 that Dudhnial was intended to be developed as a storage project. India's Rejoinder, para. 3.57.

²⁹⁰ India's Counter-Memorial, para. 5.39. "The entire system as a whole will benefit from the KHEP 4,703 MU [gigawatt hours]," whereas without the KHEP there will be a net loss to both Parties. India's Counter-Memorial, para. 5.41; India's Rejoinder, paras. 3.64-3.65.

demonstrate any material adversity to Pakistan's hydro-electric use; rather, the water released at the KHEP would continue to suffice for the NJHEP to operate as a peaking plant, as intended by Pakistan.²⁹¹

252. India disputes Pakistan's presentation of its flow data, criticizing its calculations for their inconsistencies and oversight,²⁹² the limits on the span of the data on which it relies,²⁹³ and its transparency with respect to both data and calculation methodology.²⁹⁴ In India's view, Pakistan's calculations depicting losses at the NJHEP during the high flow season, in particular, are based on an approach chosen to exaggerate its potential losses.²⁹⁵ India contends that, "given the limitations of the various data sets, there can be no definite conclusion on the impact of [the] KHEP on power generation in [the] NJHEP."²⁹⁶ Even if the Court were to conclude that there is an adverse effect on hydro-electric power at the NJHEP, India argues, a minor adverse

²⁹¹ India's Counter-Memorial, paras. 5.12-5.13, 5.24.

²⁹² India finds the NESPAK Report's regression analysis to show concurrent flow between Gurez and Muzaffarabad to be inappropriate as it does not accommodate seasonal variability. "Pakistan's argument that one regression equation based on monthly flows be used does not take account of the natural processes in the development of hydrologic time series." India, by contrast, calculates each season's flows separately. India's Rejoinder, para. 3.16.

²⁹³ India's Rejoinder, para. 3.22. India notes that Pakistan used an 18-month data set to develop a long-term series for flow at Nauseri and comments that a period of 18 months is too short for any reliable regression analysis. In addition, it observes that one of Pakistan's consultants discarded Nauseri data from 1991 to 1996 because these data were "said to be underestimated by about 8%," but that Pakistan did not take this into account and retained the data. India's Rejoinder, para. 3.23. India also rejects Pakistan's flow data from Muzaffarabad which it claims was measured only intermittently (two or three times per month). India's Rejoinder, para. 3.24.

²⁹⁴ India argues, first, that Pakistan withheld gauge and discharge information observed at Nauseri and Dudhnial which prevented India from verifying it. India's Rejoinder, para. 3.21. Next, India rejects Pakistan's "modification" of the data from Muzaffarabad, that is, Pakistan's claim that earlier collected data was "raw" and needed to be further processed before being provided to India. India's Rejoinder, paras. 3.28-3.29. To India, the presence of three different sets of flow data from a single gauging station has not been sufficiently explained. India's Rejoinder, para. 3.26.

²⁹⁵ India's Rejoinder, para. 3.45. In fact, India contends, any daily flow variations in the high flow season can be accommodated by Pakistan without a reduction in the power-generating capacity of the NJHEP; Pakistan has not taken into account that the NJHEP has live storage that can even out variations across a ten-day period. India's Rejoinder, para. 3.47.

²⁹⁶ India's Rejoinder, para. 3.33. Further, in response to Pakistan's criticism about India's use of a ten-day time-step rather than daily flow, India argues that ten-day average flow calculations are an accepted norm and consistent with the Treaty, whereas Pakistan's daily flow analysis is not reliable as it gives only a "single snapshot value at a particular time in the day." India's Rejoinder, paras. 3.41-3.43.

effect would not under the Treaty prevent delivery into the Bonar Nallah.²⁹⁷ The Treaty requires an adverse effect “to a significant extent.”²⁹⁸

253. Similarly, in India’s view, Pakistan has not explained how the KHEP would have an impact on Pakistan’s downstream agricultural use.²⁹⁹ India states: “If Pakistan’s concerns were that, in the reach of the Kishenganga (Neelum) Tributary below the KHEP, the timing of flow for irrigation essential to ensure food security would be significantly affected, its Memorial again does not throw any light in support of this statement. In fact, the irrigation water requirements for agricultural uses in the Neelum [V]alley are nominal and will not be affected by the reduction in volume of flow in this reach due to the KHEP.”³⁰⁰ Nor, India notes, did Pakistan provide any evidence to support its assertion that delivery of water to the Wular Lake would delay downstream flows and affect the early growing season.³⁰¹

3. The Parties’ arguments on Article IV(6) of the Treaty

254. In addition to its arguments regarding Article III and Annexure D, Pakistan claims that the construction of the KHEP breaches Article IV(6) of the Treaty, which provides:

Each Party will use its best endeavours to maintain the natural channels of the Rivers, as on the Effective Date, in such condition as will avoid, as far as practicable, any obstruction to the flow in these channels likely to cause material damage to the other Party.

255. The Parties disagree as to the meaning of their obligation to “maintain the natural channels” and the scope of the obligation to “use their best endeavours” in doing so.

Pakistan’s arguments

256. Pakistan accepts that Article IV(6) imposes a “best endeavours” obligation but submits that India has failed to live up to this standard.³⁰² As an initial matter, Pakistan claims that India is obliged, under Article IV(6), to avoid (as far as practicable) creating obstructions to the flow of

²⁹⁷ India’s Counter-Memorial, paras. 4.150; 5.25-5.33.

²⁹⁸ India’s Counter-Memorial, para. 4.150.

²⁹⁹ India’s Counter-Memorial, para. 4.36. With respect to the Muzaffarabad data, India contests Pakistan’s data on the basis of the limited number of days included in Pakistan’s study. India’s Counter-Memorial, paras. 5.7, 5.8.

³⁰⁰ India’s Counter-Memorial, para. 4.36.

³⁰¹ India’s Rejoinder, para. 2.122, referencing Pakistan’s Reply, para. 4.50.

³⁰² Pakistan’s Memorial, para. 5.59.

the waters of the rivers that cause material damage to Pakistan. Because the KHEP will divert waters from their natural channels—“a *prima facie* breach of the requirement to maintain the natural channels”—and cause the deterioration of those channels,³⁰³ it will, in Pakistan’s view, obstruct the flow and result in material damage.³⁰⁴

257. In Pakistan’s view, “material damage,” as the term is used in Article IV(6), extends beyond the direct obstruction and degradation of the natural channel of the Kishenganga/Neelum, and encompasses harm to the ecology of the riverine environment in that channel.³⁰⁵ As described by Pakistan, the KHEP will contribute to substantial material damage downstream.³⁰⁶ Pakistan describes “a large loss of natural habitat, biota and ecosystem functions” immediately downstream of the Line of Control, as well as a decline in abundance of fish species and important changes to socio-economic conditions downstream.³⁰⁷ Further, Pakistan contends that protecting the flow of the waters in their natural channels is “an essential element in ensuring food security.”³⁰⁸ The KHEP will interfere with Pakistan’s capacity to manage the irrigation of its crops.

258. Relying on India’s own data on the anticipated flow below the KHEP, Pakistan is unconvinced that any fixed minimum environmental flow would avoid significant harm to the environment in the affected areas.³⁰⁹ At the least, Pakistan argues, for India to employ its best endeavours to avoid these harms would require it to assess the damage its diversion is likely to cause. Thus, in Pakistan’s view, India failed to use its best endeavours when it neither carried out an adequate

³⁰³ Pakistan’s Memorial, para. 5.63. Pakistan states that immediately downstream of the Line of Control, the “hydrological dry season would become more than two months longer and start about six weeks earlier” with the operation of the KHEP. Further, the “flood season would start about a week later and would finish a month earlier, while its peak flows would be about 14% lower.” Pakistan’s Memorial, para. 3.45.

³⁰⁴ Pakistan’s Memorial, para. 5.63.

³⁰⁵ Pakistan’s Memorial, para. 3.52; Pakistan’s Reply, para. 2.88.

³⁰⁶ Pakistan’s Memorial, paras. 3.45-3.50.

³⁰⁷ Pakistan’s Memorial, para. 5.46. Referring to an EIA carried out by a consortium of specialists, Pakistan describes how at Dudhnial four fish species are expected to show a decline in abundance of 30 to 40 percent. “[T]he reduction in fish population . . . would reduce the revenues of local businesses and people associated with sport fishing.” Pakistan’s Memorial, para. 3.49. Further, reductions in the availability of water will affect its use for drinking and reduce “the navigational/transportation uses . . . for around six months in an average year.” Pakistan’s Memorial, para. 3.50.

³⁰⁸ Pakistan’s Memorial, para. 1.7.

³⁰⁹ Hearing Tr., (Day 10), 31 August 2012, at 34.

EIA,³¹⁰ nor shared with Pakistan information on the anticipated impact of its project, despite Pakistan's requests for such information.³¹¹ Pakistan relies on the judgment of the International Court of Justice in the *Pulp Mills* case to support its position.³¹² There, the Court stated: "it may now be considered a requirement under general international law to undertake an environmental impact assessment where there is a risk that the proposed industrial activity may have a significant adverse impact in a transboundary context, in particular, on a shared resource."³¹³ In Pakistan's view, this requirement applies to the KHEP, notwithstanding the unique status of the Line of Control; the *Pulp Mills* judgment refers to the obligation on States to ensure that activities "within their jurisdiction and control" respect the environment of other States or of areas "beyond their national control," a construction that applies equally to Indian activities having an effect on Pakistan-administered Jammu and Kashmir.³¹⁴

India's arguments

259. According to India, the purpose of Article IV(6) is to maintain the "geometry of the channels" of the rivers.³¹⁵ The term "obstruction" cannot relate to projects permitted by other provisions of the Treaty; otherwise no development work would be possible.³¹⁶ India points to comments made by Pakistan's negotiator in 1959 indicating that Article IV(6) was intended to prevent India from placing "'temporary bunds,' or dikes, 'across the Eastern Rivers'"—and not to

³¹⁰ In response to India's contention that it carried out an EIA in 2002, Pakistan maintains that this EIA is insufficient to ensure that its Treaty rights are upheld since only 12 pages are concerned with the impacts of the KHEP and the analysis undertaken is inadequate. Pakistan also observes that India requested information from Pakistan for it to carry out an EIA in 2008, but this request came two years after India had already finalized its plans for the KHEP. Pakistan's Reply, paras. 5.22, 5.23.

³¹¹ Pakistan's Memorial, para. 5.60.

³¹² Pakistan's Memorial, paras. 5.61-5.62.

³¹³ Pakistan's Memorial, para. 5.61, citing *Pulp Mills on the River Uruguay (Argentina v. Uruguay)*, Judgment, I.C.J. Reports 2010, p. 14, p. 83. Pakistan locates additional support for its assertion that customary international law includes a prohibition on transboundary harm in Principle 21 of the Stockholm Declaration of the United Nations Conference on the Human Environment which, according to Pakistan, sets out a requirement that States not cause transboundary harm. Stockholm Declaration of the United Nations Conference on the Human Environment, (16 June 1972), UN Doc. A/CONF. 48/14/Rev 1.

³¹⁴ Pakistan's Reply, para. 5.22. Pakistan also submits that India has admitted, in an environmental assessment and management plan upon which it relies, that the Line of Control is an international boundary, thereby rendering the decision in *Pulp Mills* directly relevant. See Pakistan's Reply, para. 5.21, referencing para. 6.55 of India's Counter-Memorial, and a report titled, *Comprehensive Management Action Plan for Wular Lake, Kashmir*.

³¹⁵ India's Counter-Memorial, paras. 4.155, 4.157.

³¹⁶ India's Counter-Memorial, paras. 4.152, 4.157.

prevent inter-tributary transfers.³¹⁷ Moreover, India submits that Article IV(6) does not “provide a strong obligation [on the Parties], if in fact it provides an obligation at all.” The word “will,” rather than “shall,” in the phrase “Each Party will use its best endeavours . . .” is, for India, an indication of intent rather than of obligation.³¹⁸

260. In India’s view, its interpretation is confirmed by the surrounding paragraphs in Article IV (all of which relate to drainage), which confirm that Paragraph 6 was intended to ensure effective drainage and smooth downstream flow—and not to maintain any particular volume of flow.³¹⁹ India submits that its interpretation is supported by the *travaux préparatoires*, insofar as an early draft of Article IV(6) used the phrase “natural flow in the Rivers,” only to have this replaced by “flow in these channels.” According to India, this change represents the drafters’ recognition that “it would have been impossible to maintain the ‘natural flow in the Rivers’ as on the Effective Date in view of the uses India was permitted.”³²⁰
261. India dismisses criticism of the scope of its EIA, noting that Pakistan refused to provide the information that would have permitted an environmental assessment covering the entire region.³²¹ India further defends the soundness of its EIA, arguing that this assessment considered impacts at the dam site and conformed to international best practices at the time.³²² Moreover, India observes, the EIA carried out by Pakistan contains flaws of its own, including a failure to consider the environmental effects of the NJHEP (and four other dams that Pakistan proposes to build) as well as the lack of consideration of environmental impacts in the area between Nauseri and Muzaffarabad.³²³

³¹⁷ India’s Rejoinder, para. 2.155.

³¹⁸ India’s Rejoinder, para. 2.168.

³¹⁹ India’s Counter-Memorial, paras. 4.155, 4.157. For example, India refers to Paragraphs 4, 5, and 8 addressing maintenance of drainages, deepening or widening of drainages, and use of the natural channels for the discharge of excess waters, respectively.

³²⁰ India’s Counter-Memorial, para. 4.161.

³²¹ India’s Counter-Memorial, para. 6.86.

³²² India’s Rejoinder, paras. 3.75-3.84. India contends that the contents of the EIA make clear that the dam site was accounted for in its entirety. With respect to best practices, India argues that its EIA covered all the most important aspects of an EIA: that it be in writing, be conducted sufficiently early to be taken account in decision-making, include an opportunity for public comment, and be comprehensive.

³²³ India’s Rejoinder, para. 3.103. India also rejects Pakistan’s classifications of fish species and of impact zones, as well as the socio-economic impacts in the region, as arbitrary and subjective. India’s Rejoinder, para. 3.118.

262. Finally, India rejects what it considers to be an attempt to import principles of international environmental law that are applicable neither to the interpretation of Article IV(6) nor to this dispute as a whole.³²⁴ In India's view, environmental principles not found in the Treaty fall outside the jurisdiction of the Court.³²⁵ Nevertheless, India emphasizes that it takes environmental considerations seriously. It notes, first, that the KHEP meets all requirements of Indian environmental law³²⁶ and, second, that the evidence India collected in its EIA in 2000 establishes that the KHEP would not cause irreversible harm to the environment.³²⁷ India also notes that the KHEP will not have a significant impact on any terrestrial species, nor lead to an increased risk of disease in the valley.³²⁸ At the hearing on the merits, the Agent for India further guaranteed that an "environmental flow will continue throughout the year."³²⁹ According to the Agent, there would be no dry period below the KHEP, in accordance with Indian laws. The Agent indicated that the exact amount of the flow was under consideration by the Indian Ministry of Environment and Forests, but that it would not be less than "the minimum observed flow of 3.94 [cumecs] at the site."³³⁰

B. THE PERMISSIBILITY OF RESERVOIR DEPLETION UNDER THE TREATY

263. As stated in Pakistan's Request for Arbitration and Memorial, the Second Dispute relates to the following question:

Whether under the Treaty, India may deplete or bring the reservoir level of a run-of-river Plant below Dead Storage Level in any circumstances except in the case of an unforeseen emergency.³³¹

264. Pakistan's concern with reservoir depletion arises out of the KHEP's design as a Run-of-River Plant, as described in the Indian Commissioner's letter of 19 June 2006, notifying Pakistan of the KHEP's re-configured design, and in the appendices to India's Counter-Memorial. As set forth therein, the KHEP includes a spillway with a design flood of 2,000 m³/s and three gated

³²⁴ India's Rejoinder, para. 2.151.

³²⁵ India's Rejoinder, para. 2.159.

³²⁶ India's Rejoinder, paras. 2.172-2.177.

³²⁷ India's Rejoinder, paras. 1.69-1.70.

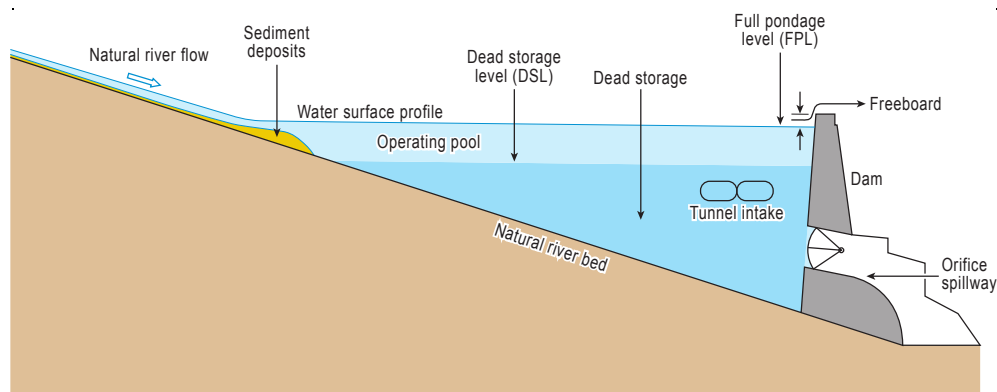
³²⁸ Hearing Tr., (Day 6), 27 August 2012, at 33:2-20.

³²⁹ Hearing Tr., (Day 9), 30 August 2012, at 114:13-15.

³³⁰ Hearing Tr., (Day 9), 30 August 2012, at 115:4-15.

³³¹ Request for Arbitration, para. 4; Pakistan's Memorial, para. 1.12.

openings located at an elevation of 2,370 metres—that is, with the base of the gates 10 metres above the riverbed and 14.5 metres below the KHEP’s Dead Storage Level.³³² India indicates that the spillway will perform the dual function of flood discharge and sediment removal and, in particular, signals its intention to use the spillway for drawdown flushing.³³³ A dam with a low-level spillway can be represented schematically as follows:



Source: Pakistan’s Memorial, Volume 2, Figure 12.

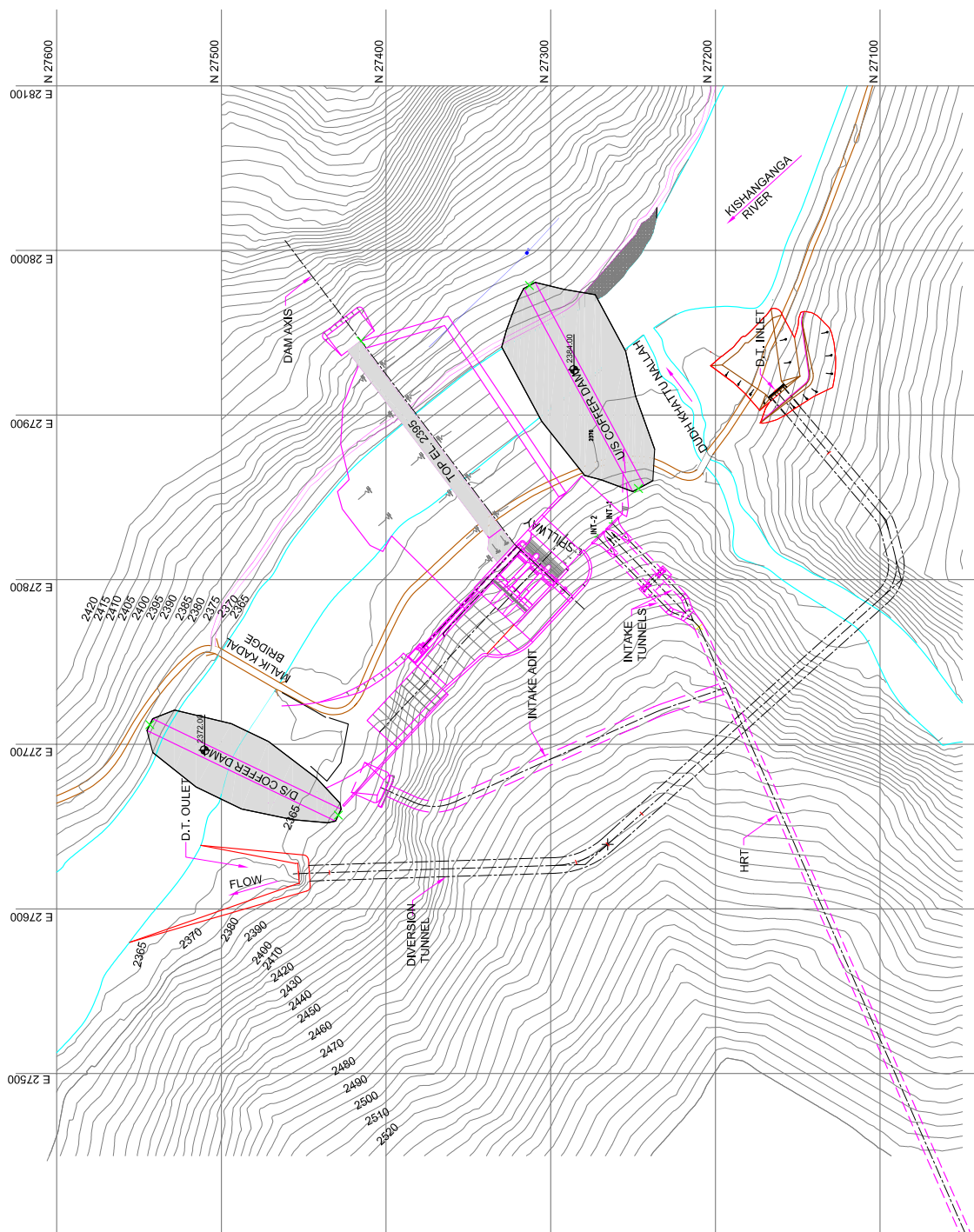
265. The specific design of the KHEP, including the location of the spillway and gated openings, can be seen in the following technical diagrams, provided by India:

³³² See Indian Commissioner’s letter to the Pakistani Commissioner, 19 June 2006, (Annex PK-163); India’s Counter-Memorial, Appendix 2, paras. 12, 17; India’s Counter-Memorial, Annex I, n.3 (see “MDDL”); see also Pakistan’s Memorial, paras. 3.17, 6.19; India’s Rejoinder, Report, Prof. Dr Anton J. Schleiss, Laboratory of Hydraulic Constructions (LCH), EPFL, Switzerland: “Note on Second Dispute regarding Drawdown Flushing,” 7 May 2012, (IN-Tab I) (the “Schleiss Report”), p. 4.

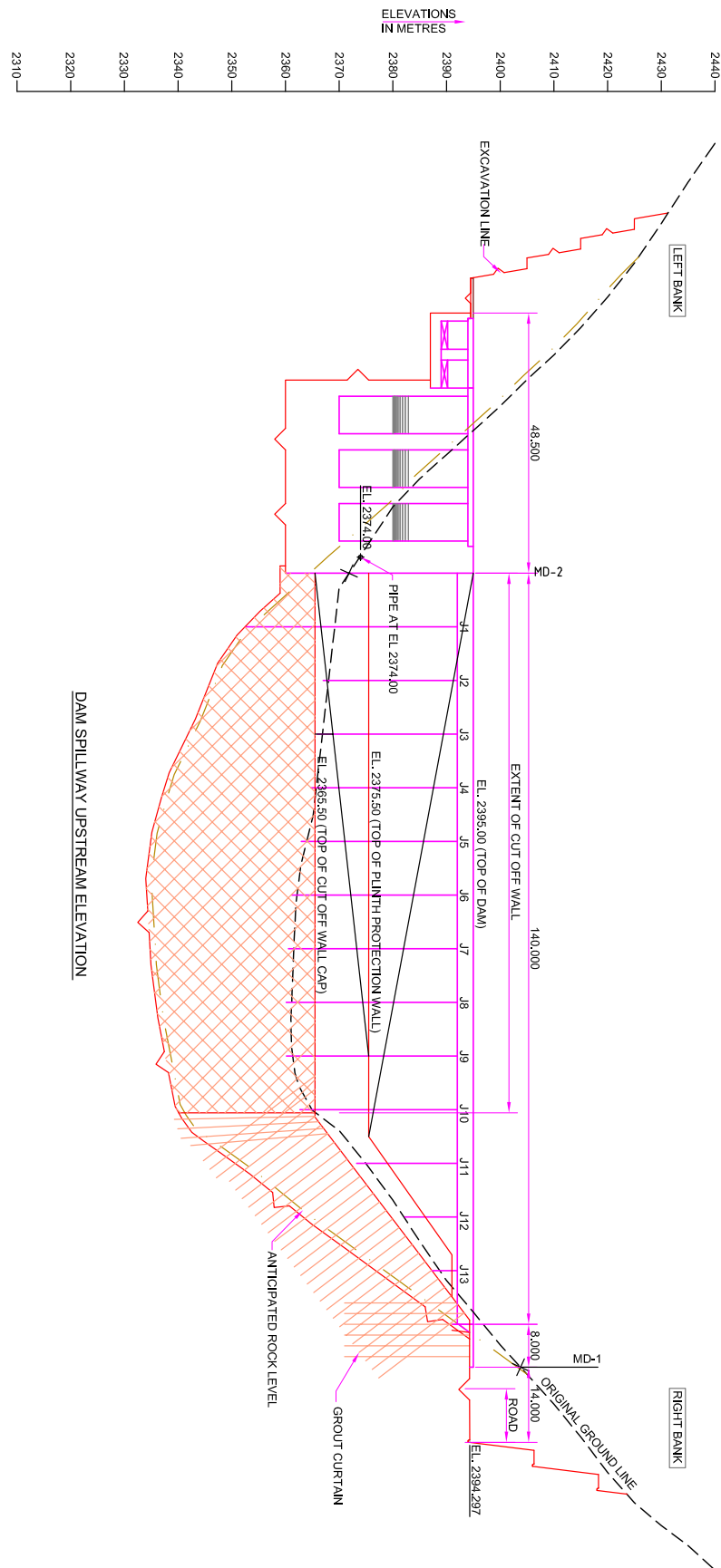
Dead Storage is defined by the Treaty as “that portion of the storage which is not used for operational purposes”; Dead Storage Level “means the level corresponding to Dead Storage.” In practice, the Dead Storage Level is calculated by reference to the surface of the reservoir at its maximum ordinary capacity (its “Full Pondage Level”). The storage between Full Pondage Level and the Dead Storage Level is termed the “Operating Pool,” and its volume is regulated by Annexure D. The Dead Storage then extends from the riverbed to the lower limit of the Operating Pool, once the latter’s capacity is determined under the Treaty. Pursuant to Paragraph 8(c) of Annexure D, the volume of the Operating Pool may not exceed twice the capacity required to meet fluctuations in the daily and weekly generating loads of the Plant when generating “Firm Power”—the electricity it can produce year round on the basis of the minimum average discharge at the site. In other words, the Dead Storage Level is a calculation based on the hydrological data for the minimum flow at the site and the engineer’s determination of the storage capacity required to meet the planned daily and weekly variation in the generation of electricity.

³³³ Indian Commissioner’s letter to the Pakistani Commissioner, 25 May 2007, (Annex PK-174); India’s Counter-Memorial, Appendix 2, paras. 12, 18, 35-37.

KISHENGANGA H.E. PROJECT(J&K)
DAM COMPLEX GENERAL LAYOUT



Source: India's Counter-Memorial, Volume 1, p. 291



Source: India's Counter-Memorial, Volume 1, p. 294

266. Drawdown flushing is a technique for the removal of sediment from the reservoir of a hydro-electric plant. The procedure consists of drawing the water in the reservoir down to a level close to that of the riverbed by releasing the water through low-level outlets in the dam. When the water is drawn down during drawdown flushing, its velocity through the reservoir approximates the river's natural flow and its increased capacity to transport sediment lifts accumulated deposits from the riverbed, expelling sediment from the reservoir through the outlets in the dam.³³⁴ In the case of the KHEP, drawdown flushing would entail drawing down the water to the level of the spillway gates and therefore below Dead Storage Level.³³⁵
267. In this context, the Parties disagree as to whether, under the Treaty, India may bring the reservoir level of a Run-of-River Plant such as the KHEP below Dead Storage Level in circumstances other than unforeseen emergencies and, in particular, for the purpose of drawdown flushing. Pakistan submits that drawdown flushing is prohibited by specific provisions of the Treaty. India argues that it is permitted under the "state-of-the-art concept" enshrined in the Treaty, as confirmed by the *Baglihar* expert determination. India moreover objects to the admissibility of the Second Dispute for determination by the Court.
268. This Part summarizes the Parties' arguments regarding the Second Dispute, beginning with India's objection to admissibility and followed by the Parties' substantive arguments.

1. The Parties' arguments on the admissibility of the Second Dispute

269. Article IX of the Treaty provides for the settlement of differences and disputes that may arise in respect of the Treaty. Paragraphs (1) and (2) of Article IX read as follows:

- (1) Any question which arises between the Parties concerning the interpretation or application of this Treaty or the existence of any fact which, if established, might constitute a breach of this Treaty shall first be examined by the Commission, which will endeavour to resolve the question by agreement.
- (2) If the Commission does not reach agreement on any of the questions mentioned in Paragraph (1), then a difference will be deemed to have arisen, which shall be dealt with as follows:
 - (a) Any difference which, in the opinion of either Commissioner, falls within the provisions of Part 1 of Annexure F shall, at the request of either Commissioner, be dealt with by a Neutral Expert in accordance with the provisions of Part 2 of Annexure F;

³³⁴ Pakistan's Memorial, para. 6.20.

³³⁵ India's Counter-Memorial, Appendix 2, para. 37.

- (b) If the difference does not come within the provisions of Paragraph (2) (a), or if a Neutral Expert, in accordance with the provisions of Paragraph 7 of Annexure F, has informed the Commission that, in his opinion, the difference, or a part thereof, should be treated as a dispute, then a dispute will be deemed to have arisen which shall be settled in accordance with the provisions of Paragraphs (3), (4) and (5):

Provided that, at the discretion of the Commission, any difference may either be dealt with by a Neutral Expert in accordance with the provisions of Part 2 of Annexure F or be deemed to be a dispute to be settled in accordance with the provisions of Paragraphs (3), (4) and (5), or may be settled in any other way agreed upon by the Commission.

270. Paragraphs (3), (4) and (5) of Article IX establish the procedure for the Governments of India and Pakistan to resolve disputes by agreement or, should such efforts fail, for the constitution of a court of arbitration.
271. Article IX classifies issues that may arise between the Parties concerning the interpretation or application of the Treaty (or concerning the existence of a fact which, if established, might constitute a breach of the Treaty) as “questions,” “differences,” or “disputes.” Any such issue will first be considered a “question.” “Questions” are examined by the Commission, which endeavours to resolve them by agreement. If the Commission fails to reach agreement in respect of a question, the Treaty provides for some questions to be considered and resolved as “differences,” while others proceed to become “disputes.” Although the Parties remain free to employ any mode of settlement to deal with any disagreement between them, distinct procedures may apply in default of such agreement. “Differences” may be resolved in an expedited fashion by a neutral expert—a “highly qualified engineer” appointed following the procedure set out in Annexure F to the Treaty.³³⁶ “Disputes,” on the other hand, must be resolved either by agreement of the Governments of India and Pakistan or, if no settlement can be reached, by a court of arbitration.
272. India submits that the Second Dispute is not admissible for determination by the Court, because it should first have been submitted to a neutral expert and because there is, accordingly, at present no “dispute” within the meaning of Article IX of the Treaty.³³⁷ Specifically, India argues that: (1) the consideration of the Second Dispute by the Court is premature, as Pakistan has failed to follow the procedure envisaged by Article IX of the Treaty for the submission of “disputes” to a court of arbitration;³³⁸ and (2) the Second Dispute is a technical question that

³³⁶ Treaty, Annexure F, Para. 4.

³³⁷ India’s Counter-Memorial, para. 7.2; India’s Rejoinder, paras. 4.2, 4.4.

³³⁸ India’s Rejoinder, paras. 4.1, 4.4, 4.34.

falls within Part 1 of Annexure F to the Treaty and should therefore be classified as a “difference” and resolved by a neutral expert.³³⁹ Pakistan disputes both propositions.

(a) Whether Pakistan has followed the procedure of Article IX for the submission of disputes to the Court

India’s arguments

273. India’s first objection to the admissibility of the Second Dispute concerns the procedure by which a dispute may be brought before a court of arbitration. According to India, Pakistan did not follow the procedural steps required by the Treaty for a “dispute” to be deemed to have arisen. In India’s view, given the absence of agreement within the Commission on the disposition of the Second Dispute, Pakistan should have requested the appointment of a neutral expert and should have asked that expert to decide whether the Second Dispute constitutes a “difference” or a “dispute.” Only, India argues, if a neutral expert were to determine that the Second Dispute was not a technical question within Part 1 of Annexure F to the Treaty could it be brought before a court of arbitration.

274. India accepts that any issue in respect of the Treaty raised by a Party would first be considered a “question” for the Commission to examine.³⁴⁰ Indeed, India notes that Article VIII(4) of the Treaty obliges the Commission to “make every effort” to settle such questions promptly.³⁴¹ In India’s view, however, this is more than a perfunctory obligation. India considers that “serious efforts must be made in the Permanent Indus Commission to resolve any ‘Question’ raised by either party under what may be referred to as the co-operative ‘umbrella’ of the Commission.”³⁴² Members of the Commission must be highly qualified engineers, and “the Commissioners . . . carry a significant responsibility in scrupulously implementing the stage-wise mechanism provided under the Treaty.”³⁴³

275. In the event that the Commission’s efforts fail, however, India considers that there is only one path that a Commissioner may initiate unilaterally: the referral of the resulting difference to a

³³⁹ India’s Counter-Memorial, para. 1.16; India’s Rejoinder, paras. 4.35, 4.41.

³⁴⁰ India’s Rejoinder, para. 4.7.

³⁴¹ India’s Rejoinder, para. 4.7.

³⁴² India’s Rejoinder, para. 4.8.

³⁴³ India’s Rejoinder, paras. 4.16-4.17.

neutral expert.³⁴⁴ Article IX(2)(a), India notes, expressly empowers a Commissioner to request a neutral expert if—in that Commissioner’s opinion—a difference is technical and within the ambit of Part 1 of Annexure F. If, however, the Commissioners disagree in this respect, India argues that reference must be had to Annexure F itself, and to its Paragraph 7, which provides for the neutral expert to decide on the procedure applicable to a difference in the event of a disagreement in the Commission.³⁴⁵

276. In contrast to Article IX(2)(a), India argues, Article IX(2)(b) includes no provision for a single Commissioner to deem a “dispute” to have arisen.³⁴⁶ Instead, Article IX(2)(b) applies only if Article IX(2)(a) does not—in other words, if neither Commissioner considers the difference to be a technical matter for a neutral expert—or if a neutral expert, having considered the matter, determines that the difference falls outside his competence. Accordingly, India submits, in the event of a disagreement as to how to proceed, neither Party can simply initiate arbitration: “it has to go back to a neutral expert to decide whether or not [the difference] is a dispute” that can be taken to a court of arbitration.³⁴⁷ In India’s view, this priority in favour of the Commission and the neutral expert is understandable in light of the key role that the Treaty gives to engineers in interpreting its most important provisions³⁴⁸ and the need for the Parties to be able to proceed quickly to a neutral expert in respect of the engineering questions arising from the Commission’s day-to-day work.³⁴⁹

277. In the present case, India considers that this procedure was not followed. The Commissioners never agreed that the difference was not a technical matter for a neutral expert, nor was any neutral expert ever requested to pass upon the proper disposition of the difference. On the contrary, India submits, its Commissioner “was of the opinion that the ‘difference’ fell within the provisions of [P]aragraph 2(a),” a position with which the Pakistani Commissioner disagreed.³⁵⁰ This disagreement was clear, India argues, notwithstanding its position that the

³⁴⁴ India’s Rejoinder, para. 4.21.

³⁴⁵ Hearing Tr., (Day 6), 27 August 2012, at 109:8 to 110:11, 110:22 to 111:7.

³⁴⁶ Hearing Tr., (Day 6), 27 August 2012, at 111:8-12.

³⁴⁷ Hearing Tr., (Day 6), 27 August 2012, at 111:24 to 112:5.

³⁴⁸ India’s Rejoinder, para. 4.14.

³⁴⁹ Hearing Tr., (Day 6), 27 August 2012, at 116:9-24.

³⁵⁰ India’s Rejoinder, para. 4.19; *see also* Hearing Tr., (Day 9), 30 August 2012, at 100:3-8 (“The Pakistan Commissioner in the present case did not accept that the difference fell within paragraph 2(a), that is within the [23] items of Part 1 of Annexure F to go to a Neutral Expert. The Indian Commissioner held the contrary view . . .”).

matter could be resolved even without recourse to a neutral expert. Far from attempting to forestall discussion within the Commission or denying that the Second Dispute constituted at least a “question,”³⁵¹ India submits that its position recognized the importance of such discussions and of the Commission. India considers its consistent position to have been that the Commission should resolve these questions by agreement and that it was unnecessary to address the issue outside the Commission—in particular because the authoritative precedent of the *Baglihar* expert determination was available to assist the Commission in understanding the substance of the Second Dispute.³⁵²

278. Given the Commissioners’ disagreement on how to proceed, India argues that it was incumbent upon the Pakistani Commissioner to submit the Second Dispute to a neutral expert and for that expert to determine that Dispute’s proper disposition.³⁵³ In India’s view, the Pakistani Commissioner’s decision not to make such a request and to instead unilaterally qualify the Second Dispute as a “dispute” in the 11 March 2009 Letter “usurp[ed] the role of the Commission and the Neutral Expert” and caused the premature submission of the Second Dispute for consideration by this Court.³⁵⁴

Pakistan’s arguments

279. Pakistan submits that the Second Dispute is properly before the Court.³⁵⁵ First, Pakistan notes that the Court’s jurisdiction over both disputes is not contested.³⁵⁶ Second, Pakistan argues that it made extensive efforts to resolve the Second Dispute through negotiation and has fulfilled the procedural requirements of Article IX of the Treaty.³⁵⁷

³⁵¹ India’s Rejoinder, paras. 4.6-4.7, 4.11. According to India, the substance of the Second Dispute was raised by Pakistan in the form of “*Questions*” during the 100th meeting of the Commission. India’s Rejoinder, para. 4.11. In accordance with Arts. VIII(4)(b) and IX(1) of the Treaty, the Commission discussed and attempted to resolve these questions at its 100th, 101st and 103rd meetings held respectively in May-June 2008, July 2008 and May 2009. India’s Rejoinder, paras. 4.11-4.12, 4.25, 4.32, referring to Record of the 100th Meeting of the Commission, Lahore, 31 May–4 June 2008, (Annex PK-34), pp. 147-185, and Record of the 103rd Meeting of the Commission, New Delhi, 31 May–5 June 2009, (Annex PK-36), pp. 227-228.

³⁵² India’s Rejoinder, para. 4.13.

³⁵³ India’s Counter-Memorial, para. 7.6; India’s Rejoinder, paras. 1.84, 4.18-4.19, 4.21, 4.33.

³⁵⁴ India’s Counter-Memorial, para. 1.16; India’s Rejoinder, paras. 1.84, 4.1, 4.4, 4.26, 4.32, 4.34.

³⁵⁵ Pakistan’s Memorial, paras. 4.8-4.9.

³⁵⁶ Hearing Tr., (Day 10), 31 August 2012, at 41:17-19 (“this Court has jurisdiction—indeed, it is not contested that this Court has jurisdiction—over both disputes”).

³⁵⁷ Pakistan’s Memorial, para. 4.8.

280. In Pakistan’s view, Article IX(2)(a) permits either Party to insist on the appointment of a neutral expert. If a request for such an appointment is made, it falls to the neutral expert to determine whether the question put to him is within his competence. But a request for the appointment of a neutral expert must in fact be made, and in the absence of such a request, this Court is competent to evaluate and decide the Second Dispute itself. In other words, “if the Commissioner doesn’t trigger the Neutral Expert procedure under Article IX(2)(a) prior to the establishment of the Court of Arbitration, that priority is never triggered and the Court of Arbitration has jurisdiction under Article IX(5) of the Treaty.”³⁵⁸
281. According to Pakistan, prior to its submissions in these proceedings, India had never argued that the Second Dispute was a matter for a neutral expert or that it constituted a “difference” under the Treaty. Moreover, Pakistan argues, India has “consistently denied the existence even of a question for the purposes of Article IX(1) of the Treaty.”³⁵⁹ Turning to the record of the Commission, Pakistan observes that India repeatedly sought to characterize matters relating to the Second Dispute as “issues,” rather than “questions,” and objected to any reference to the terminology of Article IX of the Treaty.³⁶⁰ Against this background, Pakistan submits, it is not now open to India to “backtrack” through multiple years—during which Pakistan submitted the Second Dispute to this Court—and argue that there is in fact a “difference” to be resolved by a neutral expert.³⁶¹
282. Not only did India reject the applicability of Article IX, Pakistan observes, but India never sought the appointment of a neutral expert.³⁶² Had such a request been made, Pakistan acknowledges that “the question whether the difference did fall within Part 1 of Annexure F

³⁵⁸ Hearing Tr., (Day 4), 23 August 2012, at 172:20-24.

³⁵⁹ Hearing Tr., (Day 4), 23 August 2012, at 155:13-15; *see also* Hearing Tr., (Day 4), 23 August 2012, at 157:13-15; Hearing Tr., (Day 8), 29 August 2012, at 78:2-7.

³⁶⁰ Hearing Tr., (Day 4), 23 August 2012, at 161:17 to 172:3; *see also* Record of the 100th Meeting of the Commission, Lahore, 31 May–4 June 2008, (Annex PK-34), pp. 3, 26-29; Record of the 101st Meeting of the Commission, New Delhi, 25–28 July 2008, (Annex PK-35), pp. 12-14; Record of the 103rd Meeting of the Commission, New Delhi, 31 May–5 June 2009, (Annex PK-36), pp. 12-22.

³⁶¹ Pakistan’s Memorial, para. 4.9(d)-(f); Pakistan’s Reply, paras. 1.39-1.41, referring to Record of the 100th Meeting of the Commission, Lahore, 31 May–4 June 2008, (Annex PK-34); Record of the 101st Meeting of the Commission, New Delhi, 25–28 July 2008, (Annex PK-35); Record of the 103rd Meeting of the Commission, New Delhi, 31 May–5 June 2009, (Annex PK-36); Pakistani Commissioner’s letter to the Indian Commissioner, 11 March 2009, (Annex PK-194); India’s Note Verbale, 20 August 2009, (Annex PK-214).

³⁶² Pakistan’s Memorial, para. 4.11; Pakistan’s Reply, para. 1.41.

would have been a matter for the Neutral Expert.”³⁶³ However, Pakistan argues, “as neither party made such a request—and indeed the Indian Commissioner expressly took the position that there was no difference—Article IX(2)(a) does not apply in this case.”³⁶⁴ Pakistan therefore considers that it correctly initiated proceedings before this Court.³⁶⁵ Having determined not to request a neutral expert at the appropriate juncture, India is no longer free to insist that a neutral expert determine the disposition of the Second Dispute in the first instance.³⁶⁶

283. According to Pakistan, it is now for the Court to decide whether the Second Dispute before it is a “dispute” within the meaning of the Treaty. Pakistan points to Paragraph 16 of Annexure G to the Treaty, which provides that the Court “shall decide all questions relating to its competence.”³⁶⁷ Once a dispute is referred to the Court, Pakistan argues, “the Court has the power to make a final determination on all questions of competence and procedure.”³⁶⁸ Accepting India’s admissibility argument to the contrary, Pakistan submits, would amount to permitting India to frustrate the working of the Treaty’s dispute resolution provisions, first in the Commission and now before the Court.³⁶⁹

(b) Whether the Second Dispute is a technical matter that falls within Part 1 of Annexure F and should therefore be classified as a “difference” to be decided by a neutral expert

India’s arguments

284. India’s second objection to admissibility is that, irrespective of the procedure followed, the Second Dispute is a matter for a neutral expert. The Second Dispute relates to the design of the KHEP and the location of outlets for sediment control below Dead Storage Level pursuant to Paragraph 8(d) of Annexure D.³⁷⁰ Questions concerning the conformity of a Plant with this provision are consigned by the Treaty to the determination of a neutral expert.³⁷¹ Moreover,

³⁶³ Hearing Tr., (Day 10), 31 August 2012, at 40:21-24.

³⁶⁴ Hearing Tr., (Day 4), 23 August 2012, at 158:16-20.

³⁶⁵ Hearing Tr., (Day 8), 29 August 2012, at 78:8-12.

³⁶⁶ Hearing Tr., (Day 4), 23 August 2012, at 155:3-6; Hearing Tr., (Day 8), 29 August 2012, at 78:12-14.

³⁶⁷ Pakistan’s Memorial, para. 4.7, quoting Para. 16 of Annexure G.

³⁶⁸ Pakistan’s Memorial, paras. 4.7, 4.10.

³⁶⁹ Hearing Tr., (Day 4), 23 August 2012, at 172:6-12.

³⁷⁰ India’s Counter-Memorial, para. 7.2.

³⁷¹ India’s Counter-Memorial, para. 7.8.

India observes, Pakistan has itself committed to referring the question of low-level outlets to a neutral expert—the same issue it now seeks to bring before the Court.

285. India recalls that, at the 100th meeting of the Commission in May–June 2008, Pakistan raised the following two questions:

(4) Whether the design of the [KHEP] is in conformity with Paragraph 8(d) of Annexure D to the Treaty?

[. . .]

(6) Whether under the Treaty, India may deplete or bring the reservoir level of a run-of-river Plant below dead storage level in any circumstances except in the case of an unforeseen emergency?³⁷²

286. When questioned on the appropriateness of including Question 6 in the Commission's discussions of the KHEP, India notes, Pakistan explicitly accepted that the questions are a "single composite issue," stating that "while Question No. 6 may be general in scope, the need for its examination arises directly out of Pakistan's objections to the current design of the Kishenganga Project."³⁷³ At the same time, Pakistan outlined its objections, pursuant to Paragraph 8(d), to the low-level orifice spillways contemplated for the KHEP. By the 11 March 2009 Letter, Pakistan then notified India of its intention to seek the appointment of a neutral expert with respect to the following difference concerning low-level orifice spillways:

Pakistan is of the considered view that the orifice spillway provided in the current design of the [KHEP] constitutes an outlet below Dead Storage Level which is not in accordance with the criteria contained in Paragraph 8(d) of Annexure D to the Treaty. India does not agree with Pakistan's position.³⁷⁴

287. In India's view, "Pakistan is thus on record as having confirmed a direct connection, as a matter of design, between the questions referred to the Court as the subject-matter of the second Dispute and the difference in regard to the design of the Kishenganga Project covered by Paragraph 8(d) of Annexure D, which Pakistan has notified should be dealt with by a Neutral Expert."³⁷⁵ According to India, the question of conformity with Paragraph 8(d) relates to the use of orifice spillways for sediment control. Pakistan's own view, India argues, is that such

³⁷² India's Rejoinder, para. 4.11, quoting Record of the 100th Meeting of the Commission, Lahore, 31 May–4 June 2008, (Annex PK-34), p. 183.

³⁷³ Pakistani Commissioner's letter to the Indian Commissioner, 29 April 2009, (Annex PK-202), p. 5; *see also* India's Rejoinder, para. 4.28.

³⁷⁴ India's Counter-Memorial, paras. 7.3-7.4, quoting Pakistani Commissioner's letter to the Indian Commissioner, 11 March 2009, (Annex PK-194).

³⁷⁵ Hearing Tr., (Day 6), 27 August 2012, at 127:13-20.

spillways can only contribute to sediment control through drawdown flushing, which requires the depletion of the reservoir.³⁷⁶ The question of depletion is thus intrinsically linked to the question Pakistan has proposed to refer to a neutral expert.

288. However, even had Pakistan not committed to refer the question to a neutral expert, India submits that the Second Dispute is inherently technical and “concerns a matter of design which [pursuant to the Treaty] has to be resolved by a Neutral Expert.”³⁷⁷ Under the Treaty, questions “as to whether or not the design of KHEP conforms to the criteria set out in Paragraph 8(d)” are within the competence of the neutral expert and—as Pakistan itself accepts—the need to consider drawdown flushing arises directly out of that provision.³⁷⁸ Additionally, India considers the Second Dispute to be “demonstrably technical,”³⁷⁹ noting in particular the technical examination of the question in the expert report by Professor Dr Anton J. Schleiss submitted by India (the “**Schleiss Report**”), the expert report by Dr Gregory L. Morris submitted by Pakistan (the “**Morris Report**”), and the minutes of the 100th, 101st and 103rd meetings of the Commission.³⁸⁰ India also points to the *Baglihar* determination, noting that the neutral expert in that case treated a “similar question” as technical and proceeded to render a determination on that basis. In India’s view, it would be appropriate for another neutral expert to decide the Second Dispute.³⁸¹

Pakistan’s arguments

289. In Pakistan’s view, the Second Dispute is “manifestly . . . not a technical argument”³⁸² and does not fall within the list of technical questions for referral to a neutral expert.³⁸³ On the contrary, Pakistan considers the Second Dispute to be “an important legal argument about the correct

³⁷⁶ Hearing Tr., (Day 6), 27 August 2012, at 124:8-16; *see also* Pakistani Commissioner’s letter to the Indian Commissioner, 29 April 2009, (Annex PK-202), p. 4 (“Orifice spillways will only provide any incremental sediment control benefits (as compared to either an ungated spillway or crest gated spillways) if India is able to carry out drawdown flushing with the level of the reservoir below dead storage level”).

³⁷⁷ India’s Counter-Memorial, para. 7.8.

³⁷⁸ India’s Rejoinder, para. 4.35.

³⁷⁹ India’s Rejoinder, para. 4.24.

³⁸⁰ India’s Rejoinder, paras. 4.35-4.39, referring to Schleiss Report; Pakistan’s Reply, Tab E, Gregory L. Morris, “Response to Items A, B and C in Chapter 7, Counter-Memorial of the Government of India” (18 February 2012).

³⁸¹ India’s Counter-Memorial, paras. 7.12-7.14; India’s Rejoinder, para. 4.43.

³⁸² Hearing Tr., (Day 4), 23 August 2012, at 173:12.

³⁸³ Pakistan’s Memorial, para. 4.11.

interpretation of certain specific provisions of the treaty,”³⁸⁴ in particular the meaning of Paragraphs 2 and 14 of Annexure D to the Treaty, and the question of the weight to be given to the *Baglihar* expert determination.³⁸⁵

290. Moreover, Pakistan submits, it never notified India of any intention to refer the Second Dispute to a neutral expert.³⁸⁶ The permissibility of orifice spillways is a distinct question and “there is no composite issue.”³⁸⁷ Rather, Pakistan argues, “[t]here is a series of separate questions, two of which Pakistan has identified as suitable for a Court of Arbitration and four of which Pakistan has identified as suitable for determination by a Neutral Expert.”³⁸⁸ India’s use of drawdown flushing to justify a certain type of low-level outlet at the KHEP does not subsume the underlying legal question of “whether drawdown flushing is permitted at all.”³⁸⁹

2. The Parties’ arguments on the permissibility of reservoir depletion below Dead Storage Level

291. Pakistan is concerned that permitting drawdown flushing would allow India to exercise control over the waters of the Western Rivers by allowing the design of larger and lower outlets for reservoirs on those rivers. Such outlets would, in practice, increase India’s physical ability to control the flow of the Western Rivers. With this concern in mind, it is Pakistan’s case that drawdown flushing is prohibited by specific provisions of the Treaty restricting India’s ability to deplete the reservoir of a Run-of-River Plant.³⁹⁰ India opposes Pakistan’s interpretation of the relevant provisions and argues that drawdown flushing is permitted under the Treaty’s “state-of-the-art” concept, which permits the Treaty to be interpreted in light of technological advances. The Parties also disagree on the weight to be given by the Court to the *Baglihar* expert determination.

³⁸⁴ Hearing Tr., (Day 4), 23 August 2012, at 173:13-15.

³⁸⁵ Pakistan’s Reply, paras. 1.42, 6.4.

³⁸⁶ Pakistan’s Reply, para. 1.41, referring to India’s Counter-Memorial, para. 1.16.

³⁸⁷ Hearing Tr., (Day 8), 29 August 2012, at 79:15-16.

³⁸⁸ Hearing Tr., (Day 8), 29 August 2012, at 79:16-20.

³⁸⁹ Hearing Tr., (Day 8), 29 August 2012, at 80:1-7.

³⁹⁰ Pakistan’s Reply, paras. 6.12-6.13.

(a) The permissibility of reservoir depletion generally

Pakistan's arguments

292. As is the case for the permissibility of the KHEP in the First Dispute, Pakistan submits that the question of whether India may deplete reservoirs on the Western Rivers—for drawdown flushing or otherwise—concerns the basic issue of “the permitted extent of Indian interference with the flow of the Western Rivers.”³⁹¹
293. According to Pakistan, “if India were permitted to deplete reservoirs as it saw fit, it would have very important rights in terms of interference with flow: first in terms of increasing the flow so as to deplete a given reservoir, and then in terms of reducing or halting the flow entirely when the reservoir is being refilled.”³⁹² Given the significant number of Indian hydro-electric projects on the upper reaches of the Western Rivers, permitting India to use low-level outlets without restriction would enable it to have a “major impact on the timing of flows into Pakistan.”³⁹³
294. The Treaty addresses this concern, Pakistan argues, by permitting India to generate hydro-electric power on the Western Rivers only to the extent permitted by Annexure D. Annexure D, in turn, contains specific provisions (discussed in detail below) that both prohibit India from lowering the water level of a reservoir below Dead Storage Level and restrict the design of Indian dams on the Western Rivers to limit India’s ability to effect such depletion.³⁹⁴ As presented to the Court, the Second Dispute is thus general in nature; it concerns the permissible operation, and by extension design, of any hydro-electric plant on the Western Rivers—not merely the KHEP.³⁹⁵
295. According to Pakistan, physical restrictions on India’s ability to alter the flow of the Western Rivers were part of the bargain enshrined in the Treaty. Quoting Professor John Briscoe, former Senior Water Advisor at the World Bank, Pakistan submits that it “would agree [to the Treaty] only if limitations on India’s capacity to manipulate the timing of flows was hardwired into the

³⁹¹ Hearing Tr., (Day 4), 23 August 2012, at 153:23-24; *see also* Pakistan’s Memorial, para. 6.2.

³⁹² Hearing Tr., (Day 4), 23 August 2012, at 154:2-8; *see also* Pakistan’s Memorial, paras. 6.2-6.4, 6.32.

³⁹³ Pakistan’s Memorial, para. 6.31, quoting J. Briscoe, “War or Peace on the Indus?” *The News*, 3 April 2010, (Annex PK-229).

³⁹⁴ Pakistan’s Memorial, para. 6.32.

³⁹⁵ Hearing Tr., (Day 10), 31 August 2012, at 42:15-17; Hearing Tr., (Day 4), 23 August 2012, at 154:16-18.

treaty.”³⁹⁶ This was done even though the Parties were aware of the need to control sediment accumulation,³⁹⁷ as well as the practice of using low-level outlets to flush sediments from a reservoir.³⁹⁸ Paragraph 8(d) of Annexure D, Pakistan observes, refers to the need for “sediment control” even as it imposes restrictions on the size and placement of outlets.³⁹⁹ And according to Pakistan’s expert, Dr Morris, “flushing and sluicing techniques were recognized and employed prior to the treaty,” although their use in storage reservoirs was comparatively new.⁴⁰⁰ As evidence of the state of sediment control knowledge in 1960, Pakistan points to a 1951 paper (published in the proceedings of the 1951 Congress in New Delhi of the International Commission on Large Dams (the “**ICOLD**”)) on the design of the Mera Dam in Italy’s Villa di Chiavenna valley and the planned use of drawdown flushing in the operation of those works.⁴⁰¹ Dr Morris also noted the well-known use of flushing in the operation of the Old Aswan Dam.⁴⁰²

296. Finally, Pakistan observes, India acknowledged the existence of the prohibition on depletion and drawdown flushing for most of the life of the Treaty, stating in the course of Commission meetings in 1995 that “restrictions imposed by the Treaty not to lower the water level in the reservoir below [Dead Storage Level], even though the same may be necessary for effective flushing of the reservoir, is a major handicap in efficient operation of sediment sluices.”⁴⁰³

India’s arguments

297. According to India, Pakistan’s fear that drawdown flushing will be used to control the flow of the Western Rivers and deprive Pakistan of water is unfounded.⁴⁰⁴ Moreover, India submits that

³⁹⁶ Hearing Tr., (Day 4), 23 August 2012, at 176:17-19, quoting J. Briscoe, “War or Peace on the Indus?” *The News*, 3 April 2010, (Annex PK-229).

³⁹⁷ Hearing Tr., (Day 4), 23 August 2012, at 184:4-6.

³⁹⁸ Hearing Tr., (Day 2), 21 August 2012, at 124:6-7 (Court examination of Dr Morris) (“I could say that the technique was already known”).

³⁹⁹ Pakistan’s Reply, para. 6.19; Morris Report, p. 5.

⁴⁰⁰ Morris Report, p. 18.

⁴⁰¹ Hearing Tr., (Day 2), 21 August 2012, at 94:12 to 95:12 (direct examination of Dr Morris); C. Marcello, *Le Barrage du Mera à Villa di Chiavenna*, Communication of the Quatrieme Congrès de Grands Barrages, New Delhi, 1951, (Annex PK-251).

⁴⁰² Hearing Tr., (Day 2), 21 August 2012, at 124:6 to 125:3 (Court examination of Dr Morris).

⁴⁰³ Pakistan’s Memorial, para. 6.12, quoting Record of the 96th Meeting of the Commission, New Delhi, 1-2 June 2005, (Annex PK-31), p. 4; Pakistan’s Reply, para. 6.13.

⁴⁰⁴ India’s Counter-Memorial, paras. 7.43-7.44, 7.95.

the intense focus Pakistan places on this possibility ignores the Treaty's concern that India be able effectively to generate hydro-electric power on the Western Rivers, a concern reflected in the Treaty's flexible accommodation of an evolving technological state of the art.⁴⁰⁵ Drawdown flushing, India argues, was not known or accepted as a sediment management practice in 1960, but has since become the state of the art.⁴⁰⁶

298. With respect to the flow of the Western Rivers, India submits that Pakistan is adequately protected under the Treaty even if the KHEP is equipped with outlets intended for drawdown flushing. Under any circumstances, India argues, the flushing and refilling of the KHEP reservoir would be limited by the Treaty to the prescribed flood period of the year—that is, from 21 June to 20 August—unless the Parties agreed otherwise.⁴⁰⁷ Moreover, it would be “wholly unrealistic” to deplete and refill the Dead Storage on an *ad hoc* basis, or during the lean season. Such operation requires a complete stop in power generation, which for the KHEP would cause a loss of power worth some 30 million rupees (approximately USD 560,000) per day;⁴⁰⁸ during the lean season this process would extend unacceptably over many weeks, instead of the few days that would be required during the high flow season.⁴⁰⁹
299. At the same time, India considers that Pakistan ignores the Treaty's accommodation of evolving technology. According to India, “the framers of the Treaty were mindful of the rapid evolution of the technology and therefore enshrined the ‘state of the art’ concept in the Treaty.”⁴¹⁰ Design criteria are required to be “consistent with sound and economical design and satisfactory construction and operation,”⁴¹¹ India notes, and “in the absence of any prohibition under the Treaty, India is entitled to use state-of-the-art maintenance processes and measures, including drawdown flushing, to ensure long-term sustainability of the KHEP.”
300. For India, the Treaty drafters cannot have intended to prohibit drawdown flushing insofar as knowledge of the technique was limited in the 1960s. India endorses the review of the historical record undertaken in the *Baglihar* determination for the following proposition:

⁴⁰⁵ India's Counter-Memorial, para. 7.56.

⁴⁰⁶ India's Rejoinder, para. 1.85.

⁴⁰⁷ India's Counter-Memorial, paras. 7.43-7.44, 7.95.

⁴⁰⁸ India's Counter-Memorial, paras. 7.45, 7.95.

⁴⁰⁹ India's Counter-Memorial, para. 7.96.

⁴¹⁰ India's Counter-Memorial, para. 7.56.

⁴¹¹ India's Counter-Memorial, para. 7.52.

Before 1960, the theoretical aspects of sediment transport were generally known, with the exception of the turbidity currents. The removal processes of deposited sediment by flushing and dredging, and the routing by sluicing and venting were also known and applied, but only in some cases. It was after 1970 that these processes of flushing, sluicing, and venting became more generally developed.⁴¹²

301. Similarly, India argues, the risks of sedimentation were less thoroughly appreciated in 1960 than they are today: “it was only 20 years later, in 1980, that the concept of an integrated reservoir sedimentation management began to be clear and coherent.”⁴¹³ In light of this level of awareness—and in light of the fact that the “provision of gates at low elevation in the 1960s would have been very difficult because [the] technologies related to gate operation were not developed at that time”⁴¹⁴—India considers it reasonable that the Treaty would not expressly address drawdown flushing and would continue to require outlets at the highest level “consistent with sound and economical design.”⁴¹⁵ Nevertheless, India considers flushing permissible in light of the evolving nature of this standard.⁴¹⁶
302. Finally, with respect to its prior position on drawdown flushing, India accepts that “for a considerable period up to the time the *Baglihar* case came up before the Neutral Expert, it was assumed by the Indian and Pakistani engineers that in terms of the definition of Dead Storage, drawdown below Dead Storage Level was not allowed for flushing or otherwise.”⁴¹⁷ However, India notes, the questions in *Baglihar* led to a re-examination of the Treaty by India and the adoption of a revised legal interpretation.⁴¹⁸

(b) The Treaty’s definition of “Dead Storage”

303. Paragraph 2(a) of Annexure D to the Treaty defines “Dead Storage” as follows:

“Dead Storage” means that portion of the storage which is not used for operational purposes and “Dead Storage Level” means the level corresponding to Dead Storage.

⁴¹² Hearing Tr., (Day 6), 27 August 2012, at 150:13-20, quoting *Baglihar* Determination, (Annex PK-230), p. 42.

⁴¹³ Hearing Tr., (Day 6), 27 August 2012, at 150:23 to 151:1, quoting *Baglihar* Determination, (Annex PK-230), p. 42.

⁴¹⁴ Hearing Tr., (Day 3), 22 August 2012, at 102:12-15 (cross-examination of Dr Rangaraju).

⁴¹⁵ Hearing Tr., (Day 3), 22 August 2012, at 95:13 to 96:4 (cross-examination of Dr Rangaraju).

⁴¹⁶ India’s Rejoinder, para. 1.85.

⁴¹⁷ India’s Counter-Memorial, para. 7.22.

⁴¹⁸ India’s Counter-Memorial, para. 7.23.

Pakistan's arguments

304. In Pakistan's view, the definition of Dead Storage in Annexure D should be seen in light of the obligation on India to let flow the waters of the Western Rivers.⁴¹⁹ Restrictions on storage, including through this definition, represent "one of the techniques," agreed upon by the Parties, "to restrict the scope for interference with flow."⁴²⁰ For Pakistan, the definition acts as a prohibition: because Dead Storage is not used for operational purposes, it "cannot just be drawn down as India see fit" in the course of operating a Run-of-River Plant.⁴²¹
305. According to Pakistan, this restriction "cannot be sidestepped" by labelling the flushing of reservoir storage a "maintenance" activity and attempting to distinguish it from "operation."⁴²² Despite India's efforts to the contrary, Pakistan argues, "the fine distinction . . . that India seeks to draw is nowhere supported by the language of the Treaty."⁴²³ On the contrary, at least two of the sources invoked by India in fact support the opposite interpretation, treating sediment removal as an aspect of the operation of a reservoir.⁴²⁴ Paragraph 8(d) of Annexure D provides that "outlets . . . necessary for sediment control . . . 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." In this provision, Pakistan argues, "[s]ediment control is seen as a matter of operation, not some separate concept of maintenance."⁴²⁵ Similarly, the ICOLD Code of Ethics invoked by India addresses sediment management as a matter of operation.⁴²⁶
306. Not only, Pakistan argues, is there no textual basis for the confined understanding of "operational purposes" advocated by India, but other aspects of the Treaty are incompatible with such a view as well. The restrictions on the flow below a Plant in the course of "operation," for instance, cannot be viewed as applying only to the generation of hydro-electric

⁴¹⁹ Pakistan's Memorial, para. 6.8.

⁴²⁰ Hearing Tr., (Day 4), 23 August 2012, at 176:9-11.

⁴²¹ Pakistan's Memorial, para. 6.9; *see also* Pakistan's Memorial, para. 6.21.

⁴²² Hearing Tr., (Day 4), 23 August 2012, at 177:20-23.

⁴²³ Pakistan's Reply, para. 6.17; *see also* Hearing Tr., (Day 4), 23 August 2012, at 178:3-4.

⁴²⁴ Hearing Tr., (Day 8), 29 August 2012, at 85:18-24.

⁴²⁵ Pakistan's Reply, para. 6.17.

⁴²⁶ Pakistan's Reply, para. 6.18; Hearing Tr., (Day 4), 23 August 2012, at 180:15-25; Hearing Tr., (Day 8), 29 August 2012, at 85:20-23.

power.⁴²⁷ Pakistan would be offered “no practical protection” if India could obviate such flow restrictions simply by claiming to engage in “maintenance” rather than “operations.”⁴²⁸

India’s arguments

307. India submits that, by its explicit terms, the definition of “Dead Storage” at Paragraph 2(a) of Annexure D to the Treaty—“that portion of storage which *is not* used for operational purposes”—describes the actual practice of using Dead Storage.⁴²⁹ According to India, the definition does not incorporate a prohibition: “there are no words of obligation, such as ‘shall,’ in the definition.”⁴³⁰ Had the framers of the Treaty intended to prohibit the use of Dead Storage for operational purposes, the definition would have described that “portion of the storage *which cannot/may not* be used for operational purposes.”⁴³¹
308. Although the Treaty does not define “operational purposes,” India submits that drawdown flushing is not an operational purpose. For India, “operational purposes” are confined to power generation and do not include the maintenance of the reservoir⁴³² and, in particular, activities that make use of the “operating pool”—a term defined in the Treaty. According to India, “if dead storage is depleted for purposes of sediment control, this cannot be an operational purpose. . . . For such purposes, the operating pool is used.”⁴³³ In fact, during drawdown flushing, Dead Storage is not used at all, but is rather “disused or discharged.”⁴³⁴
309. In India’s view, drawdown flushing, like “lubrication of bearings, maintaining the requisite cleanliness, painting of gates, removal of weeds, plastering of worn concrete, replacement of chains, pulleys, etc.,” is inherently a maintenance operation and ancillary to the generation of power.⁴³⁵ Importantly, India observes, “[t]here is no prohibition in Annexure D against

⁴²⁷ Pakistan’s Memorial, para. 6.30.

⁴²⁸ Pakistan’s Memorial, para. 6.30.

⁴²⁹ India’s Counter-Memorial, paras. 7.23, 7.46, quoting Treaty, Annexure D, Para. 2(d) (emphasis added by India); India’s Rejoinder, paras. 4.55, 4.57, 4.87, 4.94.

⁴³⁰ Hearing Tr., (Day 6), 27 August 2012, at 145:4-5.

⁴³¹ India’s Rejoinder, para. 4.59.

⁴³² India’s Counter-Memorial, paras. 7.50, 7.94.

⁴³³ Hearing Tr., (Day 6), 27 August 2012, at 145:13-16.

⁴³⁴ India’s Counter-Memorial, para. 7.50.

⁴³⁵ India’s Rejoinder, para. 4.89.

maintenance.”⁴³⁶ On the contrary, “maintenance is implicitly contemplated in [P]aragraph 8(d)’s recognition that sediment control may be necessary.”⁴³⁷ This interpretation, India notes, was also endorsed by the Neutral Expert in the *Baglihar* determination⁴³⁸ and by Dr Schleiss in his expert report in these proceedings.⁴³⁹

(c) The Treaty’s provisions on the filling of reservoirs

310. Paragraph 14 of Annexure D provides as follows:

The filling of Dead Storage shall be carried out in accordance with the provisions of Paragraph 18 or 19 of Annexure E.

311. In turn, Paragraphs 18 and 19 of Annexure E provide, in relevant part:

18. The initial filling below Dead Storage Level, at any site, shall be carried out at such times and in accordance with such rules as may be agreed upon. In case the Commissioners are unable to reach agreement, India may carry out the filling as follows:

[. . .]

19. The Dead Storage shall not be depleted except in an unforeseen emergency. If so depleted, it will be re-filled in accordance with the conditions of its initial filling.

Pakistan’s arguments

312. In Pakistan’s submission, Paragraph 14 of Annexure D, through its reference to the provisions for Storage Works in Annexure E, imposes on Run-of-River Plants the restriction that Dead Storage “shall not be depleted except in an unforeseen emergency.” According to Pakistan, the need for removal of accumulated sediment cannot constitute an “unforeseen emergency,” given that this need has already been anticipated by India, as well as by the Treaty at Paragraph 8(d) of Annexure D.⁴⁴⁰ Accordingly, Pakistan argues, the depletion of Dead Storage for drawdown flushing is prohibited by Paragraph 14.

313. In interpreting the incorporation from Annexure E, Pakistan submits that the ordinary meaning of Paragraph 14 is a reference to all of Paragraphs 18 and 19 of Annexure E—including the

⁴³⁶ Hearing Tr., (Day 6), 27 August 2012, at 145:16-17.

⁴³⁷ Hearing Tr., (Day 6), 27 August 2012, at 145:18-20.

⁴³⁸ India’s Counter-Memorial, paras. 7.25, 7.26; India’s Rejoinder, para. 4.94.

⁴³⁹ India’s Counter-Memorial, paras. 4.87-4.88, referring to Schleiss Report, pp. 6-7.

⁴⁴⁰ Pakistan’s Memorial, para. 6.21.

prohibition on reservoir depletion.⁴⁴¹ According to Pakistan, “the second sentence of paragraph 19 of Annexure E follows on—and only follows on—from the rule on depletion in the first sentence of paragraph 19.”⁴⁴² The second sentence begins with the words “if so depleted”; grammatically it “makes no sense”⁴⁴³ without the preceding sentence. In Pakistan’s view, the provision “cannot be interpreted and applied as if it established a rule for ‘filling’ that applied in other circumstances.”⁴⁴⁴ Moreover, Pakistan asks, given that the schedule for filling is contained in Paragraph 18, if the Parties’ concern was related only to filling (and not to depletion), “why would there be the reference to paragraph 19 of Annexure E at all? Why not just refer to paragraph 18?”⁴⁴⁵

314. In Pakistan’s consideration, the prohibition on depletion resulting from Paragraph 14 is also logical in the context of the Treaty’s overall effort to limit storage and restrict India’s ability to control the flow of the Western Rivers.⁴⁴⁶ The Parties were aware that sediment would be a problem.⁴⁴⁷ Yet sedimentation, Pakistan argues, is a greater problem for Storage Works than for Run-of-River installations, for which the techniques for sediment management were well-developed in 1960. Annexure E expressly prohibits the depletion of Storage Works for sediment control and provides instead that, as such works fill with sediment, India is entitled to construct additional, replacement storage on the Western Rivers.⁴⁴⁸ It would be counter-intuitive for concerns over sedimentation to have resulted in greater flexibility precisely for those run-of-river installations where sediment is actually a lesser problem.⁴⁴⁹

315. Finally, Pakistan observes, the KHEP is not typical of the type of Run-of-River Plant that may have been contemplated by Annexure D. After its re-design from a Storage Work in 2006, the KHEP retained many characteristics of an Annexure E Storage Work,⁴⁵⁰ in particular, a Dead

⁴⁴¹ Pakistan’s Reply, paras. 6.23-6.25; *see also* Hearing Tr., (Day 4), 23 August 2012, at 185:13-18.

⁴⁴² Hearing Tr., (Day 4), 23 August 2012, at 186:9-12.

⁴⁴³ Hearing Tr., (Day 4), 23 August 2012, at 186:12-15.

⁴⁴⁴ Pakistan’s Reply, para. 6.25.

⁴⁴⁵ Hearing Tr., (Day 8), 29 August 2012, at 82:11-16; Hearing Tr., (Day 8), 29 August 2012, at 82:17-22.

⁴⁴⁶ Hearing Tr., (Day 4), 23 August 2012, at 184:17-23.

⁴⁴⁷ Hearing Tr., (Day 4), 23 August 2012, at 184:4-6.

⁴⁴⁸ Hearing Tr., (Day 4), 23 August 2012, at 187:1-3.

⁴⁴⁹ Hearing Tr., (Day 4), 23 August 2012, at 187:5-8.

⁴⁵⁰ Pakistan’s Reply, paras. 6.27, 6.30.

Storage volume far greater than is characteristic of typical Run-of-River Plants.⁴⁵¹ Considering its design and the large hydrological size of its reservoir,⁴⁵² Pakistan suggests that the KHEP could be better characterized as an Annexure E Storage Work. Viewed as a Storage Work in terms of Annexure E, Pakistan considers that the express prohibition on depletion in Paragraph 19 would unquestionably apply.⁴⁵³

India's arguments

316. In India's view, Paragraph 14 of Annexure D, and its reference to the relevant provisions of Annexure E, restricts the filling and refilling of the reservoirs of Run-of-River Plants—but not the depletion of such reservoirs. Depletion, India notes, “isn’t mentioned at all in Annexure D.”⁴⁵⁴
317. In drafting the Treaty, India argues, the Parties employed cross-references as a matter of economy and consistency.⁴⁵⁵ Paragraph 14 of Annexure D addresses the filling of the reservoir of a Run-of-River Plant by reference to Paragraphs 18 and 19 of Annexure E. The scope of the reference, however, is established by its own terms: Paragraph 14 refers only to the “filling” of Dead Storage—not to its depletion. Accordingly, for India, only the portions of Paragraphs 18 and 19 dealing with filling are relevant to the reference.⁴⁵⁶ In India's view, such an interpretation is consistent with other provisions of the Treaty⁴⁵⁷ and with the practice

⁴⁵¹ Pakistan's Reply, para. 6.27, referring to Morris Report, p. 13.

⁴⁵² Pakistan argues that the relatively small overall reservoir capacity of the KHEP (in comparison with other, much-larger dams) is “irrelevant” because it is based on gross volume only. Instead, the relevant metric should be the relationship between reservoir capacity and annual watershed runoff volume (inflow)—the reservoir's “hydrologic size.” Pakistan's Reply, para. 6.28, citing Morris Report, p. 11. Viewed in such terms, the KHEP reservoir is not small; indeed in hydrological terms it is 20 times larger than the reservoir of the NJHEP. Pakistan's Reply, para. 6.29, quoting Morris Report, p. 12.

⁴⁵³ Pakistan's Reply, paras. 6.30-6.31.

⁴⁵⁴ Hearing Tr., (Day 6), 27 August 2012, at 139:24-25.

⁴⁵⁵ Hearing Tr., (Day 6), 27 August 2012, at 140:9-20.

⁴⁵⁶ India's Counter-Memorial, paras. 7.40-7.41.

⁴⁵⁷ Paragraph 17 of Annexure D, India notes, refers to the reservoir of a Run-of-River Plant “being filled in accordance with . . . Paragraph 14.” India's Rejoinder, para. 4.63, quoting Treaty, Annexure D, Para. 17 (emphasis added by India).

elsewhere of making prohibitions explicit.⁴⁵⁸ Had the drafters contemplated a prohibition on depletion, India argues, it would have been expressly stated.⁴⁵⁹

318. According to India, the existence of distinct rules on depletion for Storage Works (Annexure E), and Run-of-River Plants (Annexure D) is consistent with the different nature of such projects. Run-of-River Plants such as the KHEP require the impoundment of a significantly smaller quantity of water than Storage Works. In the KHEP's design, the volume of water between Dead Storage Level and the spillway gates is small and would require only a few hours to refill with average minimum daily flows.⁴⁶⁰ In view of the reduced capacity for Run-of-River Plants to impact downstream flows, India argues, the Treaty allows for greater flexibility in the depletion of the reservoirs of such Plants.⁴⁶¹ Further, India notes, the absence of a rule on depletion in Annexure D is consistent with the Treaty's approach to lost storage capacity. Annexure E prohibits the use of flushing on Storage Works, but Paragraph 23 of that Annexure permits India to construct additional replacement storage.⁴⁶² No equivalent provision for Run-of-River Plants exists, suggesting that the Treaty intended the flushing of storage, rather than its replacement, for such Plants.⁴⁶³
319. Finally, India rejects Pakistan's allegation that the KHEP is actually an Annexure E Storage Work. The Treaty, India notes, defines a Run-of-River Plant as "a hydro-electric power plant that develops power without the use of Live Storage as an integral part of the Plant, except for Pondage and Surcharge Storage." According to India, this definition does not depend on the overall volume of water impounded by a project, but only on the relationship between Live Storage and the volume of water used in regular power generation.⁴⁶⁴ In India's view, the KHEP conforms to that definition.⁴⁶⁵ Moreover, the re-design of the KHEP from a Storage

⁴⁵⁸ India notes the practice in Paragraph 8 of Annexure D, which provides that "[t]here shall be no outlets below the Dead Storage Level" except under the prescribed conditions. India's Rejoinder, para. 4.64.

⁴⁵⁹ India's Rejoinder, para. 4.65.

⁴⁶⁰ India's Counter-Memorial, paras. 7.31-7.32, 7.35; India's Rejoinder, para. 4.72, referring to the Schleiss Report.

⁴⁶¹ India's Counter-Memorial, paras. 7.33, 7.42; Hearing Tr., (Day 6), 27 August 2012, at 142:6-21.

⁴⁶² Hearing Tr., (Day 6), 27 August 2012, at 143:6 to 144:2.

⁴⁶³ India's Counter-Memorial, para. 7.38.

⁴⁶⁴ India's Rejoinder, para. 4.74.

⁴⁶⁵ India's Rejoinder, paras. 4.67-4.68, referring to Pakistan's Memorial, para. 3.9.

Work greatly reduced both the overall and Live Storage volumes of the Plant,⁴⁶⁶ and with a capacity to inflow ratio of 0.59 percent, India considers the KHEP consistent with other Run-of-River Plant designs.⁴⁶⁷ India also observes that Pakistan itself has “treated, described and objected to aspects of [the] KHEP since 2006 on the basis it is a run-of-river plant.”⁴⁶⁸

(d) The Treaty’s provisions on low-level outlets

320. Paragraph 8 of Annexure D requires the design of any new Run-of-River Plant to conform to the following criteria:

[. . .]

- (d) 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 the sound and economical design and with satisfactory operation of the works.

[. . .]

Pakistan’s arguments

321. Pakistan considers that the references to “sediment control” and to “outlets below the Dead Storage Level” in Paragraph 8(d) of Annexure D are “not a permission to deplete below dead storage level; it’s simply a permission to have outlets below dead storage level.”⁴⁶⁹ This distinction is important, because such outlets can—and in Pakistan’s view must—be used to control sediment “without drawing down below the dead storage level.”⁴⁷⁰ Although Pakistan acknowledges that the provision operates with reference to “sound and economical design,” Pakistan submits that this cannot “entirely remove the general rule that is in the first part of the provision: minimum size, located at the highest level.”⁴⁷¹

⁴⁶⁶ The KHEP’s design as a Storage Work included 220 MCM of Gross Storage and 173.75 MCM of Live Storage. As a Run-of-River Plant, the KHEP’s current design envisages respectively only 18.35 MCM and 7.55 MCM.

⁴⁶⁷ India’s Rejoinder, para. 4.73.

⁴⁶⁸ India’s Rejoinder, para. 4.84.

⁴⁶⁹ Hearing Tr., (Day 10), 31 August 2012, at 43:10-15.

⁴⁷⁰ Hearing Tr., (Day 8), 29 August 2012, at 83:21-22.

⁴⁷¹ Hearing Tr., (Day 4), 23 August 2012, at 190:18-20.

India's arguments

322. According to India, the relevance of Paragraph 8(d) is that it “expressly contemplates two things: both control of sedimentation and outlets below the dead storage level . . . for sediment control.”⁴⁷² Nowhere in the provision is there any mention of a prohibition on depletion or a requirement of an unforeseen emergency.⁴⁷³ On the contrary, because “depletion of dead storage would in fact occur for sediment control,” and because Paragraph 8(d) expressly permits sediment control, depletion is implicitly permitted by Annexure D.⁴⁷⁴ This being the case, India argues, the control of sediment through drawdown flushing “cannot be deemed to be an ‘exercise of control over the waters of the Western Rivers.’”⁴⁷⁵

(e) The Treaty's provisions on water flow

323. The chapeau of Paragraph 15 of Annexure D restricts the flow that may be released below a Plant in the following terms:

Subject to the provisions of Paragraph 17 [excluding periods of filling], the works connected with a Plant shall be so operated that (a) the 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, and (b) in any one period of 24 hours within that seven-day period, the volume delivered into the river below the Plant shall not be less than 30%, and not more than 130%, of the volume received in the river above the Plant during the same 24-hour period.

Pakistan's arguments

324. Pakistan submits that, although Paragraph 15 does not expressly address the release of water from Dead Storage, the practical impact of the flow restrictions is such that “[d]rawdown flushing is . . . severely curtailed (if not prohibited).”⁴⁷⁶ According to Pakistan, the rapid depletion of the reservoir to flush it “would contravene paragraph 15 of Annexure D, insofar as 130% or more of the volume received in the river above the Plant within a given 24 hour period was being delivered into the river below the Plant.”⁴⁷⁷ Pakistan considers this concern to be

⁴⁷² Hearing Tr., (Day 6), 27 August 2012, at 138:11-15; *see also* India's Rejoinder, para. 4.49.

⁴⁷³ Hearing Tr., (Day 6), 27 August 2012, at 138:16-17.

⁴⁷⁴ Hearing Tr., (Day 6), 27 August 2012, at 141:5-9.

⁴⁷⁵ India's Rejoinder, para. 4.49.

⁴⁷⁶ Pakistan's Memorial, para. 6.30.

⁴⁷⁷ Pakistan's Reply, para. 6.32.

present irrespective of the season in which drawdown flushing is carried out, and notes that the Treaty does not limit the restrictions on the release of water to any particular season.⁴⁷⁸

India's arguments

325. India accepts that the restrictions under Paragraph 15 of Annexure D on the release of water below a Plant remain applicable, but submits that these restrictions do not prevent drawdown flushing. According to India, given that drawdown flushing would be effected in the high flow season, “the question of any reduced flow does not arise.”⁴⁷⁹

(f) The necessity of drawdown flushing

Pakistan's arguments

326. In Pakistan's view, the permissibility of drawdown flushing turns on the interpretation of the specific Treaty provisions discussed in the preceding sections and not on any general test of necessity. Nevertheless, Pakistan briefly addresses India's arguments concerning the necessity of drawdown flushing.⁴⁸⁰
327. Pakistan does not dispute the need for effective sediment management of reservoirs of hydro-electric projects.⁴⁸¹ However, in Pakistan's view, effective sediment management at Run-of-River Plants, including the KHEP, can be accomplished without recourse to drawdown flushing. Relying on the Morris Report, Pakistan explains that sediment management in Run-of-River Plants is routinely achieved by sluicing high sediment loads downstream:

sediment management in run-of-river facilities was worked out many decades ago by providing large gate capacity which allows sediment to be sluiced through the impounded river during high flow periods. This is achieved by opening the large gates and allowing the river to flow through the impounded river reach at a high velocity.⁴⁸²

⁴⁷⁸ Pakistan's Reply, para. 6.32.

⁴⁷⁹ India's Counter-Memorial, para. 7.51.

⁴⁸⁰ Pakistan's Reply, paras. 6.10-6.12.

⁴⁸¹ Pakistan's Reply, para. 6.10.

⁴⁸² Morris Report, p. 3; Hearing Tr., (Day 2), 21 August 2012, at 113:18-24 (cross-examination of Dr Morris). Pakistan's expert discussed, in particular, the effective use of sluicing at the Kali Gandaki hydro-electric project in Nepal, a run-of-river facility which, like the KHEP, features a high dam design. *See* Hearing Tr., (Day 2), 21 August 2012, at 108:15 to 110:1 (cross-examination of Dr Morris).

328. According to Pakistan, these well-established procedures do not change if a Run-of-River facility is designed to include a high dam rather than a low barrage: “A run-of-river project, . . . if properly designed, would operate as a typical run-of-river facility once the large dead storage volume has become filled with sediment.”⁴⁸³ In the words of Pakistan’s expert, the distinction between a barrage and a dam “rests a little bit on semantics”; provided that gates are in place to scour sediment from in front of the intake area, the process of controlling sediment will be the same.⁴⁸⁴
329. In Pakistan’s view, the emphasis that India places on drawdown flushing is appropriate only for storage reservoirs.⁴⁸⁵ India’s case relies primarily on examples of storage reservoirs rather than Run-of-River Plants.⁴⁸⁶ The ICOLD recommendations on which India places heavy reliance were developed primarily with the problem of storage dams in mind.⁴⁸⁷ Moreover, Pakistan argues, India has understated the substantial environmental impact of flushing.⁴⁸⁸ According to Dr Morris, the heavily concentrated sediments released in the course of flushing “can have very large impacts a very long way downstream,” as a consequence of which, flushing is restricted or prohibited by regulation in many areas of the world.⁴⁸⁹ In Pakistan’s view, such negative impacts would need to be assessed in any evaluation of the necessity of drawdown flushing, were it permitted by the Treaty.⁴⁹⁰
330. Turning to the KHEP and the Treaty, Pakistan does not accept that flushing constitutes the only viable means of controlling sediment.⁴⁹¹ As stated by Dr Morris, sluicing would also present “a

⁴⁸³ Morris Report, p. 3.

⁴⁸⁴ Hearing Tr., (Day 2), 21 August 2012, at 107:7-12 (cross-examination of Dr Morris).

⁴⁸⁵ Pakistan’s Reply, para. 6.11; Morris Report, pp. 9, 19.

⁴⁸⁶ Pakistan’s Reply, para. 6.11.

⁴⁸⁷ Morris Report, pp. 3, 9, 18.

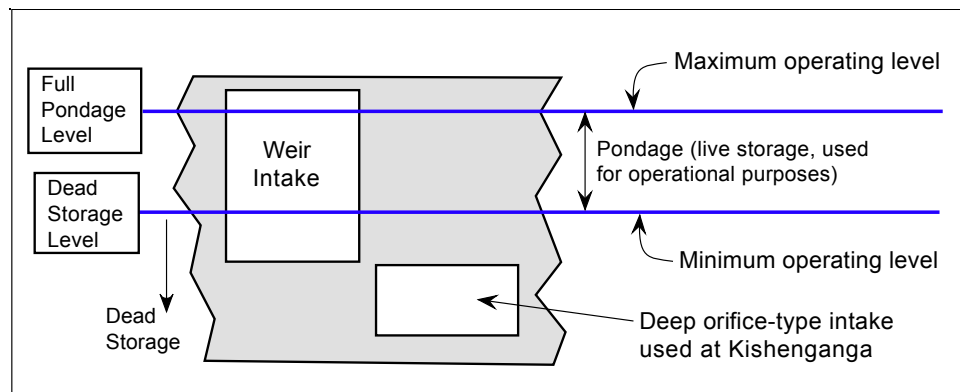
⁴⁸⁸ Hearing Tr., (Day 8), 29 August 2012, at 87:8-13.

⁴⁸⁹ Hearing Tr., (Day 2), 21 August 2012, at 131:14-16 (Court examination of Dr Morris). Specifically, Dr Morris states that flushing will have a significant impact on downstream aquatic life by clogging the gills of fish, clogging the loose gravel in the bed material, and depleting oxygen levels. *See* Hearing Tr., (Day 2), 21 August 2012, at 132:24-25 (Court examination of Dr Morris); *see also* Hearing Tr., (Day 2), 21 August 2012, at 100:13-15 (cross-examination of Dr Morris).

⁴⁹⁰ *See* Hearing Tr., (Day 8), 29 August 2012, at 87:8-13.

⁴⁹¹ Hearing Tr., (Day 8), 29 August 2012, at 90:9-12 (“Pakistan does challenge any conclusion that only drawdown flushing would work at KHEP.”); *see also* Hearing Tr., (Day 8), 29 August 2012, at 87:19-21. Pakistan further notes that even India’s submissions indicate that excluding flushing would only marginally increase the problem of sedimentation in the KHEP reservoir. *See* Hearing Tr., (Day 8), 29 August 2012, at 88:2-4.

very viable option to examine” for the KHEP that “could function well.”⁴⁹² With respect to protecting the KHEP intake from sediment, Dr Morris testified that the same result could be achieved with intakes and outlets placed at a higher level (as required by Paragraph 8 of Annexure D to the Treaty). As coarse and abrasive particles tend to be concentrated near the bottom of a reservoir, a Run-of-River Plant will typically use a high-level intake by “establishing a weir running parallel to the flow path which allows only the water from the upper portion of the water column to be withdrawn from the river.”⁴⁹³ For the KHEP, however, India has chosen to use a “deeper orifice-type intake design which also requires significant submergence depth to control the effect of vortices.”⁴⁹⁴ The Morris Report illustrates the difference between the high level intakes of typical Run-of-River Plants and the KHEP’s deep orifice-type intakes by the following diagram:



In effect, having chosen an atypically deep intake design, India then justifies an even deeper outlet by the need to clear sediment from the area of the intake.⁴⁹⁵

India’s arguments

331. India submits that no provisions of the Treaty were intended specifically to prohibit the use of drawdown flushing for reservoirs of Run-of-River Plants; the framers of the Treaty did not intend to “freeze” the construction of hydro-electric projects to the technology of 1960. On the

⁴⁹² Hearing Tr., (Day 2), 21 August 2012, at 126:22-24 (Court examination of Dr Morris). Under cross-examination, Dr Morris accepted that flushing was also technically feasible and could be considered as an alternative where permitted. See Hearing Tr., (Day 2), 21 August 2012, at 100:24-25, 104:11-13, 117:9-10 (cross-examination of Dr Morris).

⁴⁹³ Morris Report, p. 15.

⁴⁹⁴ Morris Report, p. 15.

⁴⁹⁵ Morris Report, pp. 14, 15.

contrary, they enshrined a “state-of-the-art” concept in the Treaty through the use of provisions relating to the “sound and economical design and satisfactory construction and operation of the works” and “customary and accepted practice of design.”⁴⁹⁶ As such, the relevant question for India is whether drawdown flushing in fact represents the state of the art, and whether such techniques are necessary for the KHEP.⁴⁹⁷

332. In India’s view, “the state of art today is that ‘. . . [f]or the control of reservoir sedimentation, bottom outlets should be designed (and operated) to preserve reservoir storage in the long term.’”⁴⁹⁸ At the KHEP, India considers that “drawdown flushing is the only effective measure which can ensure sustainability of the pondage.”⁴⁹⁹ Although technical aspects of the KHEP—in particular the practice of assigning spillways the dual function of flood control and sediment management—are relatively new, India considers that they are in keeping with the provision for low-level outlets included in the Treaty.⁵⁰⁰
333. Elaborating on this argument, India notes that sediment management is essential for the sustainability of any hydro-electric project. The absence of effective sediment management rapidly leads to the loss of capacity of reservoirs and the abandonment of hydro-electric projects,⁵⁰¹ and conservation of storage is especially crucial in light of the “diminishing availability of suitable, environmentally acceptable and economically viable sites.”⁵⁰² Thus, the ICOLD Code of Ethics enjoins engineers to “take great care, during operation of the scheme, to extend the life to the maximum extent possible and especially as regards the management (prevention of removal) of sedimentation.”⁵⁰³ India and Pakistan, as members of ICOLD, are in

⁴⁹⁶ India’s Counter-Memorial, para. 7.52; India’s Rejoinder, paras. 4.94-4.95.

⁴⁹⁷ India’s Counter-Memorial, para. 7.59.

⁴⁹⁸ India’s Counter-Memorial, para. 7.59, quoting ICOLD, Bulletin 115, “Dealing with reservoir sedimentation,” 1999, (Annex IN-TX-1), p. 79.

⁴⁹⁹ Hearing Tr., (Day 6), 27 August 2012, at 161:24 to 162:1, quoting Schleiss Report, p. 7.

⁵⁰⁰ India’s Rejoinder, para. 4.100.

⁵⁰¹ India’s Counter-Memorial, paras. 7.60-7.63, referring to Alessandro Palmieri, *Sustainability of Dams – Reservoir Sedimentation Management and Safety Implications* (World Bank, 1998), (Annex IN-TX-2); Yang Xiaoqing, “Manual on Sediment Management and Measurement,” World Meteorological Organization Operational Hydrology Report No. 47, WMO-No. 948 (2003), (Annex IN-TX-3), para. 7.76; India’s Rejoinder, para. 4.88, referring to Schleiss Report, pp. 6-7.

⁵⁰² India’s Counter-Memorial, para. 7.64.

⁵⁰³ India’s Counter-Memorial, para. 7.65, quoting ICOLD Code of Ethics, adopted at the 74th Executive Meeting, Sitges, June 2006, (Annex IN-TX-4).

India's view "morally committed" to following this tenet.⁵⁰⁴ Controlling sediment is also essential to ensure that the water drawn in by the intake is free from sediments to avoid damage to the turbines and sediment deposits in the head-race tunnel.⁵⁰⁵

334. According to India, drawdown flushing, when it involves bringing the water level of the reservoir close to the original riverbed level, is an effective and internationally recognized method for sediment management.⁵⁰⁶ This is confirmed in modern literature,⁵⁰⁷ as well as by ICOLD Bulletin 115⁵⁰⁸ and the experience of a variety of hydro-electric projects across the world.⁵⁰⁹ In India's view, the ICOLD recommendations are not limited to Storage Works, but expressly apply to any dams exceeding 15 metres in height, regardless of whether they involve storage or Run-of-River projects; this includes the KHEP, with its 37-metre dam design.⁵¹⁰ Accordingly, India considers the Morris Report incorrect in stating that drawdown flushing is required in Storage Works only. Drawdown flushing is also necessary in high-head Run-of-River Plants because the latter are often built in mountain regions on steep rivers that are endangered by sedimentation.⁵¹¹ In fact, India notes, drawdown flushing is considered particularly efficient for small reservoirs with a low capacity/inflow ratio.⁵¹²

⁵⁰⁴ India's Counter-Memorial, para. 7.66.

⁵⁰⁵ India's Counter-Memorial, para. 7.85; Schleiss Report, p. 5.

⁵⁰⁶ India's Counter-Memorial, para. 7.81; *see also* Hearing Tr., (Day 3), 22 August 2012, at 67:21-68:6, 78:19-25, 82:21-25.

⁵⁰⁷ India's Counter-Memorial, paras. 7.98, 7.81, referring to W.R. White, "World Water: Resources, Usage and the Role of Man-Made Reservoirs" (March 2010), (Annex IN-TX-7), and to R. White, "Evacuation of sediment from reservoirs," (Annex IN-TX-8).

⁵⁰⁸ ICOLD, Bulletin 115, "Dealing with reservoir sedimentation," 1999, (Annex IN-TX-1), paras. 4.1.2, 7.1.

⁵⁰⁹ According to India, successful drawdown flushing operations were carried out at the Baira (India), Gebidem (Switzerland), Gmund (Austria), Hengshan (China), Honglingjin (China), Mangahao (New Zealand), Naodehai (China), Palagneda (Switzerland), Santo Domingo (Venezuela), Cherry Creek (U.S.A.), Dashidaira (Japan), Roseires (Sudan), Three Gorges (China), and Welbedacht (South Africa) reservoirs. India's Counter-Memorial, paras. 7.81-7.82, referring to E. Atkinson, *The Feasibility of Flushing Sediment from Reservoirs*, Report OD137 (November 1996), (Annex IN-TX-10), p. 2; para. 7.82, referring to Record of the 96th Meeting of the Commission, New Delhi, 1-2 June 2005, (Annex PK-31), p. 5; para. 7.102. India also mentions that the NJHEP envisages drawdown flushing on a "much larger scale" than the KHEP. India's Counter-Memorial referring to the Pakistani Water and Power Development Authority (WAPDA), (Annex IN-79).

⁵¹⁰ India's Rejoinder, para. 4.77.

⁵¹¹ Schleiss Report, p. 2.

⁵¹² India's Rejoinder, paras. 4.75-4.78, referring to W. Rodney White, "Flushing of Sediments from Reservoirs," Contributing Paper to the World Commission on Dams, (Annex IN-TX-9), p. vi; Schleiss Report, p. 5; K.G. Rangaraju, "Critical Appraisal of the Report of Dr Morris," 14 May 2012.

335. With respect to the KHEP, India notes that sedimentation problems are particularly acute in the Himalayan rivers such as the Kishenganga/Neelum, due to climatic, tectonic and geological factors.⁵¹³ Contrary to the suggestions made in the Morris Report,⁵¹⁴ India does not accept that a Run-of-River project will operate without adverse effect once the Dead Storage has filled with sediment. In India's view, this assertion ignores the fact that sediments do not accumulate along a horizontal plane, but settle simultaneously in the Dead and Live Storage, a fact Dr Morris acknowledges in another document.⁵¹⁵
336. Based on its calculations, India submits that "it is imperative to carry out regular flushing [at the KHEP] to minimize sedimentation and loss of storage capacity as well as to maintain the favourable sediment environment near the power intake."⁵¹⁶ Modelling exercises carried out by both India and Pakistan⁵¹⁷ illustrate the benefits drawdown flushing would have for the KHEP.⁵¹⁸ In contrast, India argues, the use of non-drawdown methods of sediment management such as sluicing through an ungated or crest-gated spillway would present difficulties—both technically and in terms of conformity with the Treaty.⁵¹⁹ In India's view, this would not change with a higher level of intake and outlets, or with the use of a small barrage/weir intake.⁵²⁰ The latter method is used exclusively at low-head Run-of-River Plants with limited

⁵¹³ India's Counter-Memorial, paras. 7.67-7.68.

⁵¹⁴ Morris Report, p. 3.

⁵¹⁵ India's Rejoinder, para. 4.96, referring to Gregory L. Morris and Jiahua Fan, *Reservoir Sedimentation Handbook: Design and Management of Reservoirs, Dams, and Watersheds for Sustainable Use*, Electronic version 1.01, September 2009, (Annex IN-135). For example, in 31 years of operation, the Tarbela reservoir in Pakistan lost 33.30 percent of its Dead Storage and 27.22 percent of its Live Storage. India's Counter-Memorial, paras. 7.72-7.73, referring to Izhar-ul-Haq & S. Tanveer Abbas, "Sedimentation of Tarbela & Mangla Reservoirs," Paper No. 659, Pakistan Engineering Congress, 70th Annual Session Proceedings, 2006, (Annex IN-TX-6), p. 28.

⁵¹⁶ India's Counter-Memorial, para. 7.92.

⁵¹⁷ Pakistan's Memorial, Hagler Bailly Pakistan, Water Matters, Southern Waters & Beuster, Clarke and Associates, "Kishenganga/Neelum Water Diversion: Environmental Assessment," May 2011, pp. 334-336. India's Counter-Memorial, paras. 7.88-7.91.

⁵¹⁸ India's Counter-Memorial, paras. 7.86-7.91.

⁵¹⁹ The Indian Commissioner explained at the 100th and 101st meetings of the Commission that an ungated spillway was not an option due to the site conditions, including the narrowness of the Gurez Valley, the geology, and the design flood and sediment. With a crest-gated spillway, the outlets in the dam would have had to be placed lower than those of the KHEP and the gates would have had a discharge capacity of 140 percent of the river flow. These features could have invited Pakistan's objections under the Treaty. India's Counter-Memorial, paras. 7.83-7.84, referring to Record of the 100th Meeting of the Commission, Lahore, 31 May–4 June 2008, (Annex PK-34), p. 24; Record of the 101st Meeting of the Commission, New Delhi, 25–28 July 2008, (Annex PK-35), p. 10; India's Rejoinder, paras. 4.98, 4.106.

⁵²⁰ India's Rejoinder, paras. 4.107-4.108, referring to the Schleiss Report, pp. 4-5.

storage.⁵²¹ Effective sediment management requires that the spillway be as close as possible to the riverbed to create river-like flow conditions allowing the maximal displacement of sediments. The intake must, on the one hand, be above the level of the spillway to avoid being affected by sediments. At the same time, the intake must be sufficiently submerged to avoid vortex formation and air entrainment into the intake as well as to ensure pressure flow in the head-race tunnel.⁵²²

337. In evaluating its design options, India accepts that, as the upstream State, it must examine any design options submitted to it by the downstream State. Nevertheless, India is entitled to “give preference to the solution contained in its own scheme provided that it takes into consideration in a reasonable manner the interests of the [downstream] State.”⁵²³ For India, the KHEP’s spillway outlets, as currently designed and located, are consistent with sound and economical design.⁵²⁴

(g) The *Baglihar* expert determination

338. The *Baglihar* expert determination, issued on 12 February 2007 by Professor Raymond Lafitte, a neutral expert appointed under Annexure F to the Treaty, addressed a number of differences between the Parties with respect to the Baglihar hydro-electric project located on the Chenab River. Among other issues, the Neutral Expert considered the conformity of the design of the Baglihar project’s low-level sluice spillway with Paragraph 8(d) of Annexure D to the Treaty.⁵²⁵

339. In this context, the Neutral Expert stated the following:

Sound operation of the outlets will necessitate carrying out maintenance of the reservoir with drawdown sluicing each year during the monsoon season. The reservoir level should be drawn down to a level of about 818 m asl, that is to say 17 m below that of the Dead

⁵²¹ Schleiss Report, p. 2.

⁵²² Schleiss Report, pp. 3-4.

⁵²³ India’s Counter-Memorial, para. 7.92, referring to *Lake Lanoux*, (Annex IN-14), para. 23.

⁵²⁴ Schleiss Report, p. 4.

⁵²⁵ *Baglihar* Determination, (Annex PK-230), pp. 92-100. Paragraph 8(d) of Annexure D to the Treaty provides 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.

Storage Level. For this level, the free flow discharge is the annual flood of the order of 2,500 m³/s. This is in conformity with Annexure D, Part 1, 2(a) of the Treaty, which provides that “‘Dead Storage’ means that portion of the storage which is not used for *operational purpose*”. Operational purpose refers to power generation (and this is impossible for the Dead Storage because of the high level of the power intake). The reservoir drawdown below the Dead Storage Level will be done for *maintenance purposes*. It is commonly agreed in practice that maintenance is an absolute necessity, with its ultimate objective of ensuring the *sustainability of the scheme*.⁵²⁶

340. The Parties disagree as to the relevance of this section of *Baglihar* to the Court’s consideration of the Second Dispute.

Pakistan’s arguments

341. At the outset, Pakistan submits that it is not seeking to appeal *Baglihar*, but only to show that this Expert determination is not binding upon the Court with respect to the Second Dispute.⁵²⁷ For Pakistan, *Baglihar* could have no more than persuasive value although, for the reasons stated in the preceding sections, Pakistan disagrees with the reasoning of the Neutral Expert.⁵²⁸
342. Pakistan points out that, pursuant to the explicit terms of Paragraph 11 of Annexure F to the Treaty, the decision of a neutral expert is “final and binding” on the Parties and a court of arbitration only “in respect of the particular matter on which the decision is made.” *Baglihar* concerned a different matter from the one presently before the Court as it involved a different hydro-electric project (the Baglihar project rather than the KHEP) on a different river (the Chenab rather than the Kishenganga/Neelum).⁵²⁹
343. While acknowledging that the issue of the Neutral Expert’s competence “is not a matter for this Court to decide,” Pakistan nevertheless asserts that, in deciding on the permissibility of drawdown flushing under the Treaty, the Neutral Expert exceeded his competence.⁵³⁰ Pakistan’s principal complaints are that the Parties did not refer to the Neutral Expert any difference concerning drawdown flushing and that Pakistan did not have an opportunity to address the issue. In support, Pakistan provides a brief account of *Baglihar*’s procedural

⁵²⁶ *Baglihar* Determination, (Annex PK-230), p. 100.

⁵²⁷ Pakistan’s Memorial, para. 6.24; Pakistan’s Reply, para. 6.6.

⁵²⁸ Hearing Tr., (Day 4), 23 August 2012, at 195:1-8.

⁵²⁹ Pakistan’s Memorial, para. 6.25; Pakistan’s Reply, para. 6.6.

⁵³⁰ Pakistan’s Memorial, para. 6.28; Pakistan’s Reply, para. 6.7.

history, which it submits is confirmed by India's own narrative of the course of those proceedings.⁵³¹

344. According to Pakistan, the Parties made their submissions on the basis that the Baglihar project would be operated without drawdown flushing, assuming that the Treaty prohibited this technique.⁵³² The Neutral Expert's draft determination, which was communicated to the Parties for their comments prior to the issuance of the final determination, also proceeded on the basis that drawdown flushing was prohibited under the Treaty.⁵³³ India for the first time asserted that drawdown flushing was permitted in its written comments on the draft determination, which were not communicated to Pakistan, and in the oral hearing that followed.⁵³⁴ At the hearing, India only outlined the arguments "it would have made" were the question of drawdown flushing before the Neutral Expert. Pakistan therefore correctly did not seek to respond to these arguments immediately, but reserved its position on the matter.⁵³⁵ Nevertheless, the Neutral Expert reversed his conclusion on drawdown flushing in his final determination, without giving Pakistan the opportunity to respond to the positive case made by India.⁵³⁶
345. Pakistan concludes that being outside the Neutral Expert's competence, the *Baglihar* determination cannot be properly regarded as "final and binding," nor given any weight.⁵³⁷
346. In any event, Pakistan submits that the Neutral Expert's reasoning is unpersuasive and his conclusion with regard to the permissibility of drawdown flushing under the Treaty—

⁵³¹ Pakistan's Reply, para. 6.7, referring to India's Counter-Memorial, paras. 7.19-7.26; Hearing Tr., (Day 4), 23 August 2012, at 196:13 to 197:14.

⁵³² Pakistan's Memorial, para. 6.26, referring to *Baglihar* Determination, (Annex PK-230), p. 96, which excerpts the Parties' respective memorial and counter-memorial in that case; *Baglihar* transcript, 28 May 2006, (Annex PK-233), pp. 138-139; *Baglihar* transcript, 19 October 2006, (Annex PK-232), p. 33; Hearing Tr., (Day 4), 23 August 2012, at 179:17-25; Hearing Tr., (Day 8), 29 August 2012, at 92:14 to 93:15.

⁵³³ Pakistan's Memorial, para. 6.27, referring to Raymond Lafitte, *Baglihar*, "Final Draft Determination by the Neutral Expert," 30 October 2006, (Annex PK-231), pp. 88-89.

⁵³⁴ Pakistan's Memorial, para. 6.27, fn. 232, referring to *Baglihar* transcript, 8 November 2006 (Annex PK-234), p. 264; Hearing Tr., (Day 8), 29 August 2012, at 93:16-24.

⁵³⁵ Pakistan's Memorial, para. 6.27, fn. 232; Pakistan's Reply, para. 6.8; Hearing Tr., (Day 8), 29 August 2012, at 93:23 to 94:7, referring to *Baglihar* transcript of 8 November 2006 (Annex PK-234).

⁵³⁶ Pakistan's Memorial, para. 6.27.

⁵³⁷ Pakistan's Memorial, para. 6.28, fn. 233; Hearing Tr., (Day 8), 29 August 2012, at 96:20-21.

erroneous.⁵³⁸ In particular, the Neutral Expert erred in according priority to India's concerns about sedimentation over the wording of the Treaty.⁵³⁹

India's arguments

347. In its Counter-Memorial, India argues that the Second Dispute constitutes an appeal of the *Baglihar* determination and, as such, is not admissible for consideration by the Court. India points out that Pakistan challenges the Neutral Expert's competence and the correctness of his decision.⁵⁴⁰
348. In its Rejoinder, India submits that it seeks to rely on *Baglihar* not as a "binding" precedent, but as only "a relevant and applicable precedent . . . dealing with similar facts and law; and therefore one that obviously sheds authoritative light . . . on the interpretation of the provisions in question."⁵⁴¹ In this regard, India contends that relying on precedents is a "desirable and universally accepted practice."⁵⁴² At the hearing, India referred to *Baglihar* as an "authoritative precedent."⁵⁴³
349. With regard to the procedure in *Baglihar*, India explains that the Neutral Expert invited the Parties' comments on a draft of his determination "as a courtesy" and "[a]s is usual in the relationship between engineers."⁵⁴⁴ His draft determination prompted India to re-examine its position on the interpretation of Paragraph 2(a) of Annexure D to the Treaty and submit its new views to the Neutral Expert by way of comments.⁵⁴⁵ Pakistan chose not to reply to India's new argument.⁵⁴⁶ The Neutral Expert then issued his final determination, deciding without referring to any of the submissions made before him by the Parties, "in the light of his own experience and understanding of the modern technical processes of generating power from hydroelectric

⁵³⁸ Pakistan's Memorial, paras. 6.29-6.33; Hearing Tr., (Day 4), 23 August 2012, at 195:7-15.

⁵³⁹ Pakistan's Memorial, para. 6.31, referring to J. Briscoe, "War or Peace on the Indus?" *The News*, 3 April 2010, (Annex PK-229), pp. 1-2; Hearing Tr., (Day 4), 23 August 2012, at 195:16 to 196:5.

⁵⁴⁰ India's Counter-Memorial, paras. 7.17, 7.27.

⁵⁴¹ India's Rejoinder, paras. 4.44.

⁵⁴² India's Rejoinder, para. 4.44.

⁵⁴³ Hearing Tr., (Day 6), 27 August 2012, at 126:14-22.

⁵⁴⁴ India's Counter-Memorial, para. 7.19, quoting *Baglihar* Determination, (Annex PK-230), p. 4.

⁵⁴⁵ India's Counter-Memorial, paras. 7.20-7.23.

⁵⁴⁶ India's Counter-Memorial, para. 7.24.

projects.”⁵⁴⁷ The Neutral Expert’s conclusions reflected his concern that without drawdown flushing, the Baglihar project would by all accounts last no more than two decades.⁵⁴⁸

C. THE RELEVANCE OF TERRITORIAL CLAIMS

350. The Parties disagree as to whether Pakistan, in the course of this arbitration, has improperly invoked the Treaty in support of any territorial claims it may have in Pakistan-administered Jammu and Kashmir, thus violating Article XI(1) of the Treaty.

351. Article XI(1) of the Treaty provides:

- (1) It is expressly understood that
 - (a) this Treaty governs the rights and obligations of each Party in relation to the other with respect only to the use of the waters of the Rivers and matters incidental thereto; and
 - (b) nothing contained in this Treaty, and nothing arising out of the execution thereof, shall be construed as constituting a recognition or waiver (whether tacit, by implication or otherwise) of any rights or claims whatsoever of either of the Parties other than those rights or claims which are expressly recognized or waived in this Treaty.

Each of the Parties agrees that it will not invoke this Treaty, anything contained therein, or anything arising out of the execution thereof, in support of any of its own rights or claims whatsoever or in disputing any of the rights or claims whatsoever of the other Party, other than those rights or claims which are expressly recognized or waived in this Treaty.

Pakistan’s arguments

352. In Pakistan’s submission, Article XI of the Treaty was adopted so as to allow the Treaty to regulate the rights and obligations of the Parties with respect to the use of the waters of the *entire* relevant area of the Indus system of rivers, including those parts of it located in Pakistan-administered and India-administered Jammu and Kashmir, while avoiding the underlying dispute over these territories.⁵⁴⁹

⁵⁴⁷ India’s Counter-Memorial, paras. 7.25-7.26.

⁵⁴⁸ Hearing Tr., (Day 9), 30 August 2012, at 109:12 to 111:6.

⁵⁴⁹ Hearing Tr., (Day 1), 20 August 2012, at 25:18-27:10; Hearing Tr., (Day 3), 22 August 2012, at 162:1-11, 166:2-12, quoting Niranjana Das Gulhati, *Indus Waters Treaty: an exercise in international mediation* (Allied Publishers, 1973), p. 263 (“In the light of the disagreement between India and Pakistan on the status of Jammu and Kashmir, it was agreed that effort be made to write the treaty in such manner as to bypass the problem of Jammu and Kashmir”); Hearing Tr., (Day 7), 28 August 2012, at 1:22-4:15.

353. Pakistan agrees with India that Article XI(1) of the Treaty prevents the Parties from invoking the Treaty in support of any territorial claims that they may have over Pakistan-administered or India-administered Jammu and Kashmir, and submits that it has complied with this provision.⁵⁵⁰ Specifically, in presenting arguments concerning the alleged adverse impact of the KHEP on the territory of Pakistan-administered Jammu and Kashmir, Pakistan has not invoked the Treaty improperly.⁵⁵¹ This is because the Parties' rights and obligations under the Treaty with respect to the use of the waters of the Indus system of rivers extend to uses made in territories, such as Pakistan-administered and India-administered Jammu and Kashmir, that are under the factual control of one of the Parties.⁵⁵² The opposite interpretation would create a gap in the Treaty.⁵⁵³ During the negotiation of the Treaty, this interpretation was confirmed by the World Bank, advised by an English barrister, Sir John Foster. Pakistan put the following question to the Bank:

It is the intent that –

- (a) The rights and obligations of India under the Treaty shall extend to acts and omissions in, or affecting, that portion of Jammu and Kashmir that is under the control of India.
- (b) The rights and obligations of Pakistan under the Treaty shall extend to acts and omissions in, or affecting, the remainder of Jammu and Kashmir.
- (c) The Treaty shall not affect the respective positions taken by the Parties in the dispute over Jammu and Kashmir.

Question: Does the present draft accomplish the foregoing?⁵⁵⁴

354. In response to this question, Pakistan was assured that its fears were “ill-founded.”⁵⁵⁵ Pakistan therefore submits that it is entitled to argue that the KHEP will have an adverse impact on areas located in Pakistan-administered Jammu and Kashmir.⁵⁵⁶

⁵⁵⁰ Pakistan's Reply, paras. 2.15-2.17.

⁵⁵¹ Pakistan's Reply, paras. 2.18-2.20a.

⁵⁵² Pakistan's Reply, para. 2.20b. Pakistan adds that in any event it represents Pakistan-administered Kashmir for purposes of the Treaty, and that such representation is opposable to India. Hearing Tr., (Day 3), 23 August 2012, at 167:14 to 169:18.

⁵⁵³ Hearing Tr., (Day 1), 20 August 2012, at 25:25 to 26:4; Hearing Tr., (Day 7), 28 August 2012, at 13:7-21.

⁵⁵⁴ Pakistan's Reply, para. 2.20c, quoting Memorandum Regarding Questions to be put to John Foster Esq. (Annex PK-241).

⁵⁵⁵ Pakistan's Reply, para. 2.20c, quoting Telegram from G. Mueenuddin, Pakistan's chief negotiator, to “Foreign Rawalpindi,” 15 April 1960, (Annex PK-242).

⁵⁵⁶ Pakistan's Reply, paras. 2.18-2.20a.

355. Finally, Pakistan submits that in accordance with Article XI(1) of the Treaty, India's arguments concerning the validity of Pakistan's and India's claims over Pakistan-administered Jammu and Kashmir are not a proper subject for adjudication by the Court.⁵⁵⁷ In any event, Pakistan rejects all of India's arguments regarding the juridical status of Pakistan-administered Jammu and Kashmir.⁵⁵⁸

India's arguments

356. India claims that there is "an important territorial element" in the present case.⁵⁵⁹ It points out that all the areas which would, according to Pakistan, be adversely affected by the KHEP, whether in terms of hydro-electric or agricultural use, or environmentally, are located in Pakistan-administered Jammu and Kashmir.⁵⁶⁰ It further contends that Pakistan-administered Jammu and Kashmir is not legally a part of Pakistan.⁵⁶¹ On this basis, India argues that Pakistan is invoking the Treaty to support its claims in the territory of Pakistan-administered Jammu and Kashmir and to dispute India's claims in the same territory. In so doing, Pakistan is in direct violation of Article XI(1)(b) of the Treaty.⁵⁶²

357. In addition, in India's view, it has no obligation under the Treaty to avoid adverse impact on territories that do not form part of Pakistan, as the Treaty does not apply to regions that are only under Pakistan's *de facto* control.⁵⁶³ India recalls that during the negotiation of the Treaty, Pakistan proposed a provision that would have extended the application of the Treaty to "all of the territories which at the time are under [a Party's actual control]" and that this provision was

⁵⁵⁷ Pakistan's Reply, para. 2.22.

⁵⁵⁸ Hearing Tr., (Day 7), 28 August 2012, at 11:16-22.

⁵⁵⁹ India's Counter-Memorial, para. 1.32.

⁵⁶⁰ India's Counter-Memorial, paras. 1.34, 2.65-2.66.

⁵⁶¹ India's Counter-Memorial, paras. 1.34-1.38, 1.42; India's Rejoinder, paras. 1.94-1.95; Hearing Tr., (Day 5), 24 August 2012, at 46:1-21.

⁵⁶² India's Counter-Memorial, paras. 1.33, 6.49; India's Rejoinder, paras. 1.93, 1.99; Hearing Tr., (Day 5), 24 August 2012, at 47: 4-22, 48:14 to 49:17.

⁵⁶³ India's Counter-Memorial, paras. 1.43, 2.66; India's Rejoinder, para. 1.105; Hearing Tr., (Day 5), 24 August 2012, at 48:8-13, referring to VCLT, Art. 29. India adds that Pakistan-administered Kashmir is not a party to the Treaty and is not represented in the Treaty by Pakistan. Hearing Tr., (Day 5), 24 August 2012, at 45:12-18; Hearing Tr., (Day 9) 30 August 2012, at 3:23 to 7:11.

rejected by India and excluded from the final text of the Treaty.⁵⁶⁴ While Pakistan alleges that it received confirmation from the World Bank that the Treaty would apply to Pakistan-administered and India-administered Jammu and Kashmir, India notes that in support of this allegation, Pakistan mostly cites internal correspondence of Pakistan, which does not form part of the *travaux préparatoires* of the Treaty. In addition, Pakistan appears to be relying on an interpretation made not by the World Bank, but by Sir John Foster, retained to answer certain questions of the World Bank.⁵⁶⁵

⁵⁶⁴ India's Counter-Memorial, paras. 1.39-1.40, 2.63-2.64, quoting World Bank's list of riders proposed by India and Pakistan for inclusion in draft text, rider No. 11 (Pakistan), 24 November 1959, (Annex IN-49); India's Rejoinder, paras. 1.96-1.98.

⁵⁶⁵ India's Rejoinder, paras. 1.102-1.103.

IV. ANALYSIS OF THE COURT

358. At the outset of its analysis, the Court considers it appropriate to note the extraordinary contribution of the World Bank to the conception, mediation, negotiation, drafting and financing of the Indus Waters Treaty, an instrument critical to the life and well-being of hundreds of millions of people of India and Pakistan. The conclusion of the Indus Waters Treaty in 1960, in which the leaders and staff of the World Bank lent vital support to the Parties, was and remains a great achievement of international cooperation.

A. THE TERRITORIAL SCOPE OF THE TREATY

359. In the course of these proceedings, the Parties have advanced arguments concerning the status of Pakistan-administered and India-administered Jammu and Kashmir and have differed over whether and how this Partial Award may bear upon the question of sovereignty over Jammu and Kashmir. Before engaging in an analysis of the two disputes at hand, the Court considers it important to clarify at the outset the scope of its inquiry—and of the Indus Waters Treaty itself—as it relates to the question of sovereignty over Jammu and Kashmir.

360. The Treaty was negotiated and concluded amid difficulties in the relations between India and Pakistan. One of the most profound and sensitive issues between the Parties was (and remains) the question of sovereignty over Jammu and Kashmir. While negotiating the Treaty, the danger that unresolved questions of sovereignty could stand in the way of agreement on the allocation of the waters of the Indus river system was plain to the representatives of the World Bank and the Parties, who clearly sought to craft the Treaty so as to avoid those difficulties. The Court thus has no doubt that the manner in which the Treaty expresses the Parties' respective rights and obligations represents a conscious effort to reach a definitive apportionment of the use of the waters of the Indus system of rivers, while avoiding entirely the matter of sovereignty over the areas through which those waters flow. To this end, the Treaty focuses on the right of each Party to the *use* of some of the waters of the Indus system of rivers without going into the question of sovereignty over the territory of Jammu and Kashmir through which some of those rivers transit.

361. Article XI(1) of the Treaty embodies this approach:⁵⁶⁶ although its phrasing makes no reference to any territorial dispute between India and Pakistan, its purpose was precisely to assure the Parties that their respective rights in or claims to disputed territories would remain unaffected by the Treaty.⁵⁶⁷ The Treaty “governs the rights and obligations of each Party in relation to the other with respect *only* to the *use of the waters* of the Rivers” and, further, provides that nothing therein “shall be construed as constituting a recognition or waiver . . . of any rights or claims whatsoever of either of the Parties *other than those rights or claims which are expressly recognized or waived in this Treaty*.”⁵⁶⁸ These terms preclude any effect on the rights or claims of the Parties with respect to anything but the use of the waters.
362. In keeping with the terms and intentions of Article XI(1), this Partial Award does not—and cannot—have any bearing on the rights or claims that either Party may maintain to sovereignty over the territory of Jammu and Kashmir. Nor are such putative rights or claims relevant to the resolution of the disputes placed before this Court. The Court thus finds it unnecessary to set out in detail the arguments put forth by the Parties on the status of Jammu and Kashmir.
363. Having established that this Partial Award can have no bearing on the Parties’ territorial dispute over Jammu and Kashmir, the remaining consideration for the Court in this regard is whether

⁵⁶⁶ In full, Article XI(1) of the Treaty reads as follows:

(1) It is expressly understood that

- (a) this Treaty governs the rights and obligations of each Party in relation to the other with respect only to the use of the waters of the Rivers and matters incidental thereto; and
- (b) nothing contained in this Treaty, and nothing arising out of the execution thereof, shall be construed as constituting a recognition or waiver (whether tacit, by implication or otherwise) of any rights or claims whatsoever of either of the Parties other than those rights or claims which are expressly recognized or waived in this Treaty.

Each of the Parties agrees that it will not invoke this Treaty, anything contained therein, or anything arising out of the execution thereof, in support of any of its own rights or claims whatsoever or in disputing any of the rights or claims whatsoever of the other Party, other than those rights or claims which are expressly recognized or waived in this Treaty.

⁵⁶⁷ See Letter from William A.B. Iliff, the most senior of the World Bank’s negotiators, to Niranjan D. Gulhati, India’s chief negotiator, 16 June 1959, (Annex PK-246): “My recollection of the understanding reached in the course of our conversations with the Indian authorities in Delhi is that . . . India was concerned that the actual construction by Pakistan of a reservoir at Mangla should not carry any implication that India’s sovereign rights in Jammu and Kashmir were in any way or to any degree eroded. India therefore wished to find some formula that would protect her in this respect . . . The general principle underlying the Bank approach was that neither party should, on the one hand, seek to gain, in or from the Water Treaty, any support for its own general position on the Kashmir issue, or, on the other hand, should seek to erode the general position of the other party.”

⁵⁶⁸ Emphasis added.

the Parties' rights and obligations under the Treaty regarding the use of the waters of the Indus system of rivers extend to those portions of the rivers that flow in disputed territory, including the area in which India is building the KHEP and those reaches of the Neelum Valley that Pakistan contends will be adversely affected by the KHEP's operation.

364. In addressing this question, each Party refers to a different portion of the documentary record of the negotiations preceding the Treaty. Arguing that disputed territories are covered by the Treaty, Pakistan relies on the opinion of Sir John Foster, an eminent English barrister, whose views were sought by the World Bank to reassure the Parties that "the text of the draft of [the] Treaty expresses clearly and correctly [their] intent,"⁵⁶⁹ namely, to avoid any indication that the Treaty would affect disputes over sovereign rights in Jammu and Kashmir. For its part, India emphasizes the omission from the final Treaty text of a proposed rider that would have provided that the rights and obligations of each Party under the Treaty "apply to all the territories which at the time were under its actual control."⁵⁷⁰ The Court finds the sparse negotiating record on this matter to be inconclusive; insofar as Foster did not represent the Parties, his opinion is not determinative of the meaning of Article XI. Nonetheless, the Parties' agreement to the text of this provision in full knowledge of Foster's interpretation may be construed as acceptance of his view. As for the Parties' rejection of the proposed rider, it may be that the Parties simply wished to avoid overt reference to the divisions between them. But it is clear that the Parties shared the view of the World Bank that the Treaty should not and did not affect questions of sovereignty over Jammu and Kashmir.

⁵⁶⁹ Memorandum Regarding Questions to be put to John Foster Esq., (Annex PK-241). Foster opined that the text of Article XI (then Article X) expressed clearly and correctly the following stated intent of Pakistan:

- (a) The rights and obligations of India under the Treaty shall extend to acts and omissions in, or affecting, that portion of Jammu and Kashmir that is under the control of India.
- (b) The rights and obligations of Pakistan under the Treaty shall extend to acts and omissions in, or affecting, the remainder of Jammu and Kashmir.
- (c) The Treaty shall not affect the respective positions taken by the Parties in the dispute over Jammu and Kashmir.

See also Telegram from G. Mueenuddin, Pakistan's chief negotiator, to "Foreign Rawalpindi," 15 April 1960, (Annex PK-242): "In general Foster's opinion was that our fears were ill-founded and the Draft of the Treaty (a) accomplished the common intent and (b) excluded all other matters."

⁵⁷⁰ World Bank's list of riders proposed by India and Pakistan for inclusion in the draft text of 24 November 1959, rider no. 11 (Pakistan), (Annex IN-49). The proposal reads, in full:

The rights and obligations of each of the Parties under this Treaty apply to all the territories which at the time are under its actual control; but neither the provisions of this Treaty nor any steps taken as permitted in this Treaty, or to promote compliance therewith, shall be construed as affecting in any way the positions of the Parties as to the right to exercise such control.

365. The Court recognizes that the text of the Treaty itself, read in context and in light of its object and purpose, is paramount in resolving the disputes brought before it. The Preamble of the Treaty refers to the Parties' desire to attain the "most complete and satisfactory utilisation of the waters of the Indus system of rivers" and states further that the Treaty fixes the rights and obligations of the Parties concerning the use of "these waters." These words are emblematic of the Treaty's intent to apply to the aggregate of the Indus river system and not only to those waters flowing through uncontested territory. The Parties have not pointed to—and the Court has not found—any provision that would exclude from the scope of the Treaty any portion of the waters of the Indus system of rivers that flow through Pakistan and India. Moreover, four of the rivers governed by the Treaty (the Indus, the Jhelum, the Chenab and the Ravi) flow partly through the territory of Jammu and Kashmir. Were the Treaty to exclude these watercourses during their transit of the region, it would fall significantly short of providing the comprehensive solution sought by the Parties for the development and allocation of the waters of the Indus system.
366. For these reasons, the Court finds that the rights and obligations of the Parties under the Treaty extend to their use of those waters of the Indus system that flow through Pakistan and India, including those waters flowing through either Pakistan-administered or India-administered Jammu and Kashmir. Pakistan is therefore entitled to invoke the Treaty, as it does here, to object to the construction of the KHEP as a hydro-electric project located in India-administered territory, by arguing that it will impermissibly affect the flow of the river and uses of the waters thereof (including future uses by the NJHEP) in Pakistan-administered territory.⁵⁷¹

B. THE FIRST DISPUTE: THE PERMISSIBILITY OF DELIVERING THE WATERS OF THE KISHENGANGA/NEELUM RIVER INTO ANOTHER TRIBUTARY THROUGH THE KHEP

367. The Court now turns to the First Dispute. In essence, the Court has been asked to decide whether India is permitted under the Treaty to deliver the waters of the Kishenganga/Neelum River into another tributary in the course of the operation of the KHEP. Pakistan maintains that the KHEP is not in conformity with the Treaty; the Court's analysis of the specific objections set out by Pakistan follows.

⁵⁷¹ Similar considerations apply in relation to the area of Azad Jammu and Kashmir ("AJK"), where the NJHEP is located and many of the KHEP's adverse effects alleged by Pakistan would occur. India has argued that AJK is a self-governing state and not part of Pakistan under its constitution. Following the Treaty's logic, however, the Court observes that Pakistan has uses of water belonging to the Indus system of rivers in AJK. It is not for the Court to pass upon the relationship between Pakistan and AJK.

1. India's general obligations under Articles III and IV(6)

368. Pakistan argues that the Treaty contains a number of provisions that restrict Indian uses of the Western Rivers in general, regardless of whether they involve hydro-electric power generation. It invokes Article III of the Treaty, which sets out both India's fundamental obligation to "let flow" the waters of the Western Rivers and its right to employ those waters, under certain conditions, for hydro-electric power generation and other uses. Specifically, Pakistan contends that the KHEP does not conform to Article III(2) of the Treaty, which in its view restricts India's use of the Western Rivers (including for hydro-electric power generation) to "the drainage basin thereof." Insofar as the electricity generated by the KHEP would be contributed to India's whole northern grid, Pakistan maintains that such a use will not be restricted to the drainage basin of the Jhelum.⁵⁷²
369. In the Court's view, however, Article III(2) restricts what India may do with the waters of the Western Rivers, and not with the products that may be generated from their use. There is no indication in the Treaty that a geographic restriction on the use of electricity or any other product of the use of the waters was intended.
370. Pakistan also invokes India's general obligation to "use its best endeavours to maintain the natural channels of the Rivers" as stipulated in Article IV(6) of the Treaty. Article IV(6) provides as follows:

Each Party will use its best endeavours to maintain the natural channels of the Rivers, as on the Effective Date, in such condition as will avoid, as far as practicable, any obstruction to the flow in these channels likely to cause material damage to the other Party.

371. As set forth above,⁵⁷³ Pakistan maintains that by failing to assess adequately the environmental impact of the KHEP's inter-tributary transfer, India has breached its Article IV(6) obligation. Arguing that a thorough assessment of the KHEP's downstream environmental impact is necessary to comply with the "best endeavours" obligation of Article IV(6), Pakistan seeks to demonstrate that the diversion of water at the KHEP will, by significantly reducing the flow in the Kishenganga/Neelum, cause material environmental damage below the Line of Control.

⁵⁷² See paras. 194-196 of this Partial Award.

⁵⁷³ See paras. 256-256 of this Partial Award.

372. The Court considers that this provision, which is worded in “best endeavours” terms, is obligatory and not merely aspirational in nature. Where the Parties contemplated the latter, they specified so expressly, such as in paragraphs 9 and 10 of Article IV of the Treaty, which provide that “[e]ach Party declares its *intention*.”⁵⁷⁴ In contrast, the phrase “[e]ach Party *will use its best endeavours*”⁵⁷⁵ expresses a stronger commitment.
373. Nonetheless, Article IV(6) bears no direct relevance to inter-tributary transfer as such. On the plain meaning of its terms, Article IV(6) concerns the maintenance of the physical condition of the *channels* of the rivers, and not the maintenance of the volume and timing of the flow of water in these channels. The Court understands the term “channel” in Article IV(6) in its common usage, i.e., to denote the bed of the river, which may or may not be filled with water.⁵⁷⁶ Accordingly, the Court sees this provision as mandating the preservation of the natural paths of the rivers (what India calls the “geometry of the channels”)⁵⁷⁷ in an effort to conserve the rivers’ capacity to carry water, thereby protecting the Parties from dry spells and floods. This interpretation is confirmed by the Treaty’s *travaux préparatoires*.⁵⁷⁸
374. Further, Article IV(6) does not require the maintenance of the condition of the channels so as to avoid any type of riverbed degradation, but bears more precisely on the avoidance of “any obstruction to the flow in these channels likely to cause material damage to the other Party.”⁵⁷⁹ While Pakistan has emphasized that by trapping sediment in its reservoir and releasing “sediment hungry” water below the dam, the KHEP may contribute to the erosion of the riverbed,⁵⁸⁰ it has not adequately explained what specific *obstructions* to the flow of waters in

⁵⁷⁴ Emphasis added.

⁵⁷⁵ Emphasis added.

⁵⁷⁶ See the relevant definition of “channel” in *Webster’s Third New International Dictionary of the English Language*, unabridged (G & C Merriam Co., 1981): “1 a: the hollow bed where a natural body or stream of water runs or may run”; *Oxford English Dictionary*, online (<http://oxforddictionaries.com>): “a hollow bed for a natural or artificial waterway: *the river is confined in a narrow channel*” (emphasis in the original). “Riverbed” is defined by Webster’s Dictionary as “the channel occupied or formerly occupied by a river” and by the Oxford English Dictionary as “the bed or channel in which a river flows.”

⁵⁷⁷ India’s Counter-Memorial, para. 4.155.

⁵⁷⁸ A December 1959 draft of the Treaty shows that Article IV(6) initially provided for the avoidance of obstructions to “the natural flow in the Rivers.” Treaty, draft of 9 December 1959, Art. IV(4), (Annex PK-12). This early phrasing could have been taken to refer to the volume of water normally passing through at any given time of year, but was replaced by the present text.

⁵⁷⁹ Treaty, Art. IV(6).

⁵⁸⁰ Pakistan’s Memorial, Tab D, Hagler Bailly Pakistan, Water Matters, Southern Waters & Beuster, Clarke and Associates, “Kishenganga/Neelum Water Diversion: Environmental Assessment,” May 2011, p. 2-4.

the Kishenganga/Neelum downstream of the KHEP would be created as a result of its construction and operation.

375. Nor can the KHEP itself be considered an “obstruction” of the kind foreseen by Article IV(6). The general obligation upon both India and Pakistan covering all uses of the Western and the Eastern Rivers under Article IV(6) must yield to the specific Treaty rights of the Parties. The Court cannot accept that Article IV(6) debars the construction and operation of works specifically contemplated by the Treaty. The KHEP was designed and is intended to be operated under the regime of Annexure D, to which the Court now turns.⁵⁸¹

2. The requirements for Run-of-River Plants under Annexure D

376. The right to generate hydro-electric power (provided that such generation is conducted in accordance with Annexures D or E) is an express exception to India’s obligation to let flow the waters of the Western Rivers.⁵⁸² Annexure D provides comprehensive criteria for the design and operation of new Run-of-River Plants.
377. As set out in greater detail above,⁵⁸³ Pakistan submits, first, that Annexure D does not permit the permanent diversion of a tributary of the Jhelum; second, that even if Annexure D does permit such diversion, the KHEP does not qualify as a Plant under Paragraph 15(iii); and, third, that even if the KHEP does qualify as such a Plant, it fails the test of necessity provided in that Paragraph. India counters that the KHEP is permissible and consistent with Paragraph 15 in all respects. The Court will address each issue in turn.

⁵⁸¹ The Court would however note that the reference in Article IV(6) to the avoidance of material damage to the other Party, a reference which reappears in Article IV(9), has environmental connotations and lends a measure of support to Pakistan’s invocation of contemporary environmental jurisprudence. Article IV(9) provides:

Each Party declares its intention to operate its storage dams, barrages and irrigation canals in such manner, consistent with the normal operations of its hydraulic systems, as to avoid, as far as feasible, material damage to the other Party.

⁵⁸² Treaty, Art. III(2)(d). Pursuant to Paragraph 1 of Annexure D, however, where a new hydro-electric plant is incorporated within a Storage Work, its design, construction, and operation are governed by the provisions of Annexure E to the Treaty.

⁵⁸³ See paras. 199-227 of this Partial Award.

(a) The permissibility of inter-tributary transfers in general

378. Whether Annexure D permits inter-tributary transfers is answered by the plain text of Paragraph 15(iii). This Paragraph provides that “where a Plant is located on a Tributary of The Jhelum . . . , the water released below the Plant may be delivered . . . into another Tributary . . . ,” thus allowing the diversion of water from one tributary to another, provided that the works in question fall within the terms of that Paragraph.
379. With respect to the scope of permissible diversion, the Court is not convinced that Paragraph 15(iii) was intended only to permit the occasional diversion of water in the course of operation, rather than diversion as an integral part of the design and operation of a Plant.⁵⁸⁴ No such distinction is evident from the text itself. Moreover, whether effected by tunnel or canal, any release of water from one tributary into another will be a major undertaking, involving substantial engineering works constructed at great expense. The Court can see no purpose that would be served by investing in the extensive infrastructure required for transfer, only to carry out such transfers on an occasional basis and in a manner ancillary to the *raison d’être* of a Plant—power generation.
380. This interpretation is consistent with the letter from the Chairman of India’s Central Water and Power Commission to India’s Ministry for Irrigation and Power dated 16 May 1960, which shows that India was contemplating, at the time the Treaty was concluded, a diversion scheme on the Kishenganga/Neelum River similar to the KHEP as now presented.⁵⁸⁵ Although there is

⁵⁸⁴ See Hearing Tr., (Day 1), 20 August 2012, at 15:10 to 16:1.

⁵⁸⁵ The CWPC Letter (Annex IN-54) provided the comments of the Power Wing of India’s CWPC with respect to the draft of the Treaty under consideration as at 16 May 1960. With respect to the draft of Annexure E and the construction of Storage Works on the Jhelum, the CWPC Letter states in relevant part as follows (emphasis in the original):

(b) JHELUM (excluding JHELUM main): A note on the preliminary hydro-electric survey for the Indus basin in India was forwarded to Shri R. R. Bahl, the then Joint Secretary, Ministry of Irrigation & Power under my D.O. letter No. 20/1/58-HE, dated the 13th January, 1958. This was also then seen by Shri Gulati and other officers connected with the Canal Water Dispute. As pointed out therein, the only tributary of the Jhelum where storage is required for generation of power is Kishenganga. A 200 ft. high dam at Nail with a catchment area of about 770 sq. miles with a storage of about 0.25 maft. would afford a regulated power draft of 1,000 cusecs which can then be conveyed across the ridge and dropped into lake Wular utilising a total drop of 2740 ft. and yielding a power potential of the order of 300,000 kw at 60% load factor. This regulated power draft can be further utilised, along with the natural flows of the main Jhelum in three power stations at a total head of about 1700 ft. below Baramula. In view of this, a minimum storage of 0.3 million *aft* should be secured on the tributaries of the Jhelum for power generation.

no indication in the record that India's projections were shared with Pakistan or raised in the course of negotiations,⁵⁸⁶ the CWPC Letter demonstrates that one Party to the Treaty was fully aware of and interested in the power to be generated by such an inter-tributary diversion.⁵⁸⁷

(b) The KHEP as a Run-of-River Plant located on a tributary to the Jhelum

381. Paragraph 15(iii) of Annexure D provides:

Subject to the provisions of Paragraph 17, the works connected with a Plant shall be so operated that (a) the 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, and (b) in any one period of 24 hours within that seven-day period, the volume delivered into the river below the Plant shall be not less than 30%, and not more than 130%, of the volume received in the river above the Plant during the same 24-hour period: Provided however that:

[...]

- (iii) where a Plant is located on a Tributary of The Jhelum on which Pakistan has any Agricultural use or hydro-electric use, the water released below the Plant may be delivered, if necessary, into another Tributary but only to the extent that the then existing Agricultural Use or hydro-electric use by Pakistan on the former Tributary would not be adversely affected.

382. For India to take advantage of the possibility of inter-tributary transfer provided for in Paragraph 15(iii), the KHEP must meet the following three conditions: (1) it must be a Run-of-River Plant; (2) it must be located on a tributary of the Jhelum; and (3) the inter-tributary transfer must be within the terms laid down in Paragraph 15(iii). The Court will consider these three requirements in turn.

383. As to condition (1), "Run-of-River Plant" is a term of art under the Treaty. Following the definition in Paragraph 2(g) of Annexure D, a Run-of-River Plant is "a hydro-electric plant that develops power without Live Storage as an integral part of the plant, except for Pondage and Surcharge Storage." Live Storage, Pondage and Surcharge Storage are themselves defined in

⁵⁸⁶ In this context, the Court notes that Article 32 of the VCLT was not meant to close the category of supplementary means that may be utilized in treaty interpretation to those enumerated therein. *See HICEE B.V. v. the Slovak Republic*, PCA Case No. 2009-11, Partial Award, 23 May 2011, at paras. 117 and 135.

⁵⁸⁷ In light of the significance that the Court accords to the CWPC Letter, the Court does not consider it important that, in 1960, the CWPC apparently contemplated a diversion scheme based on a Storage Work (and raised the issue in the context of its comments on Annexure E), while the Treaty's only express provision on diversion concerns Run-of-River Plants under Annexure D. The relevance of the CWPC Letter is not as a comment on any specific treaty provision, which was part of the draft or was developed thereafter, but rather as an indication of India's interest, as early as 1960, in producing hydro-electricity through the diversion of the Kishenganga River.

Paragraph 2 of the Annexure, and it is not the volume of water impounded, but the volume of water stored for hydro-electric power generation that establishes whether a project constitutes a Run-of-River Plant pursuant to the definition.⁵⁸⁸ Bearing these provisions in mind, the Court does not doubt that, although originally conceived as a Storage Work, the KHEP has been designed and notified to Pakistan as a Run-of-River Plant within the meaning of that definition. Pakistan has drawn the Court's attention to documents that have described Run-of-River Plants in other ways, but these descriptions cannot stand against the formal definition given in Annexure D for the purposes of that Annexure.

384. As to condition (2), the comprehensive definition of "Tributary" in Article I(2) of the Treaty encompasses the Kishenganga/Neelum River.⁵⁸⁹ There is no dispute between the Parties that the Kishenganga/Neelum is a tributary of the Jhelum. The question is therefore whether the KHEP is "located on" the Kishenganga. On this issue, the Parties have taken very different views.⁵⁹⁰ For India, it suffices if part of the works is situated on the river itself, and the decisive criterion is the origin of the water that will be used for the operation of the Plant. For Pakistan, the crux is that the generation of hydro-electricity in the KHEP will take place at a substantial distance (23 kilometres) from the Kishenganga/Neelum River.

385. The arguments raised by Pakistan are serious ones. They put into question whether the KHEP conforms to the natural understanding of what would constitute a Run-of-River Plant. As the Court has pointed out, however, "Run-of-River Plant" is the subject of a specific Treaty definition, so that for all purposes under Annexure D it must be given a "special meaning" of

⁵⁸⁸ In Annexure D, "Surcharge Storage" is defined as "uncontrollable storage occupying space above the Full Pondage Level" and essentially describes the margin of safety between the maximum ordinary capacity of the reservoir and the parapet of the dam, designed to prevent the dam from being overtopped during extreme floods or in the face of strong wind and wave action (Para. 2(e)). "Pondage" is storage intended to meet variations in the daily and weekly generating loads of the Plant and is regulated by the Treaty by reference to the designed generating capacity of the Plant (*see* Para. 2(c)). Accordingly, for the purposes of the Treaty a "Run-of-River Plant" is any Plant that is not designed to generate power from stored water beyond the volume expressly permitted to be stored and utilized as "Pondage."

⁵⁸⁹ Article I(2) of the Treaty reads as follows:

The term "Tributary" of a river means any surface channel, whether in continuous or intermittent flow and by whatever name called, whose waters in the natural course would fall into that river, e.g. a tributary, a torrent, a natural drainage, an artificial drainage, a *nadi*, a *nallah*, a *nai*, a *khad*, a *cho*. The term also includes any subtributary or branch or subsidiary channel, by whatever name called, whose waters, in the natural course, would directly or otherwise flow into that surface channel.

⁵⁹⁰ *See* paras. 210-218 of this Partial Award.

the kind foreseen in Article 31(4) of the Vienna Convention on the Law of Treaties (the “VCLT”) in place of its “ordinary meaning.”⁵⁹¹

386. The Court notes that, while the terms “Plant” and “works” are both repeatedly used in the Treaty, neither is the subject of a specific Treaty definition either in Annexure D or more generally. The variety of provisions in which the term “Plant” appears, however, shows that the term was intended to cover all aspects of a hydro-electric installation and not merely those components involved in the actual generation of electricity (such as the powerhouse). Paragraph 8 of Annexure D, for instance, expressly deals with the design of a “Plant” and includes restrictions, ranging from the dam and spillway to the need for a regulating basin, that are in no way limited to a particular element of the works. Similarly, Appendix II to Annexure D, which identifies the information that must be shared for any new Run-of-River Plant, requires the provision of a plan “showing dam spillway, intake and outlet works, diversion works, head-race and forebay, powerhouse, tail-race and Regulating Basin.” This demonstrates, in the view of the Court, that the term “Plant,” as employed in Annexure D, is apt to describe the entirety of an installation such as the KHEP.
387. That being so, the Court sees no warrant under the Treaty for disaggregating the elements that comprise an installation such as the KHEP, designed to operate as an integrated whole and to serve a single purpose, namely, the generation of hydro-electricity. The works that trap and channel the water feeding the KHEP are *a fortiori* located on the Kishenganga. While the Court would not go so far as to endorse the argument that any Plant must necessarily be regarded as “located on” the watercourse from which it draws water, it has no hesitation in reaching the conclusion that, for the specific purposes of Paragraph 15(iii) of Annexure D, the KHEP must be regarded as “located on” the Kishenganga, which is in turn a tributary of the Jhelum.
388. Turning now to condition (3), the Court observes that the requirement that inter-tributary transfer must be within the terms of Paragraph 15(iii) comprises two elements: the criterion of “necessity” (which will be dealt with in the following section) and the place into which the water delivered from the Kishenganga/Neelum is released after passing through the KHEP powerhouse. Pakistan submits that, in delivering water from the turbines into the Bonar Nallah, the KHEP is not delivering the “water released below the Plant” “into another Tributary” as foreseen in Paragraph 15(iii).

⁵⁹¹ Article 31(4) of the VCLT provides: “A special meaning shall be given to a term if it is established that the parties so intended.”

389. The Court is unconvinced by Pakistan's argument that this water must first be released back into the Kishenganga/Neelum below the dam before it may permissibly be delivered into another tributary of the Jhelum. The additional restriction would make no operational sense. Paragraph 15(iii), moreover, refers to water "released below the Plant," not to water "released below the dam." In the Court's understanding of the term "Plant," water released from the KHEP tail-race into the Bonar Nallah is undoubtedly released below the Plant. It is simply the case that here, there is not one watercourse but two flowing below (or downstream of) the Plant into which water may be released. Similarly, the Court cannot accept that the phrase "into another Tributary" was intended to mean anything other than another tributary of the Jhelum. There is no textual basis for concluding that the second use of the term "Tributary" in Paragraph 15(iii) differs from the first and refers exclusively, as Pakistan suggests, to tributaries of the Kishenganga/Neelum itself.

(c) The criterion that inter-tributary transfers must be "necessary"

390. Having concluded that Paragraph 15(iii) permits diversion, and that the KHEP is generally in keeping with the type of scheme envisaged therein, the Court turns to the question of whether such diversion is "necessary." This analysis initially raises a further question: necessary for what? Before proceeding, the Court finds it useful for the light it may throw on the Parties' underlying intention to recall how the term entered into the draft of the Treaty.

391. The record put before the Court shows that the word "necessary" was added at a very late stage. In the World Bank's draft of 6 June 1960, inter-tributary transfer was dealt with in the following terms:

- (c) where a Plant is located on a Tributary of The Jhelum on which Pakistan has any Agricultural Use or hydro-electric use the water released below the Plant may not be delivered into another Tributary if the then existing Agricultural Use or hydro-electric use by Pakistan on the former Tributary would be adversely affected.⁵⁹²

392. In the final text of the Treaty, the language had become the following:

- (iii) where a Plant is located on a Tributary of The Jhelum on which Pakistan has any Agricultural use or hydro-electric use, the water released below the Plant may ~~not~~ be delivered, if necessary, into another Tributary but only to the extent that ~~if~~ the

⁵⁹² Treaty, draft of 6 June 1960, (Annex PK-22), Annexure D, para. 15(iii).

then existing Agricultural Use or hydro-electric use by Pakistan on the former Tributary would not be adversely affected.⁵⁹³

393. The record shows that this change was proposed by India, but does not indicate the reasons underlying the change. The Court feels justified in assuming, all the same, that India's purpose was to underline that it had a right (albeit not an unlimited one) to undertake inter-tributary transfers; this would explain why the provision was changed from a negative construction into a positive one.
394. The change of form entailed certain drafting problems, however. In the first place, there was the question of the tributaries to which the provision would apply. Here the drafters left the wording unchanged: "where a Plant is located on a Tributary of The Jhelum on which Pakistan has any Agricultural Use or hydro-electric use." The literal effect of this phrase might now appear to be—to the eyes of a reader coming fresh to the final text—that India's right to make inter-tributary transfers at all only came into being once Pakistan had established some use on the downstream reaches of that tributary. Such a result would be so contrary to plain common sense that the Court would in any case rule it out *in limine*. Once the negotiating background described above is considered, it becomes plain that a description of the relevant tributaries which made perfect sense as part of a provision in negative form cannot have been intended to have a radically restrictive effect when the provision was recast in positive form. The very purpose of changing into the positive form was to emphasize the right, not to curtail it.
395. The second drafting problem arising out of the change of form was evidently one to which the drafters did pay specific attention. The change from a provision constructed as a double negative, i.e., a prohibition qualified by an exception, into a permission seems to have been thought to require the introduction of some kind of qualification to indicate that the permission was not an absolute one. The device chosen was the limiting phrase "if necessary." It served to indicate that the change to the positive, permissive form was not intended to turn inter-tributary transfer into the rule, but to leave it as something that had to be justified by the exigencies of each particular case. Once this is understood, it becomes easier to attribute the proper meaning to the words chosen.
396. Paragraph 15(iii) thus provides that "the water released below the Plant may be delivered, if necessary, into another Tributary." In this formulation, the relevant action for which necessity

⁵⁹³ Modifications from the 6 June 1960 draft indicated.

is to be determined is the delivery of water—not the act of constructing a new Run-of-River Plant. As no specific purpose is identified against which necessity could be evaluated, the Court concludes that necessity is to be determined by reference to the purpose for which the water is to be delivered into another tributary; in the case of the KHEP, this purpose is the generation of hydro-electric power. The Court therefore concludes that the relevant question for the interpretation of this element of Paragraph 15(iii) is whether the delivery of water into another Tributary is necessary to generate hydro-electric power.

397. Turning to the threshold for necessity, the Court sees no need to associate this term with indispensability or emergency action, as argued by Pakistan. The concept of necessity appears elsewhere in the Treaty without such connotations, including the provisions of Annexure G interpreted by the Court in its Order on Interim Measures.⁵⁹⁴ The Court sees no reason, for purposes of the Treaty, to ascribe to it any special meaning beyond the normal use of the term to describe action that is “required, needed or essential for a particular purpose.”⁵⁹⁵ The Court considers inapposite the concepts of necessity developed in international trade law, investment law and other special areas. Likewise, the Court finds it inappropriate to import the understanding of necessity as a circumstance precluding wrongfulness under the law of State responsibility.

398. The Court has little difficulty in holding that the delivery of water from the Kishenganga/Neelum to another tributary is required to achieve the purpose of generating hydro-electricity through the KHEP. If, as the Court has decided, the Treaty confers a right on a Party (in this case, India’s right to the use of the waters for the purpose of generating hydro-electricity in conformity with Annexure D), it must be taken to be a right that can meaningfully be exercised. It is true that some hydro-electricity can be generated from the natural flow of the Kishenganga/Neelum at Gurez, but in the Court’s understanding, no Run-of-River Plant operating without making use of the difference in elevation between the two tributaries of the Jhelum would begin to approach the power-generating capacity of the KHEP. Therefore, diversion is necessary for any attempt to generate hydro-electric power on the scale contemplated by India, and Annexure D imposes no limit on the amount of electric power that

⁵⁹⁴ Order on Interim Measures, para. 139.

⁵⁹⁵ *Ibid.* The Oxford English Dictionary defines “necessary” as a synonym of “required to be done, achieved, or present; needed” (Concise, 11th ed., 2008). Similarly, the New Oxford American Dictionary provides the following synonyms for “necessary”: “required to be done, achieved, or present; needed; essential” (3rd ed., 2010).

India may generate through Run-of-River Plants.⁵⁹⁶ This interpretation does not, however, reduce necessity to a mere test of what is desirable, nor does it become a self-judging matter for India alone to evaluate. The Court can imagine situations in which the benefits of including the diversion of water within the scheme of a Run-of-River Plant would be so marginal that such a diversion could not fairly be termed “necessary.” In the present case, however, the Court concludes, on the basis of its understanding of the KHEP and its appreciation of the Gurez site, that diversion from that site is, in fact, “necessary” for India to generate significant power.

399. The Court’s conclusion on this matter should not be taken to mean that potential downstream harm is irrelevant to the analysis. On the contrary, the Court considers that adverse effects on downstream uses are a central element of Paragraph 15(iii), but one that operates in a different manner from the proportionality test advanced by Pakistan. Where necessity is invoked under customary international law as a circumstance precluding the international wrongfulness of State action, proportionality may properly be considered. In that case, the claim being made is not simply that the acts in question were necessary to protect an essential State interest, but also that such interest is of paramount importance—and therefore sufficient to override the rights and interests of the State that would otherwise be wronged.⁵⁹⁷ Viewed in terms of its ordinary meaning, however, “necessary” lacks this additional connotation. As a matter of common sense, it is apparent that certain actions may be necessary to accomplish even very modest purposes, and that such actions do not become any less necessary to their intended purpose if it happens that they also inflict ancillary harm.

3. The interpretation of the “then existing Agricultural Use or hydro-electric use by Pakistan” in Paragraph 15(iii)

400. As the Parties have emphasized,⁵⁹⁸ the essence of the First Dispute is a difference of views between the Parties as to the proper interpretation of Paragraph 15(iii) of Annexure D, particularly this provision’s requirement that any Indian inter-tributary Run-of-River Plant

⁵⁹⁶ Indeed, the Treaty provides in Paragraph 1 of Annexure D that “subject to the provisions of this Annexure,” the use by India of the waters of the Western Rivers to generate hydro-electricity “shall be unrestricted.”

⁵⁹⁷ For this reason, Article 25 of the International Law Commission’s Articles on State Responsibility requires both an “essential interest” of the State invoking necessity and consideration of the essential interests of other affected States. *See* Responsibility of States for International Wrongful Acts, UN Doc. A/RES/56/83, 12 December 2001, Art. 25.

⁵⁹⁸ Hearing Tr., (Day 1), 20 August 2012, at 14:24 to 15:1 (Counsel for Pakistan): “[T]he case comes down to the interpretation and application of Annexure D, paragraph 15 (iii), which by the end of this case will be engraved on your hearts.”

operate “only to the extent that the then existing Agricultural Use or hydro-electric use by Pakistan on the former Tributary would not be adversely affected.” What exactly constitutes a “*then existing* Agricultural Use or hydro-electric use” lies at the very centre of the First Dispute.

401. In seeking the proper meaning of Paragraph 15, the Court is guided by the fundamental rules of treaty interpretation as set out in Article 31(1) of the VCLT: “[a] treaty shall be interpreted in good faith and in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose.”

(a) The text

402. The Court’s interpretation begins with the text of Paragraph 15, and specifically with the ordinary meaning of the terms there used.⁵⁹⁹ The provision is reprinted below:

15. Subject to the provisions of Paragraph 17, the works connected with a Plant shall be so operated that (a) the 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, and (b) in any one period of 24 hours within that seven-day period, the volume delivered into the river below the Plant shall be not less than 30%, and not more than 130%, of the volume received in the river above the Plant during the same 24-hour period: Provided however that:
- (i) where a Plant is located at a site on the Chenab Main below Ramban, the volume of water received in the river upstream of the Plant in any one period of 24 hours shall be delivered into the river below the Plant within the same period of 24 hours;
 - (ii) where a Plant is located at a site on the Chenab Main above Ramban, the volume of water delivered into the river below the Plant in any one period of 24 hours shall not be less than 50% and not more than 130%, of the volume received above the Plant during the same 24-hour period; and
 - (iii) where a Plant is located on a Tributary of The Jhelum on which Pakistan has any Agricultural use or hydro-electric use, the water released below the Plant may be delivered, if necessary, into another Tributary but only to the extent

⁵⁹⁹ *Polish Postal Service in Danzig, Advisory Opinion*, [1925] P.C.I.J. Series B, No. 11 (May 16), p. 39 (“It is a cardinal principle of interpretation that words must be interpreted in the sense which they would normally have in their context, unless such interpretation would lead to something unreasonable or absurd.”); *Arbitral Award of 31 July 1989 (Guinea-Bissau v. Senegal)*, I.C.J. Reports 1991, p. 53 at p. 69, quoting *Competence of the General Assembly for the Admission of a State to the United Nations, Advisory Opinion*, I.C.J. Reports 1950, p. 4 at p. 8 (“the first duty of a tribunal which is called upon to interpret and apply the provisions of a treaty, is to endeavour to give effect to them in their natural and ordinary meaning, in the context in which they occur.”); *Abyei Arbitration (The Government of Sudan/The People’s Liberation Army/Movement)*, Final Award, 22 July 2009, *PCA Award Series* (2012), para. 575 (“In accordance with Article 31 of the [VCLT], the Tribunal must interpret the text of the Formula by initially looking at the ordinary meaning of the terms used.”).

that the then existing Agricultural Use or hydro-electric use by Pakistan on the former Tributary would not be adversely affected.

403. Read on its own, Paragraph 15 seems to be operational in character. The text leading to sub-paragraph (iii) delineates a number of operational constraints for new Run-of-River Plants. To begin with, the first sentence of Paragraph 15 states, quite plainly, that “the works connected with a Plant shall be so *operated* that . . .”⁶⁰⁰ The remaining part of Paragraph 15’s chapeau lays out the operational constraints on a new Run-of-River Plant when it delivers water below the Plant over “any one period” of 24 hours and “any period” of seven consecutive days. Finally, sub-paragraphs (i) and (ii) modify the operational constraints on a Plant located on the Chenab Main above or below Ramban.
404. In the same vein, sub-paragraph (iii) is phrased as an operational provision: its function is to qualify the general operational constraints found in the chapeau of Paragraph 15 where a Plant “is located on a Tributary of The Jhelum on which Pakistan has any Agricultural Use or hydro-electric use.” The present tense structure (“*is* located”; “*has*” any agricultural or hydro-electric use)⁶⁰¹ suggests that the determination whether Pakistan has any agricultural or hydro-electric uses should take place throughout the operational life of a Run-of-River Plant, whenever India diverts water through an inter-tributary transfer.
405. Sub-paragraph (iii) then continues with the words “the water released below the Plant may be delivered, if necessary, into another Tributary but only to the extent that the then existing Agricultural Use or hydro-electric use by Pakistan on the former Tributary would not be adversely affected.” Here again, the choice of the words “*then existing* Agricultural Use or hydro-electric use”⁶⁰² suggests that the sub-paragraph is to be given an operational meaning, as any delivery of water by the KHEP for purposes of power generation can occur “only to the extent” that Pakistan’s “then existing” agricultural or hydro-electric uses “would not be adversely affected.” The formulation of Paragraph 15(iii) thus lends credence to what has been termed in these proceedings an “ambulatory” interpretation of Paragraph 15.

⁶⁰⁰ Emphasis added.

⁶⁰¹ Emphasis added.

⁶⁰² Emphasis added.

(b) The context

406. Under Article 31(1) of the VCLT, “context” comprises other parts of the Treaty’s text, including its Preamble and Annexures.⁶⁰³ Paragraph 15 cannot be interpreted in a textual vacuum—its location within Part 3 of Annexure D (“New Run-of-River Plants”) and, indeed, within the entirety of Annexure D (“Generation of Hydro-Electric Power by India on the Western Rivers”) must be taken into account.
407. A review of the context of Paragraph 15 makes clear that the provision is placed within a continuum of design, construction and operation that cannot properly be separated into watertight compartments. Within the context of Part 3 of Annexure D (“New Run-of-River Plants”), Paragraph 15(iii) comes toward the end of an orderly progression beginning with the design restrictions with which India must comply if it wishes to build and operate a new Run-of-River Plant (Paragraph 8). India is required to provide detailed design information to Pakistan (Paragraph 9). Pursuant to Paragraph 9 of Annexure D, for example, India must provide at least six months’ advance notice of the design of a new Run-of-River Plant before construction is permitted. This advance notice must be given in writing with the information specified in Appendix II to Annexure D. Appendix II, in turn, requires India to provide Pakistan with key information on the contemplated Plant, including “Particulars of Design” that go into great detail about the Plant and its power-generating capacity. Required disclosure includes “[d]ischarge proposed to be passed through the Plant, initially and ultimately, and expected variations in the discharge on account of the daily and weekly load fluctuations,”⁶⁰⁴ and “[m]aximum aggregate capacity of power units (exclusive of standby units) for Firm Power and Secondary Power.”⁶⁰⁵ India is also required to provide the “[e]stimated effect of proposed development on the flow pattern below the last plant downstream.”⁶⁰⁶ The Court has no doubt that the foregoing details were placed in these sections of the Treaty to put Pakistan on notice

⁶⁰³ Under Article 31(2) of the VCLT,

[t]he context for the purpose of the interpretation of a treaty shall comprise, in addition to the text, including its preamble and annexes:

(a) any agreement relating to the treaty which was made between all the parties in connection with the conclusion of the treaty;

(b) any instrument which was made by one or more parties in connection with the conclusion of the treaty and accepted by the other parties as an instrument related to the treaty.

⁶⁰⁴ Treaty, Annexure D, Appendix II, para. 4(h).

⁶⁰⁵ Treaty, Annexure D, Appendix II, para. 4(i).

⁶⁰⁶ Treaty, Annexure D, Appendix II, para. 5(a).

not only in respect of the *design details* of a new Plant but also in respect of its intended *operational modalities*. Thus, as is clear from early on in Part 3 of Annexure D, a single paragraph can encompass both design and operational provisions.⁶⁰⁷

408. Following Paragraph 9, Pakistan may object to any aspect of the proposed design within three months of receipt of India's information (Paragraph 10). If a question regarding the permissibility of the proposed design arises, "either Party may proceed to have the question resolved" pursuant to the dispute resolution mechanism provided in Article IX(1) and (2) (Paragraph 11). This is the time at which the legality of a particular design can properly be challenged. The following two paragraphs confirm this: in the event of any alteration to the design before or after the Plant comes into operation (Paragraph 12), or should an emergency arise requiring immediate repairs or alterations (Paragraph 13), Pakistan has the express right to question the design changes contemplated or made in accordance with Paragraph 11 and the dispute resolution mechanism set forth in Article IX. Paragraph 13 also marks the point where Annexure D moves into the operational restrictions on new Run-of-River Plants; the operational provisions then continue through to Paragraph 17.⁶⁰⁸ Notably, at no point does the sequence of Paragraphs 8 to 12 specify Pakistan's "then existing Agricultural Use or hydro-electric use" as a factor.

409. In the Court's view, the various paragraphs contained in Part 3 of Annexure D must be interpreted in a mutually reinforcing manner to avoid forbidding with one provision what is permitted by others. It would make little sense, and cannot have been the Parties' intention, to read the Treaty as permitting new Run-of-River Plants to be designed and built in a certain manner, but then prohibiting the operation of such a Plant in the very manner for which it was designed. Such an interpretation of the various paragraphs of Part 3 in isolation from one

⁶⁰⁷ Beyond Annexure D, the intermingling of design and operational provisions continues. For example, Annexure F, which deals with the competence of the neutral expert, supports the view that Part 3 of Annexure D (of which Paragraph 15 forms part) contemplates both the construction and operational phases in the life of a Run-of-River Plant. Annexure F, Part 1 ("Questions to be Referred to a Neutral Expert") states, in part:

1. Subject to the provisions of Paragraph 2, either Commissioner may, under the provisions of Article IX(2)(a), refer to a Neutral Expert any of the following questions:

[...]

(12) Whether or not the operation by India of any plant constructed in accordance with the provisions of Part 3 of Annexure D conforms to the criteria set out in Paragraphs 15, 16 and 17 of that Annexure.

⁶⁰⁸ Paragraphs 18 to 23 of Annexure D concern "Small Plants," which are not directly relevant to this dispute.

another would render ineffective those provisions that specifically permit the development of hydro-electric power in accordance with the design constraints of Annexure D.

(c) The object and purpose of the Treaty

410. Turning to the object and purpose of the Treaty, the Court notes that the Treaty establishes a regime of qualified rights and priorities in respect of specific uses, which governs the interpretation of Paragraph 15. The Treaty recognizes Pakistan’s right to “unrestricted” use of all the waters of the Western Rivers, including the Kishenganga/Neelum.⁶⁰⁹ The deliberate division and allocation of the six main watercourses of the Indus system of rivers between the Parties is a defining characteristic of the Treaty. The inevitable conclusion is that Pakistan is given priority in the use of the waters of the Western Rivers, just as India has priority in the use of the waters of the Eastern Rivers.⁶¹⁰

411. Pakistan’s right to the Western Rivers is not absolute since it relates only to those waters of the Western Rivers “which India is under an obligation to let flow under the provisions of [Article III(2) of the Treaty].” The right is subject to expressly enumerated Indian uses on the Western Rivers, including the generation of hydro-electric power to the extent permitted by the Treaty.

412. Article III(1) of the Treaty states:

Pakistan shall receive for unrestricted use all those waters of the Western Rivers which India is under obligation to let flow under the provisions of Paragraph (2).

In turn, Paragraph (2) provides:

India shall be under an obligation to let flow all the waters of the Western Rivers, and shall not permit any interference with these waters, *except* for the following uses, restricted . . . in the case of each of the rivers, The Indus, The Jhelum and The Chenab, to the drainage basin thereof:

[. . .]

(d) *Generation of hydro-electric power*, as set out in Annexure D.⁶¹¹

⁶⁰⁹ Treaty, Art. III(1).

⁶¹⁰ For India’s “unrestricted use” of the waters of the Eastern Rivers, *see* Treaty, Art. II(1).

⁶¹¹ Emphasis added.

Similarly, although the chapeau of Annexure D confirms India's right to generate hydro-electric power on the Western Rivers in language similar to that of Pakistan's unrestricted "let flow" right, it is circumscribed by the terms of Annexure D itself:

1. The provisions of this Annexure shall apply with respect to the use by India of the waters of the Western Rivers for the generation of hydro-electric power under the provisions of Article III(2)(d) and, *subject to the provisions of this Annexure*, such use shall be *unrestricted*: . . .⁶¹²

413. Thus, on the one hand, the Treaty establishes that Pakistan enjoys unrestricted use of those waters of the Western Rivers which it is entitled to receive. On the other hand, the Treaty's specifications in respect of India's hydro-electric uses on the Western Rivers are inconsistent with denying to India the capacity to generate electricity from power plants built in conformity with the Treaty. Any interpretation of Paragraph 15 the logical result of which would be to allow Pakistan unilaterally to curtail the ability of such Indian Plants to operate would subvert an important element of the object and purpose of the Treaty.

4. Challenges of the application of Paragraph 15(iii) to the KHEP

414. The Court now turns to the application of Paragraph 15(iii) to the specific case of the KHEP, the first occasion on which India has undertaken to build a Plant the power-generating capacity of which is derived from an inter-tributary transfer between two tributaries of the Jhelum River.

(a) The Parties' approaches to "then existing" uses as applied to the KHEP

415. As discussed at some length above,⁶¹³ the *text* of Paragraph 15(iii) lends a measure of support to an ambulatory interpretation—one which would subject the regular operation of Plants to any "then existing" agricultural or hydro-electric use Pakistan may have. However, in the *context* of the KHEP, that analysis requires a measure of qualification: under the overall structure of Annexure D, the general permissibility of any new Run-of-River Plant's design is determined prior to the commencement of that Plant's construction.⁶¹⁴ Once a Plant's design is accepted or acquiesced in as being consistent with the requirements of Paragraph 8 of Annexure D—or is found to be so consistent by a neutral expert or court of arbitration, in the event that

⁶¹² Emphasis added.

⁶¹³ See paras. 402-405 of this Partial Award.

⁶¹⁴ See Treaty, Annexure D, Paras. 8-12.

one Party challenges the legality of the design⁶¹⁵—the construction of that Plant can proceed as designed. Paragraph 9 requires India to communicate to Pakistan in writing the specific information detailed in Appendix II to Annexure D, “[t]o enable Pakistan to satisfy itself that the design of a Plant conforms to the criteria mentioned in Paragraph 8.” Pakistan is thus effectively put on notice, at the time the design is communicated to it, of India’s intended uses.

416. Part 3 of Annexure D sets out a deliberate sequence of design restrictions (Paragraphs 8 to 12) and operational constraints (Paragraphs 13 to 17) consistent with the natural cycle of development for hydro-electric (indeed, any large-scale) infrastructure projects: by defining the point at which proposed designs can be fixed, Annexure D gives the State, its creditors, its contractors and all others involved in such projects the stability and predictability that are indispensable for such projects to proceed to construction and operation over a period of years.
417. A strictly ambulatory approach to Paragraph 15(iii) would undermine the progression of design and operations provisions of Annexure D. The several sub-paragraphs of Paragraph 8 would not encompass all the design requirements necessary for India to consider and communicate to Pakistan, and Paragraphs 9-11 would not provide a mechanism that leads to certainty as to the legality of a Plant’s design, construction and operation. Notably, as opposed to the clear mechanism provided by Paragraphs 9-11, no such mechanism is found in Annexure D for Pakistan to provide, on an ongoing basis, information as to its “then existing” agricultural and hydro-electric uses of which India would need to take account. Moreover, a fixed point after which a particular design would create a right upon which India could rely would never emerge. Fixing such a point, however, is the evident purpose of the progression of necessary steps set out in Paragraphs 8 to 17 of Annexure D.
418. Looking at the question more broadly by reference to the object and purpose of the Treaty, the Court cannot accept in full the interpretation proffered by either Party. As discussed above, Article III and Annexure D of the Treaty speak of the right of Pakistan to the “unrestricted” use of the waters of the Jhelum and its tributaries and of India’s corresponding obligation to “let flow” the waters of the Jhelum. The Treaty allocates the use of the waters of the Western Rivers (including the Jhelum and its tributaries) to Pakistan, curtailing, sometimes quite severely,

⁶¹⁵ Under Paragraph 11 of Annexure D, “[i]f a question arises as to whether or not the design of a Plant conforms to the criteria set out in Paragraph 8, then either Party may proceed to have the question resolved in accordance with the provisions of Article IX(1) and (2).” In turn, Article IX(1) and (2) outlines the various dispute settlement options—Commission, neutral expert, court of arbitration—available to the Parties to resolve a question, difference or dispute.

India's freedom to utilize the waters of the Western Rivers for the generation of hydro-electric power and limiting, for the most part, the use of those waters to certain agricultural uses, and to domestic and non-consumptive uses.⁶¹⁶

419. On that basis, Pakistan has argued that an ambulatory interpretation of Paragraph 15(iii) of Annexure D is merely an extension of this preference, inherent in the Treaty, with respect to the Western Rivers. Following that line of argument, Pakistan's "then existing" downstream agricultural and hydro-electric uses would be privileged even if, as a result, the KHEP could only be operated during half of the year or less to accommodate the operational requirements of the NJHEP or, equally, the requirements of other subsequent hydro-electric plants to be constructed by Pakistan further downstream. India would enjoy no effective rights to the use of the waters of the Western Rivers for power generation vis-à-vis Pakistan, just as Pakistan has no effective rights to the use of the waters of the Eastern Rivers.⁶¹⁷

420. However, India points to equally weighty considerations of object and purpose in support of its position. India relies on its express right to use the waters of the Western Rivers, including the Jhelum and its tributaries, to generate hydro-electric power. Under Article III(2) of the Treaty, the generation of hydro-electric power as set out in Annexure D is one of the specified exceptions to the "let flow" principle. And Annexure D's opening paragraph speaks of the "unrestricted" right of India to generate hydro-electric power so long as it is in a manner consistent with Annexure D as a whole.⁶¹⁸ Given the significant rights enjoyed by India as the upstream riparian under customary international law, as well as the natural advantages enjoyed by the upstream riparian, the Court recognizes, in view of the acute need both of India and Pakistan for hydro-electric power, that India might not have entered into the Treaty at all had it not been accorded significant rights to the use of those waters to develop hydro-electric power on the Western Rivers.

421. The Preamble magnifies this tension in the object and purpose of the Treaty: each Party can claim one part of the Preamble to buttress its argument, as the Treaty is "equally desirous" of (1) "attaining the most complete and satisfactory utilization of the waters of the Indus system of rivers," and "the need, therefore," of (2) "fixing and delimiting, in a spirit of goodwill and

⁶¹⁶ Treaty, Art. III(2).

⁶¹⁷ See Treaty, Art. II(1): "[a]ll the waters of the Eastern Rivers shall be available for the unrestricted use of India, except as otherwise expressly provided in this Article."

⁶¹⁸ Treaty, Annexure D, Para. 1. For the full text of this provision, see para. 413 of this Partial Award.

friendship, the rights and obligations of each in relation to the other concerning the use of these waters.”

(b) Implications of adopting the “ambulatory” approach

422. If the Court were to adopt Pakistan’s “ambulatory” approach, a new inter-tributary Run-of-River Plant could be cleared for construction when its design was consistent with Paragraph 8 of Annexure D; but India would nonetheless be required to yield whenever Pakistan subsequently sought to use the waters. Such an interpretation would have a chilling effect on the undertaking of any inter-tributary project on the Kishenganga/Neelum River as no responsible project proponent, financing creditor or government agency would incur the expense or make the effort to construct a Plant the viability of which would be subject to the unilateral will and action of another party.
423. In the case of the KHEP, its operation—and thus its power-generating capacity and its economic viability—would be perpetually subject to the sword of Damocles. A strictly ambulatory approach might well require the KHEP to shut down for the drier months of the year, given the significantly larger throughput of water at the NJHEP.⁶¹⁹ The future establishment of Pakistani agricultural and hydro-electric uses could require India to direct most or even all of the river’s water downstream without being able to reserve any for use by the KHEP during a large part of the year. Hypothetically, were a new Plant to be built by Pakistan at, say, Dudhnial (or at any other point on the Kishenganga/Neelum between the Line of Control and the NJHEP), the KHEP would need to release as much of the Kishenganga/Neelum’s water as would be necessary to allow such new Pakistani plants to operate. The upshot is that, under Pakistan’s approach, the KHEP could quite easily be rendered inert—or, at the very least, reduced to generating only a small fraction of its design capacity. Such a result would deprive India of a key benefit recognized by the Treaty: the generation of hydro-electric power through an inter-tributary transfer from one tributary of the Jhelum to another.
424. The lack of stability, potential for wastage of resources and incompatibility of Pakistan’s approach with the design and construction approval requirements of Annexure D lead the Court

⁶¹⁹ See India’s Counter-Memorial, para. 5.10 (“With a design discharge of 280 cumec to generate 969 [megawatts], the N-JHEP will require a minimum daily flow of 47 cumec (one-sixth) to cater to four hours (one-sixth of a day) of peaking power.”).

to conclude that the strictly ambulatory approach is not reconcilable with the context of Paragraph 15(iii) and the object and purpose of the Treaty when applied to the KHEP. No sound reading of the Treaty's framework for Indian hydro-electric uses on the Western Rivers can foreclose entirely India's ability to generate electricity from a power plant built in accordance with Annexure D.

(c) Implications of adopting the “critical period” approach

425. If Pakistan's preferred approach to Paragraph 15(iii) calls for a dynamic assessment by India of the agricultural and hydro-electric uses of Pakistan whenever water is released by the KHEP, India's competing approach is comparatively static, focusing only on a key moment, or critical date. Simply put, for India, the phrase “then existing use” means that any new development by India is limited by such downstream uses of waters by Pakistan as are demonstrated to exist on the date when India communicates to Pakistan its “firm intention” to proceed with a project.⁶²⁰
426. The question of when a particular set of facts concerning a project crystallizes into a “firm intention” is therefore a key consideration in ascertaining the reasonableness of this approach. India maintains that this moment of “firm intention” can be determined by reference to Paragraph 9 of Annexure D (requiring that India provide Pakistan with complete information about its intended design at least six months before beginning construction). Accordingly, India argues that Pakistan's agricultural and hydro-electric uses must be “frozen at the stage when the design is being finalized.”⁶²¹
427. The Court has discussed Part 3 of Annexure D, including Paragraph 9, elsewhere in this Partial Award,⁶²² and agrees that under Annexure D, the date when India proposes its design is an important moment. But as the succeeding paragraphs of Annexure D make clear, notification of design is insufficient to exhibit a “firm intention” to proceed; the three-month period following such notice within which Pakistan may object must be taken into account, as well as the time it may take for questions of the Plant's conformity with the criteria in Paragraph 8 to be resolved through the Treaty's dispute resolution mechanisms (Paragraphs 10-11). Annexure D also acknowledges the possibility of design changes during the construction phase of a Plant, prior to it coming into operation (Paragraph 12(a)). Alterations in the configuration of the Plant may

⁶²⁰ India's Counter-Memorial, para. 4.139.

⁶²¹ India's Counter-Memorial, para. 4.123.

⁶²² See paras. 407-409 of this Partial Award.

equally occur after it comes into operation (Paragraph 12(b)) or in response to emergencies (Paragraph 13).

428. Put in more general terms, the sequence of Paragraphs 9-13 may not in practice reflect the vast and often contradictory record that can attend large infrastructure projects of this nature, with different changes and evolutions in the Plant's design specifications, unforeseen discoveries in the areas to be excavated and tunnelled, and the vagaries of securing proper financing and government approvals. Thus, when faced with an actual project, the moment at which a "firm intention" crystallizes can be very difficult to pinpoint.⁶²³ It would not be wise for the Court to identify *ex ante* any one fact or formula to make this determination. The Court appreciates the difficulty of determining the critical date at any one stage in this continuum of design, financing, government approval, construction, completion and operation. Each project will be unique; its progressive crystallization can be linear or, more often than not, episodic, with redesigns, stops and restarts, changes in contractors and sources of financing, and the like.
429. That said, finding a particular period during which India's right to construct and operate a Run-of-River Plant became vested would be consistent with the framework of Paragraphs 8 to 11 of Annexure D. Rather than focusing on a moment of "firm intention" on the part of India, the Court considers it more appropriate to speak of a "critical period," wherein a cumulation of facts—tenders, financing secured, government approvals in place and construction underway—has achieved a level of certitude indicating that a project will proceed "firmly" as proposed.
430. In identifying the critical period prior to the completion of construction, the Court has deliberately ruled out two other possible points at which crystallization could be said to occur. One moment that could provide near certainty as to when a particular project crystallizes is the date on which construction of a Plant is completed. But setting the critical date at completion of construction could lead to undesirable results by encouraging both States to proceed to build their respective plants in the hopes of winning the race to completion, but with no guarantee that what is being built will be able to be operated as designed. This could lead to an extreme waste in resources and exacerbation of international tensions. At the opposite end of

⁶²³ This critical date or period could be situated at various points in the life of a project: design, public tender, government approvals, securing of financing, breaking of ground for construction, completion of construction. Crucially, apart from the progress being made toward design, approval, construction and completion of the project, the *communication* of each step to the other Party in the manner envisaged by the Treaty is essential, because the other Party must be able to rely on the information provided through the Treaty process in order for the Treaty itself to work as envisaged. One must therefore analyze both the "facts on the ground" and which facts were formally notified to the other Party under the Treaty.

the spectrum between design and operation, selecting as the critical date the time at which design plans are communicated to the other Party is also unsatisfactory. While at this point in time it is possible to give notice to the other Party of an intention to build a Plant, there is no guarantee that that Plant will be completed within the time projected (or ever).

431. Having clarified what the Court considers an appropriate critical reference period in which a Party's intention to proceed with a project becomes established, the Court can now consider the key issue: just as the Court has examined whether a strictly ambulatory approach would lead to unreasonable results (which the Court has concluded it does), the Court must examine the implications of adopting a critical period interpretation for the Parties' respective rights to the use of the waters of the Kishenganga/Neelum. Such an analysis exposes a basic concern in relation both to the text of Paragraph 15(iii) of Annexure D and to the Treaty's object and purpose.
432. Inherent in the critical period approach is the requirement that any new Indian Run-of-River Plant take account of Pakistan's existing agricultural and hydro-electric uses, pursuant to Paragraph 15(iii) of Annexure D.⁶²⁴ This is a point India does not contest; it believes that at the time India's project crystallized, Pakistan did not—and still does not—have any *existing* hydro-electric uses nor any significant agricultural uses. But such a view begs the question of when a “then existing” agricultural or hydro-electric use crystallizes for Pakistan. Pakistan's uses need to be judged in the same manner as India's. Accordingly, crystallization of Pakistani hydro-electric design plans may create a “freeze” on additional Indian upstream hydro-electric uses. Sustaining an unqualified critical period approach could thus result in a race in which each Party would seek to create uses that would freeze out those by the other. The Court considers that its interpretation of Annexure D (including Paragraph 15(iii)) must minimize, to the greatest extent possible, the implications of a regime for the Kishenganga/Neelum's waters that would result in such a race, in which the first Party reaching the critical period would have the ability to freeze upstream or downstream uses (as the case may be, depending on who the “winner” is).

⁶²⁴ Presumably, pre-existing agricultural and hydro-electric uses would be one of the objections Pakistan can make to any Indian Plant design brought to it under Paragraph 9 of Annexure D.

(d) The Treaty's balance between the rights of both Parties

433. The Court considers that neither of the two approaches to interpretation discussed above—the ambulatory and critical period approaches—is fully satisfactory. Rather, the proper interpretation of Paragraph 15(iii) of Annexure D combines certain elements of both approaches. The Court is guided by the need to reflect the equipoise which the Treaty sets out between Pakistan's right to the use of the waters of the Western Rivers (including the Jhelum and its tributary, the Kishenganga/Neelum) and India's right to use the waters of those rivers for hydro-electric generation once a Plant complies with the provisions of Annexure D.
434. Pakistan's relevant uses in this context are, in the Court's view, essentially its hydro-electric uses. As for agricultural uses, the Court notes the observation of India—not contradicted by Pakistan—that there are no significant existing agricultural uses of the Kishenganga/Neelum's main river.⁶²⁵ It appears to the Court that agricultural uses in the Neelum Valley are largely met by the tributary streams that feed the river.⁶²⁶
435. Accordingly, the Court considers that its interpretative task consists of two principal elements. The Court must first establish the critical period at which the KHEP crystallized. Consistent with Part 3 of Annexure D (particularly the notice provisions of Paragraph 9), and using the same critical period criteria, the Court must then determine whether the NJHEP was an "existing use" that India needed to take into account at the time the KHEP crystallized. As shown below, the Court's determination of the critical period leads to the conclusion that the KHEP preceded the NJHEP, such that India's right to divert the waters of the Kishenganga/Neelum for power generation by the KHEP is protected under the Treaty.
436. Second, India's right to divert the waters of the Kishenganga/Neelum cannot be absolute. The premise underlying Paragraph 15(iii)—that Pakistan's existing uses are to be taken into account in the operation of India's Plants—remains a guiding principle (albeit not to the preclusive extent of the ambulatory approach). Paragraph 15(iii) protects Pakistan's right to a portion of the waters of the Kishenganga/Neelum throughout the year for its existing agricultural and hydro-electric uses.

⁶²⁵ Hearing Tr., (Day 5), 24 August 2012, at 77:22 to 78:1.

⁶²⁶ See Pakistan's Reply, paras. 4.52-4.57 (discussing the rainfall and snowmelt waters used for agricultural purposes).

5. The import of the Court's interpretation for the construction and operation of the KHEP

(a) India's vested right to build and operate the KHEP

437. The Court faces a difficult task: it must determine which Party has demonstrated not only that it planned its respective hydro-electric project “first,” but also that it was the first to take concrete steps toward the realization of those plans. The Court has meticulously reviewed the evidence submitted by both Parties, including internal correspondence, letters between the Parties, the records of the meetings of the Commission and environmental impact assessments.⁶²⁷ What emerges for both projects is a succession of stops and starts, of plans communicated and plans revised, of permits given but not implemented, of financing purportedly obtained and withheld, of tenders on particular project plans that are not consistent with the final design, and other vagaries. Nonetheless, a decision must be made, and having weighed the totality of the record, the Court concludes that India has a stronger claim to having coupled intent with action at the KHEP earlier than Pakistan achieved the same at the NJHEP, resulting in the former's priority in right over the latter with respect to the use of the waters of the Kishenganga/Neelum for hydro-electric power generation.
438. The Parties differ sharply as to which facts are determinative for this purpose. For Pakistan, India's plans to build a hydro-electric project in accordance with the Treaty must take account of any “planned uses” of the waters at a specific location, once Pakistan is “firmly committed.”⁶²⁸ Pakistan maintains that such a commitment occurred as early as December 1988, when India was made aware that Pakistan was engaged in planning the NJHEP.⁶²⁹ Pakistan also points to India having requested details about the NJHEP in 1989—“specifically in the context of the determination of ‘existing . . . uses’”—which Pakistan then provided in March 1990.⁶³⁰ For its part, India traces the first mention of the “Kishenganga

⁶²⁷ The Court's review resulted in consideration of some 120 of the documents offered by the Parties as evidence that it considers relevant; these are mostly found in Volumes 5 and 6 of Pakistan's Memorial and in Volumes 3A and 3B of India's Counter-Memorial.

⁶²⁸ Pakistan's Reply, para. 5.15.

⁶²⁹ Pakistan's Memorial, paras. 2.12-2.13, referring to the Pakistani Commissioner's letter to the Indian Commissioner, 22 April 1989, (Annex PK-40): “The waters of [the] Neelum (Kishenganga) River [stand] committed to [the NJHEP].” Pakistan's Reply, para. 3.32.

⁶³⁰ Pakistan's Reply, para. 3.36.

Hydroelectric Project” to a document produced in 1971,⁶³¹ which well pre-dates the initial contemplation of the NJHEP that occurred, in India’s view, in 1989.⁶³² India submits that it had taken steps to demonstrate its “firm intention” to proceed with the KHEP by no later than June 1994, when the finalized information about the KHEP’s design (as a Storage Work) was provided to Pakistan.⁶³³ Although Pakistan was only notified in 2005–2006 that the KHEP would proceed as a Run-of-River Plant, India maintains that this change was made to take account of Pakistan’s objections to the design as a Storage Work, and that the revised design remains the same in significant respects;⁶³⁴ thus, India considers this revision irrelevant in determining the point at which its firm intention to proceed was formed.

439. For the Court, however, the critical period cannot be placed in the 1980s and 1990s, as no significant steps beyond the thicket of project plans, intentions and communications occurred within those decades; indeed, from the present vantage point it is quite clear that subsequent developments and changes to the scale of the KHEP and NJHEP plans contradict many aspects of the original plans communicated to the other Party. Whatever factors are involved in determining the critical period *post hoc* and with the benefit of hindsight, this Court cannot endorse the fixing of that period based on any set of plans that, according to the established facts, are not currently under construction at Gurez or Nauseri.
440. Instead of the periods offered by either Party, the Court considers the period after the year 2000 to be the most relevant period. That is when plans and intent began to coalesce in respect of both the KHEP and NJHEP, as they are currently being constructed. The years 2004–2006 were critical for the KHEP as seen from the following chronology:

- (1) By July 2000, India’s National Hydroelectric Power Corporation (NHPC) had published a notice of tender (“International Competitive Bidding (ICB) Notice Inviting Tenders”)

⁶³¹ Hearing Tr., (Day 9), 30 August 2012, at 51:13-21, referring to Letter from the CWPC to the Under Secretary of the Indian Ministry of Irrigation and Power, 13 May 1971, (Annex IN-55); Letter from the Under Secretary of the Power Department of the Government of Jammu & Kashmir to the Indian Ministry of Irrigation and Power, 3 April 1973, (Annex IN-56).

⁶³² Hearing Tr., (Day 5), 24 August 2012, at 148:15.

⁶³³ India’s Counter-Memorial, para. 4.148.

⁶³⁴ India communicated to Pakistan at the time that “neither the axis of the dam, the location and layout of the project, nor its installed capacity or diversion works have changed. . . [nor has the] delivery of water to Bonar-Madmati Nallah” (India’s Counter-Memorial, para. 3.50, quoting Record of the 99th Meeting of the Commission, New Delhi, 30 May to 4 June 2007, (Annex PK-33)).

for the execution of the “Kishenganga Hydroelectric Project (3 x 110 [megawatts])” over the KHEP, which was then conceived as a Storage Work.⁶³⁵

- (2) By 2002, Pakistan had complained of construction at the KHEP.⁶³⁶
- (3) In November 2002, an EIA of the KHEP had been completed by India.⁶³⁷
- (4) By September 2003, a public hearing by the State Pollution Control Board had been conducted to solicit public attitudes to the KHEP project.⁶³⁸
- (5) By April 2004, India’s Ministry of Environment and Forests had provided environmental clearance to the KHEP (as originally designed).⁶³⁹
- (6) By July 2004, India’s Planning Commission had issued “in principle approval” for the KHEP.⁶⁴⁰
- (7) In November 2004 and February 2005, the Permanent Indus Commission met specifically on the subject of the KHEP and Pakistan’s objections to the project. India

⁶³⁵ See Pakistani Commissioner’s letter to the Indian Commissioner, 11 November 2000, enclosing a copy of a Notice Inviting Tenders, *The Tribune*, 27 July 2000, (Annex IN-95/PK-94).

⁶³⁶ See Pakistani Commissioner’s letter to the Indian Commissioner, 10 April 2002, (Annex PK-100), stating that Pakistan has learned that India has “started construction” and requesting that India stop construction until the matter is resolved by the Commission.

⁶³⁷ India’s Counter-Memorial, vol. 2B, Tab D, Centre for Inter-Disciplinary Studies of Mountain & Hill Environment (CISMHE), University of Delhi, “Environmental Impact Assessment (EIA) of Kishenganga H.E. Project,” November 2002.

⁶³⁸ See Indian Ministry of Power’s letter to the Government of Jammu & Kashmir, 5 May 2005, (Annex IN-72) (“During the public hearing conducted by the State Pollution Control Board at Gurez on 6.9.2003 almost all the public representatives, senior citizens and the public in general opposed the proposed construction of dam for the power project as in their opinion the varied bio-diversity along with ethnic and cultural identity of the inhabitants of the Gurez valley will be totally lost if they are made to migrate to other places.”).

⁶³⁹ Indian Ministry of Environment & Forests’ letter to the National Hydroelectric Power Corporation (NHPC), 19 April 2004, (Annex IN-103) (“The Environmental Management Plan submitted by NHPC has been examined. The Ministry of Environment and Forests hereby accords environmental clearance as per the provisions of the Environmental Impact Assessment Notification, 1994, subject to strict compliance [with] the terms and conditions as follows . . .”).

⁶⁴⁰ See Indian Ministry of Power’s letter to the Government of Jammu & Kashmir, 5 May 2005, (Annex IN-72) (“While according in-principle approval for the project in July 2004, the Planning Commission had observed that the specific per mega watt capital investment on the project is much higher than other hydel projects and on account first 5 years, 8% free power will be provided . . .”).

also updated Pakistan on the progress of works, particularly at the Bandipura site.⁶⁴¹ The Commission toured the KHEP site in November 2005.⁶⁴²

- (8) In the period up to April and May 2005, India revised the KHEP's design, obtained approval for the revised design, and brought the revised design to both India's Cabinet Committee on Economic Affairs and the State Government of Jammu and Kashmir.⁶⁴³
- (9) In March 2006, the Indian Ministry of Environment and Forests issued a clearance for the KHEP's revised design as a Run-of-River Plant.⁶⁴⁴
- (10) In April and then June of 2006, India first notified Pakistan about the reconfiguration of the KHEP and then conveyed the revised design information for the KHEP as a Run-of-River Plant.⁶⁴⁵

441. Juxtaposing the KHEP's progression with developments at the NJHEP, it is clear that the NJHEP was well behind in key aspects of planning and implementation. Approvals for the

⁶⁴¹ Record of the 92nd Meeting of the Commission, Lahore, 27-29 November 2004, para. 70, (Annex PK-28). During the 93rd meeting, India's update on the status of the various components of the KHEP included a statement that, as to the Bandipura works, "[e]xcavation for underground works (Power House Complex and adjoining reaches) is in progress. The enabling works related to HRT are also going on" and, as to the Gurez works, that the "diversion tunnel work [was] held up due to climatic reasons and would be resumed in May. The interfering activities (construction activities related to dam and power intake) are yet to be taken up." Record of the 93rd Meeting of the Commission, New Delhi, 9-13 February 2005, (Annex PK-29). Further updates on the KHEP's project were conveyed at the 94th and 96th meetings of the Commission. *See* Record of the 94th Meeting of the Commission, Lahore, 7-12 May 2005, para. 53, (Annex PK-30); Record of the 96th Meeting of the Commission, New Delhi, 1-2 June 2005, (Annex PK-31).

⁶⁴² Record of the 104th Tour of Inspection by the Commission, 7-10 November 2005, (Annex PK-37).

⁶⁴³ *See* Indian Ministry of Power's letter to the Government of Jammu & Kashmir, 5 May 2005, (Annex IN-72) ("In a meeting taken by Principal Secretary to Prime Minister on 19.4.2005, the revised proposal for implementation of Kishenganga HEP was discussed in detail and it was decided that the revised proposal may be taken to PIB/CCEA quickly after obtaining the concurrence of the State Government." Also, "I would request you to kindly consider the revised proposal and convey the concurrence of the State Government at the earliest so that the investment approval of Kishenganga HEP could be expedited.").

⁶⁴⁴ Indian Ministry of Environment and Forests' letter to the National Hydroelectric Power Corporation (NHPC), 9 March 2006, (Annex IN-104) ("It is now noted by the Ministry that NHPC propose to reduce the dam height from 77 to 37m, as a result of which the length of reservoir would get reduced from 11.2 km to 4.5 km and area of submergence would get reduced from 7.65 sq.km to 2 sq.km. Only one village would now get affected. As such this revised environment clearance letter is issued in supersession of the earlier environment clearance letter dated 19.4.2004.").

⁶⁴⁵ *See* Indian Commissioner's letter to the Pakistani Commissioner, 20 April 2006, (Annex IN-96) ("The Kishenganga Project has now been reconfigured, on the lines mentioned during the 97th meeting as a Run-of-River Hydroelectric Plant with a height of 36m and pondage of 7.6MCM . . . The information about the design of the project is under compilation and will be communicated to you shortly."); Indian Commissioner's letter to the Pakistani Commissioner, 19 June 2006, (Annex IN-97).

NJHEP from Pakistan's Water Resources and Power Development Authority (WAPDA),⁶⁴⁶ Pakistan's Economic Coordination Committee⁶⁴⁷ and the Pakistani Cabinet were not received until 2007.⁶⁴⁸ Funding was still being sought in early that year.⁶⁴⁹ And only in January 2008 was a letter of commencement issued⁶⁵⁰ with implementation apparently set to start in the second quarter of that year.⁶⁵¹

442. Thus, within the critical period of 2004–2006, India demonstrated a serious intent to move ahead with the project and took steps to make the KHEP a reality (through a combination of design, tender, financing, public consultations, environmental assessments and, crucially, national and local government approvals) of which Pakistan was aware (either through communications by India at the Commission level or through evidence that the Pakistani Commissioner had obtained independently). This suffices to convince the Court that the KHEP had progressed to a stage of firm intention to proceed before that same point was reached with respect to the NJHEP. While it is clear that there were many “bumps in the road” in the progression of the KHEP—the ineffectiveness of the Commission process in arriving at an

⁶⁴⁶ “Cabinet Approves 969MW Neelum-Jhelum hydropower project,” *Daily Times*, 13 December 2007, (Annex IN-76) (“Water and Power Development Authority (WAPDA) has already approved award of the contract to the lowest bidder i.e. CGGC-CMEC a joint venture on March 9, 2007 at the contract price of Rs 90.885 billion including foreign exchange of \$785 million. The Project Director office is established and is operational at Muzaffarabad to execute the project in the site.”); Entry for NJHEP on the website of the Pakistan Electric Power Corporation (PEPCO), (Annex IN-78) (“Construction Contract was awarded on July 07, 2007, to M/s CGGC-CMEC Consortium China for implementation of the project at a cost of Rs 90.90 billion including Rs. 46.499 Billions foreign component”); *see also* Entry for the NJHEP on the website of the Pakistani Water and Power Development Authority (WAPDA), (Annex IN-79).

⁶⁴⁷ “Cabinet Approves 969MW Neelum-Jhelum hydropower project,” *Daily Times*, 13 December 2007, (Annex IN-76) (“Economic Coordination Committee (ECC) of the cabinet had earlier approved the project in April during the current year.”).

⁶⁴⁸ *Ibid.* (“Federal cabinet on Wednesday formally approved the strategically important Neelum-Jhelum Hydropower project at a revised cost of Rs 128.4 billion with a foreign exchange component of Rs 46.5 billion. The formal approval was made in the federal cabinet meeting chaired by the caretaker Prime Minister Muhammadmian Soomro. The approval cleared the way for the long-awaited construction of the project.”).

⁶⁴⁹ *Ibid.* (“In order to arrange foreign exchange component of \$785 million the government made a presentation to Kuwait Fund management delegation on March 21, 2007 and a formal request has been sent to Economic Affairs division for a further submission to Kuwait Fund.”).

⁶⁵⁰ Entry for NJHEP on the website of the Pakistan Electric Power Corporation (PEPCO), (Annex IN-78); Entry for the NJHEP on the website of the Pakistani Water and Power Development Authority (WAPDA), (Annex IN-79).

⁶⁵¹ Ijaz Kakakhel, “Financing Neelum-Jhelum hydropower project: Kuwait Fund signs \$40.8m loan agreement with Pakistan,” *Daily Times*, 26 November 2010, (Annex IN-77) (“The project implementation started in the second quarter of 2008 and was expected to be completed by the end of 2015. However, the formal (official) completion period was 2016.”).

orderly resolution of questions in this case being particularly striking to this Court—it is clear that, by 2004–2006, the plans for the KHEP were being finalized. The same cannot be said for the NJHEP.

443. In rendering its decision on this matter, the Court acknowledges that it has the benefit of hindsight and is thus able to establish precedence for the KHEP based on both Plants having already gone through virtually the entire process of a large infrastructure project to the point of ongoing construction. When the Parties stand at an earlier phase of this process and actual construction has not yet begun, the picture will be more opaque. Should similar questions arise in the future concerning a given project or set of projects, the Treaty prescribes a formal procedure designed to bring a measure of order and certainty in the resolution of competing claims, and to questions of propriety of Plant design, *before* construction commences.⁶⁵²
444. Article IX foresees that the Parties may reach a bilateral, negotiated solution through the Commission (Art. IX(1)), or (if the Commission cannot resolve the matter) may put a matter before either a neutral expert or court of arbitration (Art. IX(2)). These procedures are designed to achieve resolution before construction of a Project commences; adherence to this process is the best way to avoid the invidious idea that the Parties are in a race to design, construct and operate a hydro-electric plant “first.” Indeed, the Court notes that strict and timely adherence to the anticipated process for the resolution of differences and disputes would likely preclude such a race from occurring, as the dispute settlement mechanism would be triggered prior to the expenditure of immense resources for the construction of a Plant.

⁶⁵² That procedure is found in Part 3 of Annexure D, and specifically in Paragraphs 9-11 thereof: Under Paragraph 9, India is under the obligation to “communicate to Pakistan, in writing” its project plans for new Run-of-River Plants, as specified in Appendix II to Annexure D. This is explicitly done “[t]o enable Pakistan to satisfy itself that the design of a Plant conforms to the criteria mentioned in Paragraph 8.” This is also the point at which objections to the construction and operation of any new inter-tributary Plant on the grounds of adverse effect to the “then existing Agricultural Use or hydro-electric use by Pakistan” ought to be made pursuant to Paragraph 15(iii) of Annexure D. Under Paragraph 10, “[w]ithin three months of the receipt by Pakistan of the information specified in Paragraph 9, Pakistan shall communicate to India, in writing, any objection that it may have with regard to the proposed design on the ground that it does not conform to the criteria mentioned in Paragraph 8.” As with Paragraph 9, this three-month period is also the time for Pakistan to lay out, in clear terms, what it considers to be its then existing agricultural and hydro-electric uses. Critically, under Paragraph 11, “[i]f a question arises as to whether or not the design of a Plant conforms to the criteria set out in Paragraph 8, then either Party may proceed to have the question resolved in accordance with the provisions of Article IX(1) and (2).” Thus, should the Parties reach an impasse regarding the existence of agricultural or hydro-electric uses by Pakistan that would require India to re-design or even halt the construction of a Plant (at least as originally proposed), either Party would be able to seek a definitive solution through the Treaty’s dispute settlement mechanism.

(b) The preservation of downstream flows

445. India's right under the Treaty to divert the waters of the Kishenganga/Neelum to operate the KHEP is subject to the constraints specified by the Treaty, including Paragraph 15(iii) of Annexure D as discussed above and, in addition, by the relevant principles of customary international law to be applied by the Court pursuant to Paragraph 29 of Annexure G when interpreting the Treaty. As discussed in the following paragraphs, both of these limitations require India to operate the KHEP in a manner that ensures a minimum flow of water in the riverbed of the Kishenganga/Neelum downstream of the Plant.
446. Accepting that the KHEP crystallized prior to the NJHEP under the critical period analysis set out above, Pakistan nonetheless retains the right to receive a minimum flow of water from India in the Kishenganga/Neelum riverbed. That right stems in part from Paragraph 15(iii) of Annexure D, which gives rise to India's right to construct and operate hydro-electric projects involving inter-tributary transfers but obliges India to operate those projects in such a way as to avoid adversely affecting Pakistan's "then existing" agricultural and hydro-electric uses.⁶⁵³ The requirement to avoid adverse effects on Pakistan's agricultural and hydro-electric uses of the waters of the Kishenganga/Neelum cannot, however, deprive India of its right to operate the KHEP—a right that vested during the critical period of 2004–2006. Both Parties' entitlements under the Treaty must be made effective so far as possible: India's right to divert water for the operation of the KHEP is tempered by Pakistan's right to hydro-electric and agricultural uses of the waters of the Western Rivers, just as Pakistan's right to these uses is tempered by India's right to divert the waters for the KHEP's operation. Any interpretation that disregards either of these rights would read the principles of Paragraph 15(iii) out of the Treaty, to one or the other Party's injury.
447. India's duty to ensure that a minimum flow reaches Pakistan also stems from the Treaty's interpretation in light of customary international law. Under Paragraph 29 of Annexure G of the Treaty,

⁶⁵³ The Court notes that it is quite possible, in view of the particular topography of the region, that the KHEP lies at the only location on the Kishenganga/Neelum where an inter-tributary transfer is economically viable (*see* India's Counter-Memorial, paras. 4.23, 4.70; Pakistan's Reply, paras. 1.4-1.10; India's Rejoinder, paras. 2.42). If this is true, the KHEP may be the only instance in which Paragraph 15(iii) becomes problematic, as any other inter-tributary transfer that may be contemplated on other tributaries of the Jhelum would result in returning waters to the Jhelum Main before crossing the Line of Control, thereby causing no adverse effect to any uses that Pakistan may have.

[e]xcept as the Parties may otherwise agree, the law to be applied by the Court shall be this Treaty and, whenever necessary for its interpretation or application, but only to the extent necessary for that purpose, the following in the order in which they are listed:

- (a) International conventions establishing rules which are expressly recognized by the Parties.
- (b) Customary international law.⁶⁵⁴

448. Well before the Treaty was negotiated, a foundational principle of customary international environmental law had already been enunciated in the *Trail Smelter* arbitration. There, the Tribunal held that

no State has the right to use or permit the use of its territory in such a manner as to cause injury by fumes in or to the territory of another or the properties or persons therein, when the case is of serious consequence and the injury is established by clear and convincing evidence.⁶⁵⁵

A broader restatement of the duty to avoid transboundary harm is embodied in Principle 21 of the 1972 Stockholm Declaration, pursuant to which States, when exploiting natural resources, must “ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.”⁶⁵⁶

449. There is no doubt that States are required under contemporary customary international law to take environmental protection into consideration when planning and developing projects that may cause injury to a bordering State. Since the time of *Trail Smelter*, a series of international conventions,⁶⁵⁷ declarations⁶⁵⁸ and judicial and arbitral decisions have addressed the need to

⁶⁵⁴ In addition to Paragraph 29 of Annexure G to the Treaty, customary rules on treaty interpretation (codified in the VCLT) require that the Court take account of relevant customary international law—including international environmental law—when interpreting the Treaty. *See* VCLT, Art. 31(3)(c) (“There shall be taken into account, together with the context: . . . (c) any relevant rules of international law applicable in the relations between the parties.”).

⁶⁵⁵ 16 April 1938 and 11 March 1941, 13 R.I.A.A. 1905, at 1965. This approach was reaffirmed in subsequent decisions including the *Legality of the Threat or Use of Nuclear Weapons*, Advisory Opinion, I.C.J. Reports 1996, p. 226, p. 242.

⁶⁵⁶ *See also* Principle 13, which, however, is phrased in more hortatory terms. Stockholm Declaration of the United Nations Conference on the Human Environment, 16 June 1972, UN Doc. A/CONF. 48/14/Rev 1, 3.

⁶⁵⁷ *See* the International Convention for the Regulation of Whaling, 2 December 1946, 161 U.N.T.S. 72; the Convention on Fishing and Conservation of Living Resources of the High Seas, 29 April 1958, 559 U.N.T.S. 285; the African Convention on the Conservation of Nature and Natural Resources, 15 September 1968, 1001 U.N.T.S. 0; the United Nations Convention on the Law of the Sea, 10 December 1982, 1833 U.N.T.S. 397; the ASEAN Agreement on the Conservation of Nature and Natural Resources (not in force), opened for signature 9 July 1985; and the Treaty on European Union, 7 February 1992, 1757 U.N.T.S. 3. The preamble of the 1994 General Agreement on Tariffs and Trade (WTO Agreement), 1867 U.N.T.S. 187, also makes reference to the objective of sustainable development.

manage natural resources in a sustainable manner. In particular, the International Court of Justice expounded upon the principle of “sustainable development” in *Gabčíkovo-Nagymaros*, referring to the “need to reconcile economic development with protection of the environment.”⁶⁵⁹

450. Applied to large-scale construction projects, the principle of sustainable development translates, as the International Court of Justice recently put it in *Pulp Mills*, into “a requirement under general international law to undertake an environmental impact assessment where there is a risk that the proposed industrial activity may have a significant adverse impact in a transboundary context, in particular, on a shared resource.” The International Court of Justice affirmed that “due diligence, and the duty of vigilance and prevention which it implies, would not be considered to have been exercised, if a party planning works liable to affect the regime of the river or the quality of its waters did not undertake an environmental impact assessment on the potential effects of such works.”⁶⁶⁰ Finally, the International Court of Justice emphasized that such duties of due diligence, vigilance and prevention continue “once operations have started and, where necessary, throughout the life of the project.”⁶⁶¹
451. Similarly, this Court recalls the acknowledgement by the Tribunal in the *Iron Rhine* arbitration of the “principle of general international law” that States have “a duty to prevent, or at least mitigate” significant harm to the environment when pursuing large-scale construction activities.⁶⁶² As the *Iron Rhine* Tribunal determined, this principle “applies not only in autonomous activities but also in activities undertaken in implementation of specific treaties,”⁶⁶³ such as, it may be said, the present Treaty.

⁶⁵⁸ The Stockholm Declaration as well as the subsequent Rio Declaration on Environment and Development provide that “environmental protection shall constitute an integral part of the development process and cannot be considered in isolation from it.” Rio Declaration on Environment and Development, 1992, UN Doc. A/CONF. 151/26/Rev 1 vol. I, 3. More recently, the Johannesburg Declaration on Sustainable Development reaffirmed these values and elaborated on the importance of “sustainable development.” World Summit on Sustainable Development (Johannesburg Summit) Report, 26 August – 4 September 2002, UN Doc. A/CONF. 199/20.

⁶⁵⁹ *Case concerning the Gabčíkovo-Nagymaros Project (Hungary/Slovakia)*, Judgment, I.C.J. Reports 1997, p. 7, p. 78.

⁶⁶⁰ *Pulp Mills on the River Uruguay (Argentina v. Uruguay)*, Judgment, I.C.J. Reports 2010, p. 14, p. 83.

⁶⁶¹ *Ibid.*, at pp. 83-84.

⁶⁶² *Arbitration Regarding the Iron Rhine (“Ijzeren Rijn”) Railway between the Kingdom of Belgium and the Kingdom of the Netherlands*, Award, 24 May 2005, PCA Award Series (2007), para. 59.

⁶⁶³ *Ibid.*

452. It is established that principles of international environmental law must be taken into account even when (unlike the present case) interpreting treaties concluded before the development of that body of law. The *Iron Rhine* Tribunal applied concepts of customary international environmental law to treaties dating back to the mid-nineteenth century, when principles of environmental protection were rarely if ever considered in international agreements and did not form any part of customary international law. Similarly, the International Court of Justice in *Gabčíkovo-Nagymaros* ruled that, whenever necessary for the application of a treaty, “new norms have to be taken into consideration, and . . . new standards given proper weight.”⁶⁶⁴ It is therefore incumbent upon this Court to interpret and apply this 1960 Treaty in light of the customary international principles for the protection of the environment in force today.

453. In this context, the Court takes note of India’s commitment to ensure a minimum environmental flow downstream of the KHEP at all times. As India’s Agent, Secretary to the Government of India’s Ministry of Water Resources, declared before this Court during the hearing on the merits:

So I would like to first assure the court that there will be a minimum environmental flow, and that will be in accordance with our laws.

Number 2: there have been questions of the quantum, how much is India going to release? The NHPC—which is building the KHEP actually—as been in discussion with the Ministry of Environment and Forests on the quantum. Of course, the Ministry of Environment and Forests would like the maximum; there is a discussion going on. But I’d like to assure the court—this is an assurance I am giving—that the minimum environmental flow would not be less than the minimum observed flow of 3.94 [cumecs] at the site.

As per the NESPAK figures which we’ve analysed, the average flow between the KHEP and [the Line of Control] is 4.1 cumecs. So even if I said 3.9 for the minimum, and I add this 4.1, at the [Line of Control] you would have sufficient flow. There would not be a dry period or any time when there is no water in the river.

I assure the honourable court that we can’t leave our territory dry; and since we can’t do that, by consequence we can’t leave any of Pakistani territory, which comes later on, dry.⁶⁶⁵

454. Similarly, the Court takes note of the statement in Pakistan’s Reply that:

India’s contention [that Pakistan is applying a double standard as between its criticism of the KHEP’s environmental flow and Pakistan’s plans for an environmental flow below the NJHEP] is incorrect because the releases downstream of NJHEP have yet to be fixed, and a further consideration of environmental impacts is now being carried through by the same

⁶⁶⁴ *Case concerning the Gabčíkovo-Nagymaros Project (Hungary/Slovakia)*, Judgment, I.C.J. Reports 1997, p. 7, p. 78.

⁶⁶⁵ Hearing Tr., (Day 9), 30 August 2012, at 115:3-25.

international team, applying the same methodology, as with respect to Pakistan's Environmental Assessment of the downstream impacts of the KHEP.⁶⁶⁶

This is an acknowledgment that hydro-electric projects (including Pakistan's projects) must be planned, built and operated with environmental sustainability in mind.

(c) The insufficiency of the data on record to determine a precise minimum downstream flow; the Court's request for further data

455. There is thus no disagreement between the Parties that the maintenance of a minimum flow downstream of the KHEP is required in response to considerations of environmental protection. The Parties differ, however, as to the quantity of water that would constitute an appropriate minimum; thus, the precise amount of flow to be preserved remains to be determined by the Court. The evidence presented by the Parties does not provide an adequate basis for such a determination, lacking sufficient data with respect to the relationship between flows and (1) power generation, (2) agricultural uses, and (3) environmental factors downstream of the KHEP below the Line of Control.⁶⁶⁷ Accordingly, the Court finds itself unable, on the basis of the information presently at its disposal, to make an informed judgment as to whether a minimum flow of 3.94 m³/s (said to correspond to the lowest recorded flow over a 30-year period), which India committed to maintain in its operation of the KHEP, is sufficient to accommodate Pakistan's right under the Treaty and customary international law to the avoidance or mitigation of environmental harm.
456. The Court therefore defers its determination of the appropriate minimum flow downstream of the KHEP to a further, Final Award, to be issued after it has had the benefit of considering further written submissions on the matter from the Parties.
457. In the Final Award, the precise rate of the minimum flow will be fixed. The Parties' use of the waters for hydro-electric and agricultural uses, and the environmental conditions, will never be static, of course; but stability and predictability in the availability of the waters of the Kishenganga/Neelum for each Party's use are vitally important for the effective utilization of

⁶⁶⁶ Pakistan's Reply, para. 4.48.

⁶⁶⁷ The Court recognizes that the Parties have provided significant data, in particular with respect to the generation of hydro-electric power and environmental impacts of the KHEP. These data, however, have been put before the Court only for scenarios in which the KHEP would be allowed to withdraw water either to the maximum possible extent, or not at all. This data analysis does not enable the Court to appreciate the effect of any potential intermediate flow.

rights accorded to each Party by the Treaty (including its incorporation of customary international environmental law).

458. The Parties are requested to provide further data concerning the impacts of a range of minimum flows to be discharged at the KHEP dam on the following:

For India:

- a) power generation at the KHEP;
- b) environmental concerns from the dam site at Gurez to the Line of Control;

For Pakistan:

- a) power generation at the NJHEP;
- b) agricultural uses of water downstream of the Line of Control to Nauseri; and
- c) environmental concerns at and downstream of the Line of Control to Nauseri.

459. In compiling these further data, the Parties are required to incorporate a sufficient range of minimum flows so as to give the Court a full picture of the sensitivity of the river system.
460. These data should be accompanied by full information on the assumptions underlying these analyses, including those for power generation and environmental concerns, and the associated uncertainty in the Parties' estimates.
461. In addition, the Court would welcome receiving more detailed information on the estimates already put before it by each Party of historical flows at the KHEP dam site, at the Line of Control and at the NJHEP dam site.⁶⁶⁸
462. Finally, the Court would also welcome provision by the Parties of any relevant legislation, regulatory pronouncements or decisions that the Governments of Pakistan and India may have

⁶⁶⁸ In the case of Pakistan, these are the daily flow data corresponding to Annexes 3, 4 and 9 of Pakistan's Memorial, vol. 3, Tab B, National Engineering Services Pakistan Limited, "Kishenganga/Neelum River: Hydrology and Impact of Kishenganga Hydroelectric Plant on Energy Generation in Pakistan," April 2011 (covering the period from 1971 to 2004). In the case of India these are daily flow estimates from the KHEP and the Line of Control for the same period. These data should be provided electronically, in Excel format.

respectively issued concerning environmental flow requirements for hydro-electric or similar projects and, in particular, the Government of India for the KHEP.⁶⁶⁹

463. The Parties are requested to provide the foregoing information to the Court by no later than 120 days from the issuance of this Partial Award (i.e., by 19 June 2013). Each Party is invited to then comment on the information submitted by the other Party no later than 60 days thereafter (i.e., by 19 August 2013). After considering these submissions, the Court will issue its Final Award setting forth its decision on this matter, and will exert its best effort to do so by no later than the end of 2013.

C. THE SECOND DISPUTE: THE PERMISSIBILITY OF RESERVOIR DEPLETION UNDER THE TREATY

1. The scope of the Second Dispute

464. In the Second Dispute placed before this Court, the Parties disagree as to whether India may, within the terms of the Treaty, periodically lower the water level in the reservoir at a Run-of-River Plant on the Western Rivers for purposes of sediment control through the procedure known as drawdown flushing.
465. As formulated by Pakistan in its Request for Arbitration and Memorial, the Court is asked to determine:

Whether under the Treaty, India may deplete or bring the reservoir level of a run-of-river Plant below Dead Storage Level (DSL) in any circumstances except in the case of unforeseen emergency?⁶⁷⁰

466. The terms of the Second Dispute could be understood to relate to the permissibility of reservoir depletion in the abstract.⁶⁷¹ The record, however, both in the Commission and before this Court,

⁶⁶⁹ In this regard, the Court recalls the Agent of India's statement at the hearing on the merits that the Indian National Hydroelectric Power Corporation (NHPC) and the Ministry of Environment and Forests had undertaken to cooperate to select an appropriate quantum for a minimum environmental flow at the KHEP. Hearing Tr., (Day 9), 30 August 2012, at 115:7-12.

⁶⁷⁰ Pakistan's Request for Arbitration, para. 4; Pakistan's Memorial, para. 1.12.

⁶⁷¹ The use of the phrase "except in case of unforeseen emergency" could also be understood to indicate a specific concern with the paragraph of Annexure E (concerning Storage Works) that provides that "[t]he Dead Storage shall not be depleted except in an unforeseen emergency." It may be asked whether this provision applies equally to Run-of-River Plants. The Parties' pleadings make clear, however, that the dispute concerns whether any provision of the Treaty prevents the depletion of the reservoirs at Run-of-River Plants on the Western Rivers below Dead Storage Level for the purpose of drawdown flushing.

indicates that Pakistan's core concern is that India's planned operation of the reservoirs at the KHEP and other, future hydro-electric projects will include depletion below Dead Storage Level for the purpose of flushing accumulated sediment from the reservoir. India, in turn, has confirmed its intention to employ drawdown flushing with respect to the KHEP.⁶⁷² Within this context, the Parties' pleadings with respect to the Second Dispute, as well as the relief requested by Pakistan, focus on the permissibility of this procedure.⁶⁷³ The question facing the Court is therefore whether the Treaty prohibits drawdown flushing by India at the KHEP and at other, future Run-of-River Plants on the Western Rivers.

467. The question presented by the Second Dispute touches upon issues of fundamental concern to both Parties. For Pakistan, because the drawdown flushing of a reservoir necessarily affects the rate and timing of the flow below the dam (increasing the flow as water is released from the reservoir and reducing the flow when the reservoir is subsequently refilled), its prohibition in the Treaty is essential to securing Pakistan's uninterrupted use of the flow of water in the downstream stretches of the Western Rivers, an objective that Pakistan considers to be one of the Treaty's vital aims.⁶⁷⁴ In addition, Pakistan is concerned about the impact of the release of sediment into the downstream river environment.⁶⁷⁵ In Pakistan's view, the restrictions on

⁶⁷² India's Counter-Memorial, Appendix 2, paras. 35-37 ("Envisaged Procedure for Carrying Out Drawdown Flushing").

⁶⁷³ See Pakistan's Memorial, para. 6.21 ("... the legality of drawdown flushing ... constitutes a central aspect of the [Second Dispute] ... the central feature of drawdown flushing is that the reservoir will be depleted (drawn down) below the Dead Storage Level"); see also the relief sought by Pakistan in relation to the Second Dispute, Pakistan's Memorial, chapter 7 ("Submissions"):

- i. a determination that under the Treaty, the water level of the reservoir of a Run-of-River Plant may not be reduced below Dead Storage Level except in the case of an unforeseen emergency, and
- ii. a determination that drawdown flushing for the purpose of sediment removal does not constitute an unforeseen emergency, and
- iii. a mandatory and permanent injunction restraining India from reducing the water level of the reservoir of the KHEP except in the event of an unforeseen emergency.

⁶⁷⁴ Hearing Tr., (Day 4), 23 August 2012, at 154:2-9; see also Pakistan's Memorial, paras. 6.2-6.3, 6.22, 6.32; Pakistan's Reply, para. 6.33.

⁶⁷⁵ See Hearing Tr., (Day 2), 21 August 2012, at 131:17 to 132:7 (Court examination of Dr Morris) ("there are two principal mechanisms by which the sediments released by flushing do create problems. One is oxygen depletion. The sediment has an oxygen demand which is depleted in the water column. Number 2, it has a function of clogging the gills of aquatic organisms, fish and whatever other organisms that require that. And I should say there is a third one: when you release sediment like this, you can get clogging of the gravels on the riverbed. Many species of fish—I'm not familiar with the species in Kishenganga per se, but typically a fish in mountain streams lays eggs in gravels and sands in the bottom, and this deposition of fine material will clog the gravels. It's a tremendous problem throughout the Pacific Northwest with the salmon, for

India's ability to fill and deplete reservoirs give concrete expression to India's obligation under Article III to "let flow" and "not permit any interference with" the waters of the Western Rivers.⁶⁷⁶ In India's view, by contrast, the availability of drawdown flushing is central to the meaningful exercise of its right under the Treaty to generate hydro-electric power on the Western Rivers. According to India, drawdown flushing is the most effective sediment management technique available for the KHEP, and the outcome of the Second Dispute will determine India's ability to achieve maximal longevity (and therefore value) for this and other hydro-electric projects.

468. These concerns are heightened by the broad scope of the Second Dispute. While the Parties' disagreement has taken shape in the context of the KHEP's design and India's intention to use drawdown flushing for that reservoir, the Second Dispute, as framed by Pakistan and argued by both Parties, is not limited to the KHEP alone: it concerns India's right to use drawdown flushing at any Run-of-River Plant that India may construct on the Western Rivers in the future.⁶⁷⁷ Accordingly, the Court's decision on the Second Dispute will apply to other Run-of-River Plants to be built, as well as to the KHEP.
469. Although it is the Court's duty to decide, as a matter of law, upon the permissibility of drawdown flushing generally under the Treaty, the Court must emphasize that its decision will have no effect on the Parties' rights and obligations in respect of the Baglihar hydro-electric project, as determined by the Neutral Expert in *Baglihar*. In the time since that determination, India has finalized the design of the project and completed construction in reliance upon the Neutral Expert's determination, which it was fully entitled to do. The Neutral Expert's determination has thus quite literally been realized in concrete at Baglihar, and it is not for this Court to revisit fundamental aspects of the design and operation of that Plant. Nor could Pakistan so ask: Annexure F expressly provides that the decision of a neutral expert shall be final and binding "in respect of the particular matter on which the decision is made."⁶⁷⁸ Indeed,

instance. And they have this impact on the composition of the bed itself."); *see generally* Hearing Tr., (Day 2), 21 August 2012, at 129:17 to 134:2 (Court examination of Dr Morris).

⁶⁷⁶ Pakistan's Memorial, para. 6.3c.

⁶⁷⁷ *See* Hearing Tr., (Day 10), 31 August 2012, at 44:9-11 (Pakistan's Closing Statement): "I stress again: the key point is that the Second [Dispute] is not about [the Kishenganga River]; it's about all the dams that India may build on the Western Rivers."

⁶⁷⁸ Treaty, Annexure F, Para. 11. Paragraph 11 provides in full: "The decision of the Neutral Expert on all matters within his competence shall be final and binding, in respect of the particular matter on which the

Pakistan itself has not sought a reversal of the *Baglihar* determination,⁶⁷⁹ nor has it asked for the dismantling of the Baglihar hydro-electric plant.⁶⁸⁰ Pakistan has made it clear that it does not purport to appeal the *Baglihar* determination.

470. The effect of a neutral expert's determination is restricted to the elements of the design and operation of the specific hydro-electric plant considered by that Expert.⁶⁸¹ Although India has urged the Court to consider the Second Dispute to have been effectively resolved by *Baglihar*,⁶⁸² the Court does not see in Annexure F any indication that the Parties intended a neutral expert's determination to have a general precedential value beyond the scope of the particular matter before him. *Baglihar* is binding for the Parties in relation to the Baglihar project; the present decision, by contrast, is binding in respect of the general question presented in these proceedings.

471. As India has objected to the admissibility of the Second Dispute, the Court will first address India's objections.

2. The admissibility of the Second Dispute

472. The Court begins its analysis of India's objection to the admissibility of the Second Dispute by reference to Article IX of the Treaty, which provides for the settlement of differences and disputes arising in relation to the Treaty as follows:

- (1) Any question which arises between the Parties concerning the interpretation or application of this Treaty or the existence of any fact which, if established, might constitute a breach of this Treaty shall first be examined by the Commission, which will endeavour to resolve the question by agreement.
- (2) If the Commission does not reach agreement on any of the questions mentioned in Paragraph (1), then a difference will be deemed to have arisen, which shall be dealt with as follows:

decision is made, upon the Parties and upon any Court of Arbitration established under the provisions of Article IX(5)."

⁶⁷⁹ Pakistan's Memorial, para. 6.24; Pakistan's Reply, para. 6.5. Pakistan also acknowledges that the *Baglihar* Neutral Expert's competence "is not a matter for this Court to decide." Pakistan's Memorial, para. 6.28.

⁶⁸⁰ See the relief sought by Pakistan at note 673 above.

⁶⁸¹ Treaty, Annexure F, Para. 11.

⁶⁸² As characterized by India, the *Baglihar* determination is not legally binding on this Court—in India's words, "reliance is not sought as binding precedent"—but an "authoritative interpretation" of the question presented here that "should be respected by the Parties in a way that would eliminate repetitive examination of the same issue." India's Rejoinder, para. 4.44.

- (a) Any difference which, in the opinion of either Commissioner, falls within the provisions of Part 1 of Annexure F shall, at the request of either Commissioner, be dealt with by a Neutral Expert in accordance with the provisions of Part 2 of Annexure F;
- (b) If the difference does not come within the provisions of Paragraph (2) (a), or if a Neutral Expert, in accordance with the provisions of Paragraph 7 of Annexure F, has informed the Commission that, in his opinion, the difference, or a part thereof, should be treated as a dispute, then a dispute will be deemed to have arisen which shall be settled in accordance with the provisions of Paragraphs (3), (4) and (5):

473. The purpose of Article IX is to provide a comprehensive framework for the resolution of disagreements between the Parties arising from the Treaty, either by negotiation (both within the Commission and at the inter-governmental level) or by submitting disagreements to one of two forms of third-party settlement. In this respect, the Court recalls the importance placed in the Preamble of the Treaty on the need to make “provision for the settlement, in a cooperative spirit, of all such questions as may hereafter arise in regard to the interpretation or application of the provisions agreed upon herein.”⁶⁸³

474. Under Article IX, certain technical differences between the Parties, identified in a defined list in Annexure F of the Treaty, may be referred to a neutral expert, who must be a highly qualified engineer. In general, such technical questions relate either to the application of the Treaty to particular factual circumstances or to the compliance of individual projects with the terms of the Treaty. A matter may also become a “dispute” as defined in Article IX, in which case it may be referred to a court of arbitration, unless it is resolved at the inter-governmental level. Once appointed or constituted, neutral experts and courts of arbitration are both empowered to decide

⁶⁸³ Treaty, Preamble.

upon their own competence, the former pursuant to Paragraph 7 of Annexure F⁶⁸⁴ and the latter pursuant to Paragraph 16 of Annexure G.⁶⁸⁵

475. As set forth above,⁶⁸⁶ India raises two objections to the admissibility of the Second Dispute. First, India submits that, except when the Commissioners are in agreement to pursue an alternative course, the Treaty requires a neutral expert to make the initial determination of whether a matter arising between the Parties is a technical difference to be referred to a neutral expert or a dispute to be referred to a court of arbitration, and that Pakistan did not request the appointment of such a neutral expert in this instance. Second, India submits that the subject-matter of the Second Dispute is objectively among the questions consigned to a neutral expert by the list in Annexure F and, moreover, that Pakistan has itself expressed the intention to submit the same issue to a neutral expert. The Court will examine each objection to the admissibility of the Second Dispute in turn.

(a) Whether Pakistan has complied with the procedure of Article IX of the Treaty

476. The Parties' disagreement on the procedure to be followed hinges on the interpretation of Article IX(2)(a), which establishes the circumstances in which a neutral expert is authorized to resolve a "difference" between the Parties. In contrast to that provision, the conditions for the establishment of a court of arbitration are expressed largely in the negative. Except where a neutral expert decides that a matter should instead be referred to a court of arbitration, a difference is deemed to be a "dispute" only if it has not been referred to a neutral expert under

⁶⁸⁴ Paragraph 7 of Annexure F provides as follows:

Should the Commission be unable to agree that any particular difference falls within Part 1 of this Annexure, the Neutral Expert shall, after hearing both Parties, decide whether or not it so falls. Should he decide that the difference so falls, he shall proceed to render a decision on the merits; should he decide otherwise, he shall inform the Commission that, in his opinion, the difference should be treated as a dispute. Should the Neutral Expert decide that only a part of the difference so falls, he shall, at his discretion, either:

- (a) proceed to render a decision on the part which so falls, and inform the Commission that, in his opinion, the part which does not so fall should be treated as a dispute, or
- (b) inform the Commission that, in his opinion, the entire difference should be treated as a dispute.

⁶⁸⁵ Paragraph 16 of Annexure G provides as follows:

Subject to the provisions of this Treaty and except as the Parties may otherwise agree, the Court shall decide all questions relating to its competence and shall determine its procedure. . .

⁶⁸⁶ See paras. 269-287 of this Partial Award.

the provisions of Article IX(2)(a). In other words, to establish whether it is properly seized of the Second Dispute, the Court must determine whether it was incumbent on either the Indian or the Pakistani Commissioner to refer the matter to a neutral expert.

477. Under Article IX(2)(a), the respective Commissioners exercise two distinct functions: (1) a Commissioner may have an opinion as to whether a difference falls among those that may be referred to a neutral expert; and (2) a Commissioner may request that a difference be referred to such an expert. Viewed in terms of the former function, a Commissioner's opinion as to the proper treatment of the difference can be read to create a procedural requirement: a difference must be referred to a neutral expert if "in the opinion of either Commissioner" it falls within the relevant portion of Annexure F. Alternatively, and viewed in terms of the Commissioners' latter function, the Commissioner's request could be read to act only as a triggering mechanism: a difference that is objectively within the enumerated list shall be referred to a neutral expert "at the request of either Commissioner." The two roles potentially played by these provisions can be seen even more clearly in the 9 December 1959 draft of the Treaty, in which the phrases that now make up Article IX(2)(a) were expressed as successive paragraphs within then-draft Article IX.⁶⁸⁷ In making their arguments, however, the Parties have emphasized only the aspects of Article IX(2)(a) that align with the role they respectively ascribe to it.

478. In the Court's view, the conjunction within Article IX(2)(a) of both references manifests the Parties' intention for the Commissioners to exercise a dual role under that Article, both as the initiators of the neutral expert process and a part of a mechanism that requires recourse to a neutral expert in certain circumstances. Article IX(2)(a) thus requires that a difference be referred to a neutral expert if either Commissioner believes that it relates to one of the identified technical matters and prefers that it be resolved by a neutral expert. This requirement only

⁶⁸⁷ Draft Article IX as at 9 December 1959 provided as follows:

(2) If the Commission does not reach agreement, then a difference will be deemed to have arisen, and it shall be dealt with as follows:

(a) any difference which, in the opinion of either Commissioner, relates to one or more of the subjects specified in Annexure F shall be dealt with as provided in Paragraph (3) of this Article;

[. . .]

(3) A difference to be dealt with under this Paragraph shall, at the request of either Commissioner, be settled in accordance with the following provisions:-

[. . .]

becomes effective, however, if a request for the appointment of a neutral expert is actually made. It is insufficient for a Commissioner merely to express the view that a difference would, at some point, be an appropriate matter for a neutral expert.

479. For the Court, this is the natural consequence of the combination, within a single sentence, of the two elements of Article IX(2)(a), and is the only interpretation to give full effect to the words of the Article. The phrase “in the opinion of either Commissioner” serves to guarantee either Party’s ability to empower a neutral expert in respect of the many critical technical questions identified in Annexure F. Under Article IX(2)(a), a disagreement regarding the competence of a neutral expert is not a hurdle to appointment; any objection will simply be resolved by the Expert himself. At the same time, the requirement of an actual request is necessary, in the Court’s view, to avoid the procedural impasse that could arise, for example, under the formulation recalled in the December 1959 draft: a Commissioner could express the view that a difference fell within Annexure F, thereby unequivocally foreclosing access to a court of arbitration, and yet decline to request a neutral expert to resolve the difference. Such a “pathological clause” (to use the parlance of international arbitration) was commendably avoided in the final version of Article IX.
480. It is undisputed that neither the Indian nor the Pakistani Commissioner requested the appointment of a neutral expert in respect of the subject-matter of the Second Dispute.⁶⁸⁸ That suffices to dispense with India’s first objection to admissibility. The Court also considers it relevant, however, to note that at no point prior to the commencement of these proceedings did the Indian Commissioner ever express the view that the Second Dispute—nor indeed any of the six questions raised by Pakistan—constituted a difference within the competence of a neutral expert. On the contrary, a review of the records of the 100th, 101st, and 103rd Commission meetings reveals that India variously advanced the positions that the “issues” raised by Pakistan could be the subject of further discussion within the Commission;⁶⁸⁹ that “there can be no differences as the design of the KHEP is consistent with the provisions of the treaty”;⁶⁹⁰ and that, insofar as depletion below Dead Storage Level is a general issue and not specifically

⁶⁸⁸ The Court notes that a Commissioner’s request must be made through the procedure set out in Paragraph 5(c) of Annexure F of the Treaty. Where no joint appointment is possible, such a request takes the form of a letter from one of the Parties to the World Bank (in default of agreement between the Parties on the selection of another appointing authority), requesting the appointment of a neutral expert. *See* Hearing Tr., (Day 9), 30 August 2012, at 111:14 to 113:4.

⁶⁸⁹ Record of the 100th Meeting of the Commission, Lahore, 31 May to 4 June 2008, (Annex PK-34), p. 19.

⁶⁹⁰ Record of the 101st Meeting of the Commission, New Delhi, 25-28 July 2008, (Annex PK-35), p. 11.

related to the KHEP, “there is no scope for considering that any difference has arisen.”⁶⁹¹ With respect to whether the permissibility of depletion below Dead Storage Level fell within the competence of a neutral expert, however, the Indian Commissioner was consistently silent.

481. In light of this record, sustaining the position India has advanced in these proceedings would require the Court to accept either (1) that the provision for a neutral expert to be appointed where a Commissioner considers such an expert competent operates, in fact, to disable any other procedure (such as resort to a court of arbitration) in the absence of express agreement within the Commission, or (2) that India’s current embrace of the neutral expert process suffices to disempower the present Court. In the Court’s view, the first interpretation is not sustainable. As confirmed by the Preamble of the Treaty, the purpose of Article IX is to provide for the settlement, “in a cooperative spirit,” of differences and disputes through the various specified procedures. In keeping with that goal, Article IX(2)(a) ensures the appointment of a neutral expert where a Party actually requests the appointment of the same. It does not serve to impose—for its own sake—an additional procedural hurdle to access to a court of arbitration. Nor can the Court accept that India’s current position in these proceedings, to the effect that the Second Dispute is a matter for a neutral expert, would be relevant under Article IX(2)(a)—even if India were now to request the appointment of such an expert. The Court considers that, having consistently maintained in the Commission that no difference between the Parties existed, India cannot now assert that the Second Dispute is, in fact, a difference after all.

482. In the absence of any indication by India during the key period prior to the commencement of these proceedings that the subject-matter of the Second Dispute was a matter for a neutral expert, and of any request—by either Party—for the appointment of such an Expert, the Court dismisses India’s first objection to the admissibility of the Second Dispute.

(b) Whether the subject matter of the Second Dispute can properly be heard by the Court

483. In its second objection to admissibility, India submits that the Second Dispute involves “highly technical issues of a kind prescribed in the Treaty to be dealt with by a Neutral Expert.”⁶⁹² In approaching India’s objection, the Court will first examine its underlying premise—namely,

⁶⁹¹ *Ibid.*, p. 14.

⁶⁹² India’s Rejoinder, para. 4.41.

that a technical question listed within Part 1 of Annexure F *must* be submitted to a neutral expert.

484. In the Court’s view, nothing in the Treaty requires that a technical question listed in Part 1 of Annexure F be decided by a neutral expert rather than a court of arbitration—*except* where a Party so requests (and then only if the neutral expert considers himself competent). With the exception of Article IX(2)(a), which the Court has considered and discussed in the context of India’s first objection, recourse to a neutral expert is expressed throughout the Treaty in permissive—not mandatory—terms. Paragraph 1 of Annexure F, which sets forth the questions for which a neutral expert is competent, states that a “Commissioner *may* . . . refer to a Neutral Expert any of the following questions.”⁶⁹³ But nowhere does the Treaty stipulate that only a neutral expert may consider such matters. Instead, Paragraph 2 of Annexure F expressly limits the competence of a neutral expert over technical questions that are joined with a claim for financial compensation,⁶⁹⁴ while Paragraph 13 requires that any matter not within his competence that may arise from a neutral expert’s decision be resolved as a dispute under Article IX.⁶⁹⁵ It is therefore apparent that the Treaty contemplates that technical matters can be dealt with by mechanisms other than that of the neutral expert.
485. Similarly, the Court can identify no Treaty provision that would bar it from considering a technical question, unless a Party had in fact requested the appointment of a neutral expert. Article IX(2)(b), establishing the circumstances in which a “difference” will be deemed a “dispute,” operates by reference to the provision preceding it and the existence of a request for the appointment of an expert—and not by reference to Part 1 of Annexure F. Had the Parties so desired, the establishment of a Court could readily have been conditioned on a purely objective test of whether a dispute fell outside the list of identified technical questions; yet the Treaty

⁶⁹³ Treaty, Annexure F, para. 1 (emphasis added).

⁶⁹⁴ Paragraph 2 of Annexure F provides as follows:

If a claim for financial compensation is raised with respect to any question specified in Paragraph 1, that question shall not be referred to a Neutral Expert unless the two Commissioners are agreed that it should be so referred.

⁶⁹⁵ Paragraph 13 of Annexure F provides as follows:

Without prejudice to the finality of the Neutral Expert’s decision, if any question (including a claim to financial compensation) which is not within the competence of a Neutral Expert should arise out of his decision, that question shall, if it cannot be resolved by agreement be settled in accordance with the provisions of Article IX (3), (4) and (5).

does not adopt this approach.⁶⁹⁶ Similarly, whereas Annexure F includes Paragraph 7 (directing a neutral expert to evaluate his competence against the list of technical questions), no comparable provision is found in Annexure G. The Court is not required to conduct an analysis of its competence or, potentially, to inform the Commission that a dispute involving technical matters should, in fact, be referred to a neutral expert.

486. The very composition of a court of arbitration also points to its competence in technical matters. In general, the skills or qualifications required of the members of a commission or tribunal represent a probative indication of the role the Parties intended that body to perform.⁶⁹⁷ Here, one of the Court's umpires is required to be a "highly qualified engineer," and, indeed, nothing would stop the Parties from appointing engineers as their Party-appointed arbitrators or as the Chairman of the Court.⁶⁹⁸
487. In sum, the Court concludes that, although a neutral expert is competent only with respect to the technical questions identified in Annexure F, a duly constituted court of arbitration can consider any question "concerning the interpretation or application of [the] Treaty or the existence of any fact which, if established, might constitute a breach of this Treaty."⁶⁹⁹ Accordingly, the Court considers that no dispute brought before a court of arbitration could be rendered inadmissible merely on the grounds that it involved a technical question.
488. The Court will now examine whether any further issue of admissibility arises from India's assertion that Pakistan has committed itself to submit the Second Dispute to a neutral expert. As the Court understands it, the significance of Pakistan's 11 March 2009 Letter and its pronounced intention to submit the question of orifice spillways at the KHEP to a neutral expert⁷⁰⁰ is two-fold. Insofar as the Second Dispute may involve the same question, the

⁶⁹⁶ The Court also notes that many of the provisions of Annexures D and E of the Treaty, including those relating to questions of the design of hydro-electric and storage facilities that are unquestionably within the list of questions in Part 1 of Annexure F, provide for disputes to be resolved "in accordance with the provisions of Article IX (1) and (2)." See Treaty, Annexure D, Paras. 7, 11, 21; Treaty, Annexure E, Paras. 6, 14, 16, 25. In the Court's view, this anticipates the possibility that such questions could be addressed through any of the modes of settlement contained in Article IX, rather than pursuant only to Article IX(2)(a).

⁶⁹⁷ See, e.g., *Abyei Arbitration (The Government of Sudan/The People's Liberation Army/Movement)*, Final Award, 22 July 2009, *PCA Award Series* (2012), para. 468 ("The skill set of the Experts appointed to the [Abyei Boundary Commission] is also an important indicator of the procedural expectations of the Parties.").

⁶⁹⁸ Annexure G of the Treaty imposes no qualifications on the individuals who may be appointed by a Party as arbitrator. See Treaty, Annexure G, Paras. 4(a) and 6.

⁶⁹⁹ Treaty, Art. IX(1).

⁷⁰⁰ Pakistan's 11 March 2009 Letter formulated the question of orifice spillways as follows:

11 March 2009 Letter could arguably have triggered Article IX(2)(a) and committed the Parties to refer the difference to a neutral expert. In the Court's view, however, only an actual request for the appointment of an expert would activate the neutral expert process and preclude such a difference from submission to a court of arbitration.⁷⁰¹ Alternatively, the 11 March 2009 Letter and Pakistan's consideration that spillway design and sediment control are technical matters appropriate for a neutral expert could be seen as evidence that the Second Dispute is in fact technical in nature. But this would not alter the Court's view that the presence of potentially technical issues does not affect the admissibility of the Second Dispute.

489. For these reasons, no issue of admissibility follows from Pakistan's 11 March 2009 Letter. The Court nevertheless wishes to emphasize that, in its view, the difference concerning the permissibility of low-level orifice spillways that Pakistan has proposed to refer to a neutral expert is not identical with the Second Dispute now put before the Court. The former concerns whether the orifice spillway outlets contemplated for the KHEP are necessary for sediment control and are "of the minimum size and located at the highest level, consistent with sound and economical design and with satisfactory operation of the works."⁷⁰² The Second Dispute, by contrast, concerns the permissible modes of operation of low-level outlets generally and, in particular, whether India may employ drawdown flushing for sediment control. These are certainly related questions—as Pakistan itself has accepted before the Commission⁷⁰³—and the Court recalls in this regard its observations, in its analysis on the First Dispute, on the interlaced nature of design and operation.⁷⁰⁴ Indeed, in the Court's view, it is not possible to evaluate

Pakistan is of the considered view that the orifice spillway provided in the current design of the [KHEP] constitutes an outlet below Dead Storage Level which is not in accordance with the criteria contained in Paragraph 8(d) of Annexure D to the Treaty. India does not agree with Pakistan's position.

⁷⁰¹ The Court notes that Paragraph 5 of Annexure F distinguishes between the notice of intention to submit a difference to a neutral expert (Para. 5(a)), specifying the difference and how it falls within the neutral expert's competence under Annexure F, and the request for the appointment of a neutral expert (Para. 5(c)). In the Court's view, Pakistan's 11 March 2009 Letter is a notification under Paragraph 5(a). For the Court, however, an actual request for the appointment of an Expert under Paragraph 5(c) would be required to commit the Parties under Article IX(2)(a) to the neutral expert process.

⁷⁰² Treaty, Annexure D, Para. 8(d).

⁷⁰³ Record of the 101st Meeting of the Commission, New Delhi, 25-28 July 2008, (Annex PK-35), p. 13 ("[I]t was stated by the PCIW [Pakistan Commissioner for Indus Waters] that while the issue was general in nature, it arose directly out of the design of KGHP [KHEP] and its discussion in the previous meetings and correspondence of the parties. PCIW noted specifically that the discussion with respect to sediment control and spillway design under Paragraphs 8(d) and 8(e) of Annexure D would not be meaningful unless the legality of drawdown flushing was first determined.").

⁷⁰⁴ See paras. 407-409 of the Final Award.

whether the inclusion of a particular type of outlet is necessary, or whether such outlets are of an appropriate size and location, without first knowing how (or even whether) the Treaty anticipates that such outlets could actually be operated.

490. It does not follow, however, that the two questions are a “single composite issue” that must be decided in a single forum, much less that the antecedent legal question of permissible operation becomes subsumed within questions relating to the design of a particular project. As the Court understands it, Pakistan has not objected to drawdown flushing on the grounds that it is technically unfeasible at the KHEP (or elsewhere); rather, Pakistan’s position is that, irrespective of its technical merits or demerits, drawdown flushing is precluded by the Treaty. This is a legal question and, in the Court’s view, not an indispensable part of the question of “whether or not the design of a Plant conforms to the criteria set out in Paragraph 8,” for which a neutral expert would be competent. The Court accepts, of course, that such an expert may have to interpret the Treaty in the process of rendering a determination on the matters put before him. But where a legal issue (such as the permissibility of reservoir depletion) is contested and does not fall within a question identified for the neutral expert, the Court considers that it would be incumbent on such an expert to refer the matter back to the Commission to be handled as a dispute.
491. For the foregoing reasons, India’s second objection to admissibility cannot be upheld. The Court holds that the Second Dispute is admissible and will proceed to consider the merits.

3. The permissibility of drawdown flushing

492. To resolve the Second Dispute, the Court must determine whether the Treaty permits drawdown flushing for sediment control at Indian Run-of-River Plants located on the Western Rivers. As detailed above,⁷⁰⁵ Pakistan contends that an express prohibition on the depletion of reservoirs—which would effectively render drawdown flushing impossible—is incorporated by reference from Annexure E, which regulates the operation of Storage Works. Pakistan further submits that, within Annexure D itself, the combined effect of: (1) the definition of Dead Storage; (2) the restrictions on the low-level outlets that effective flushing would require; and (3) the limits imposed on the release of water below a dam, operates to prohibit drawdown flushing. Conversely, India contends that not only do these provisions not prohibit the use of

⁷⁰⁵ See paras. 291-337 of this Partial Award.

drawdown flushing, but that the Treaty was purposely drafted with a flexible state-of-the-art principle to take full advantage of advances in technical knowledge, including in sediment control.

493. The Court will begin by considering the processes available for the control of sediment in hydro-electric installations. It will then turn to the background to the Treaty and the scope of India's right to develop storage and generate hydro-electric power on the Western Rivers. Thereafter, the Court will examine the specific Treaty provisions invoked by the Parties for and against the permissibility of drawdown flushing, as well as the need for such flushing at the KHEP.
494. The KHEP is a Run-of-River Plant and the question posed to the Court by Pakistan concerns the permissibility of reservoir depletion only for Run-of-River Plants. Indeed, despite assertions on several occasions that the KHEP maintains the features of a Storage Work,⁷⁰⁶ the Court does not consider that the nature of India's project is seriously in dispute between the Parties. Pakistan has consistently described—and objected to—the KHEP by reference to Annexure D of the Treaty and, for its part, the Court considers that Pakistan's description of the KHEP is essentially correct: the KHEP employs a high dam and thus impounds a significantly larger volume of water than many run-of-river installations; it also utilizes an intake design more commonly seen in storage reservoirs. Nevertheless, because the Treaty defines a Run-of-River Plant solely by reference to the volume of storage designed to be used in the generation of power,⁷⁰⁷ the total volume of storage behind the dam is not relevant in the classification of the works. In any event, the dispute presented to the Court is not limited to sediment control at the KHEP; rather, it concerns the permissibility generally of reservoir depletion at any future Run-of-River Plant on the Western Rivers. Accordingly, in the following analysis, the Court will review the question in terms of Annexure D to the Treaty, which governs the design, construction and operation of new Run-of-River Plants on the Western Rivers.

⁷⁰⁶ See, e.g., Pakistan's Reply, paras. 6.27-6.31.

⁷⁰⁷ See para. 383 of this Partial Award and the accompanying footnotes. For the purposes of the Treaty a "Run-of-River Plant" is any Plant that is not designed to generate power from stored water beyond the volume expressly permitted to be stored and utilized as "Pondage." The potential presence of even large volumes of Dead Storage below the Pondage is irrelevant to this definition, provided that such storage cannot be used to generate electricity.

(a) Reservoir sedimentation and sediment control

495. Although ultimately legal in nature, the Second Dispute as presented by the Parties involves extensive reference to the processes of sedimentation and sediment management, the comparative effectiveness of different approaches and the environmental impact of sediment released from reservoirs. The resolution of the Second Dispute requires an understanding of how sediment is deposited in reservoirs and the techniques that are available to control its accumulation. Accordingly, before turning to the Treaty provisions relevant to this subject, it is appropriate to review, in general terms, the behaviour of sediment in rivers and reservoirs, as presented by the experts of both Parties.⁷⁰⁸
496. Sediment is an element of any watercourse or river system and enters the water as a result of erosion within the watershed of the river in question, as well as from the banks and bed of the river itself. Quantities of sediment can vary dramatically between river systems as a result of differences in the geology, climate, and vegetation of the catchment area, as well as human activities such as agriculture. Within a particular river system, the quantities of sediment entering the water will also vary substantially over time as a result of seasonal factors such as snowmelt and monsoon rains, as well as discrete events such as earthquakes and landslides that may push large quantities of soil into the water. In many rivers, peak sediment loads may be many times the average concentration, and in extreme cases, quantities of sediment greater than the entire average annual load may enter a river within the space of a few days.

⁷⁰⁸ The following discussion is drawn from the testimony of the Parties' experts as well as the following sources in the record: ICOLD, Bulletin 115, "Dealing with reservoir sedimentation," 1999, (Annex IN-TX-1); Alessandro Palmieri, *Sustainability of Dams – Reservoir Sedimentation Management and Safety Implications* (World Bank, 1998), (Annex IN-TX-2); Yang Xiaoqing, "Manual on Sediment Management and Measurement," World Meteorological Organization Operational Hydrology Report No. 47, WMO-No. 948, (2003), (Annex IN-TX-3); Durga Prasad Sangroula, "Sediment Management for Sustainability of Storage Projects in Himalayas: A Case Study of the Kulekhani Reservoir in Nepal," International Conference on Small Hydropower: Hydro Sri Lanka, October 2007, (Annex IN-TX-5); Izhar-ul-Haq & S. Tanveer Abbas, "Sedimentation of Tarbela & Mangla Reservoirs," Paper No. 659, Pakistan Engineering Congress, 70th Annual Session Proceedings, 2006, (Annex IN-TX-6); W.R. White, "World Water: Resources, Usage and the Role of Man-Made Reservoirs," March 2010, (Annex IN-TX-7); W. Rodney White, "Flushing of Sediments from Reservoirs," Contributing Paper to the World Commission on Dams, (Annex IN-TX-9); E. Atkinson, *The Feasibility of Flushing Sediment from Reservoirs*, Report OD137, November 1996, (Annex IN-TX-10); Gregory L. Morris and Jiahua Fan, *Reservoir Sedimentation Handbook: Design and Management of Reservoirs, Dams, and Watersheds for Sustainable Use*, Electronic version 1.01, September 2009, (Annex IN-135); Gregory L. Morris, "Reservoir Sedimentation and Sustainable Development in India: Problem Scope and Remedial Strategies," Proceedings of the 6th International Symposium on Reservoir Sedimentation, 1995, (Annex IN-137).

497. Once in the water, sediment travels progressively downstream, either along the river bottom in the case of coarser sands and gravel (or even larger rocks and boulders during extreme floods), or in suspension in the case of finer particles. The capacity of a river to transport sediment is directly related to both the amount of sediment entering the river system and to its flow. For coarser sands and gravel from the riverbed, the greater the velocity of the water, the more sediment will be put into motion by the river's hydraulic energy. Quantities of sediment in excess of a river's transport capacity will be deposited along the river bottom and banks; such concentrations may subsequently be eroded and transported downstream when the transport capacity of the river increases.
498. Because the capacity of a river to transport sediment is directly linked to the velocity of the flow, it will vary over the reach of a river. In particular, any body of still water, such as a pool, lake, or reservoir will have the effect of slowing the flow and reducing its transport capacity, thereby causing suspended sediment to settle to the bottom. Coarse particles will typically be deposited at the upstream end where the flow first enters a reservoir, while finer sediments will settle further into the reservoir as the dispersal of the incoming water progressively reduces its flow. As a result of these dynamics, sedimentation is a concern at any reservoir where the long-term maintenance of a significant storage volume is an objective. Simply put, any reservoir will eventually fill with sediment, reducing its utility and eventually rendering it inoperable if this process is left uncontrolled.
499. In broad terms, the accumulation of sediment in a reservoir can be controlled by reducing the quantity of sediment entering the reservoir, by passing sediment loads through the reservoir without allowing significant quantities to settle out of suspension, or by periodically removing accumulated sediment after it has been allowed to deposit in the reservoir. Each approach has advantages and limitations and may be either more or less effective in the context of particular watersheds and particular reservoir sites. A combination of approaches is often the most effective method of managing sediment.
500. Reducing the volume of sediment entering a reservoir is typically attempted through efforts to control erosion in the watershed upstream of the reservoir, generally by reducing agricultural run-off and by planting soil-retaining vegetation. Erosion control, however, has shown limited effectiveness in reducing sediment concentrations, for example over large watersheds, in tectonically unstable areas and on rivers with high variability in annual peak flows. Alternatively, sediment can be prevented from entering a reservoir by constructing a bypass channel, such that heavy sediment concentrations are routed around the reservoir, or by locating

a reservoir off the main channel of the river, permitting only relatively clear water to be drawn into the reservoir and stored. Such reservoir designs, however, require a particular topography in the area surrounding the planned reservoir and may only be feasible at certain sites.

501. Passing sediment through a reservoir without permitting its deposition is typically carried out through the process known as sluicing. During peak sediment loads, the incoming flow (and its sediment) is allowed to pass freely through the reservoir, thus minimizing the retention of such silt-laden water. The water level of the reservoir may also be partially drawn down to increase the velocity of the flow through the reservoir and maintain its corresponding capacity to transport sediment. Additionally, in certain reservoirs, a highly concentrated flow of sediment into the reservoir may form what is known as a density or turbidity current, in which the flow of sediment-laden water maintains its concentration and velocity while travelling along the bottom of the reservoir. Provided that the density current reaches the dam without significant dilution and that appropriate outlets are available, the sediment in a density current may be vented or sluiced downstream without any need for drawdown. In either case, because sluicing delivers sediment downstream at the same time and in the same concentrations that would naturally occur, its environmental impact is generally limited.
502. Finally, the accumulation of sediment in a reservoir may be controlled by removing such sediment after it has been allowed to deposit. Although this may be done mechanically, through dredging or siphoning, the limits on the volumes of sediment that can be removed by such techniques is such that sediment removal is typically approached in terms of flushing—the process at issue in these proceedings—in which the river flow itself is used to remove accumulated sediment. In a flushing operation, sediment deposits are eroded and expelled by the flow of water through the reservoir, typically by drawing the water level in the reservoir down to a level at (or near) the reservoir bottom. Drawn down to such an extent, the river is largely restored to its natural flow velocity, which maximizes the capacity of the water to erode and transport deposited sediment. Although both sluicing and flushing operations may involve reservoir drawdown and will operate more efficiently at lower water levels, the extent of the required drawdown is typically greater for flushing operations; the velocity through the reservoir required to scour accumulated sediment is greater than that required to maintain the suspension of sediment in the incoming flow. Although flushing may be attempted with only partial depletion of a reservoir, this technique is not as efficient as flushing after a complete drawdown and—in light of the need for frequent repetition—is not commonly used. The effects of flushing without any drawdown of the reservoir are generally limited to a narrow cone in the

immediate vicinity of the outlet and such an approach is typically used only to clear the area surrounding the intake of a hydro-electric plant.⁷⁰⁹ Considering the heavy concentrations of sediment released in flushing, it may have significant environmental impacts on the water quality and other aspects of the downstream reaches of the river, particularly in the area immediately below the dam.

(b) The context of the Treaty with respect to drawdown flushing

503. The permissibility of depletion below Dead Storage Level is regulated explicitly by specific provisions in Annexure D (and, through incorporation by reference, Annexure E). These provisions are, however, to be interpreted within the context of the Treaty as a whole—in particular, against the background of permissible uses and the allocation of rights on the Western Rivers. The Court will begin its analysis of the Treaty with a number of contextual aspects that bear upon all of the specific provisions identified by the Parties in respect of the question of reservoir depletion.
504. First, one of the primary objectives of the Treaty is to limit the storage of water by India on the Western Rivers (and, correspondingly, to prohibit entirely the storage of water by Pakistan on the upper reaches of the Eastern Rivers). Annexure E to the Treaty strictly limits the volume of General Storage, Power Storage, and Flood Storage that India may develop on each of the Western Rivers.⁷¹⁰ For new Run-of-River Plants, Annexure D likewise restricts the permissible volume of pondage, and pegs this limit to power generation at the *minimum* mean discharge calculated at the site.⁷¹¹ 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.⁷¹² The outcome was significant in that it achieved a careful balance between the Parties’ respective negotiating positions, allowing India hydro-electric use

⁷⁰⁹ ICOLD, Bulletin 115, “Dealing with reservoir sedimentation,” 1999, (Annex IN-TX-1), p. 49.

⁷¹⁰ Treaty, Annexure E, Para. 7.

⁷¹¹ Treaty, Annexure D, Paras. 2(i), 8(c).

⁷¹² See, e.g., Note to Files from W.A.B. Iliff, 19 April 1960, (Annex IN-50) (“After Mr Gulhati and Mr Mueenuddin had handed me their respective figures for . . . the amount of storage which India might be permitted to build on the Western Rivers, I informed each of them in a joint meeting that the gap between the positions of the two sides was so wide that there was no possible hope that the Bank could bring them together by a ‘good offices’ technique. . . . I went on to request that each of them should ask his Government to reconsider their positions and to present to the Bank . . . a revised figure moving in the direction of closing the gap.”).

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.

505. In contrast, Dead Storage is the only category of storage, under either Annexure D or E, that is unrestricted in volume. India may include Dead Storage in the design of any Run-of-River Plant or Storage Work and may provide for Dead Storage of any capacity. This fact is consistent with the other restrictions on storage on the Western Rivers only if Dead Storage is somehow qualitatively different and was understood to be truly “dead”—an area to be filled once, and not thereafter subject to manipulation. The absence of limits on the volume of Dead Storage cannot, of course, itself impose a restriction on how such storage may be used. But it is suggestive of the mindset of the Parties in providing for storage of this type.
506. Second, the Court notes that 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. Thus, India is not only restricted in storing water on the Western Rivers; it is also prohibited from constructing Storage Works except within the limited capacity permitted by the Treaty.⁷¹³ Annexure D, in turn, sets out the permissible operation of a Run-of-River Plant, and also includes in Paragraph 8 restrictions on the design of such Plants.⁷¹⁴ In particular, Paragraph 8(d) prohibits outlets from a reservoir below the Dead Storage Level, “unless necessary for sediment control or any other technical purpose.” Any outlets that may be necessary must be of the “minimum size and located at the highest level” that would be “consistent with sound and economical design and with satisfactory operation of the works.”⁷¹⁵
507. In their submissions, the Parties have advanced sharply divergent views of the meaning of Paragraph 8(d), Pakistan characterizing the provision as a constructive prohibition on drawdown flushing and India, as an express authorization to design the dam as necessary for effective sediment management. In the Court’s view, however, Paragraph 8(d) is neither. This

⁷¹³ Article III(4) of the Treaty provides that “[e]xcept as provided in Annexure D and E, India shall not store any water of, or construct any storage works on, the Western Rivers.”

⁷¹⁴ Paragraph 11 of Annexure E includes similar physical restrictions on the design of any Storage Works that India may construct on the Western Rivers. As a matter of general approach, the Treaty appears to routinely reinforce operational limits on the conduct of the Parties with physical restrictions on the development of infrastructure.

⁷¹⁵ Treaty, Annexure D, Para. 8(d).

Paragraph does not prohibit flushing, even in a roundabout fashion, by prohibiting the necessary outlets. Outlets below Dead Storage Level are permitted if “necessary for sediment control.” Nor does Paragraph 8(d) evidence the Parties’ intention to permit drawdown flushing. Outlets below Dead Storage Level can be used to control sediment accumulation through sluicing, without significantly reducing the level of water in the reservoir. Thus, no rule either permitting or proscribing drawdown flushing follows from the terms of Paragraph 8(d).

508. The relevance of this provision is contextual. Design restrictions on the availability of outlets from Dead Storage make sense only against a background assumption that the uses to which Dead Storage could be put are also somehow constrained. If depletion of Dead Storage was intended, whether for flushing or otherwise, the Court can see no obvious purpose that would be served by limiting the size and placement of outlets from Dead Storage. This is all the more so, considering that the preferred location for outlets intended for flushing would be at the riverbed or, in other words, at the lowest level of the reservoir—not the highest. The existence of a restriction on outlets thus strongly suggests that some limitation on the use and depletion of Dead Storage was also intended.
509. Finally, as the Court considered in detail above, it is beyond debate that the intention behind the Treaty was to allow India to develop the hydro-electric potential of the Western Rivers, largely through the use of Run-of-River Plants. This is an important aspect of the Treaty context with respect to drawdown flushing. The Court does not accept that, in serious negotiations extending over the course of years, India and Pakistan would have wasted time on the allocation of rights that could not, in fact, be used productively. In this respect, the Court concurs with the idea that “anything you build needs to work.”⁷¹⁶ If a prohibition on drawdown flushing would render any sustainable hydro-electric development impossible, the Court would consider this relevant in approaching any Treaty provision seeming to suggest such a prohibition. In light, however, of the variety of approaches available to manage sediment—not all of which would require the depletion of reservoirs below Dead Storage Level—the Court considers this a matter for further examination in its discussion of the necessity of drawdown flushing.

⁷¹⁶ Hearing Tr., (Day 2), 21 August 2012, at 121:16,18 (cross-examination of Dr Morris).

(c) The specific provisions of the Treaty

510. Turning from the Treaty's context to its specifics, the Court considers that two provisions—concerning the release of water below a Plant and the restrictions on reservoir filling—directly bear on the permissibility of drawdown flushing. The Court will address each of these provisions in turn.

511. The chapeau of Paragraph 15 of Annexure D establishes the flow that may be released below a Run-of-River Plant in the following terms:

Subject to the provisions of Paragraph 17 [excluding periods of filling], the works connected with a Plant shall be so operated that (a) the 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, and (b) in any one period of 24 hours within that seven-day period, the volume delivered into the river below the Plant shall not be less than 30%, and not more than 130%, of the volume received in the river above the Plant during the same 24-hour period. [. . .]⁷¹⁷

512. Although Pakistan argues that drawdown flushing would be “severely curtailed (if not prohibited)” by the flow restrictions in Paragraph 15,⁷¹⁸ such is not necessarily the case: depending upon the flow at and hydrological size of a particular reservoir, drawdown flushing may or may not conform with these restrictions. In general, drawdown flushing would be incompatible with Paragraph 15 at hydrologically large reservoirs and at most reservoirs during the low flow season. Insofar, however, as hydrologically small reservoirs could still be flushed within seven days while complying with the daily limits on the permissible delivery of water below the Plant, the flow restrictions in Paragraph 15 will not prohibit drawdown flushing. However, as currently envisaged by India, the use of drawdown flushing at the KHEP would in all probability not comply with the flow restrictions of Paragraph 15.⁷¹⁹

513. The decisive prohibition on the depletion of a reservoir below Dead Storage Level stems from Paragraph 14 of Annexure D, through its incorporation by reference of Paragraph 19 of Annexure E. Paragraph 14 provides as follows:

⁷¹⁷ Paragraph 16 further elaborates the applicable 24-hour and 7-day periods as follows:

For the purpose of Paragraph 15, the period of 24 hours shall commence at 8 a.m. daily and the period of 7 consecutive days shall commence at 8 a.m. on every Saturday. The time shall be Indian Standard Time.

⁷¹⁸ Pakistan's Memorial, para. 6.30(c); *see also* Pakistan's Reply, para. 6.32.

⁷¹⁹ *See* India's Counter-Memorial, p. 269-270. While the KHEP reservoir could, under certain flow conditions, be flushed through more gradual depletion and refilling while observing the limits of Paragraph 15, the Court's ultimate conclusion on the permissibility of drawdown flushing does not hinge on this provision.

The filling of Dead Storage shall be carried out in accordance with the provisions of Paragraph 18 or 19 of Annexure E.

In turn, Paragraphs 18 and 19 of Annexure E provide as follows:

18. The annual filling of Conservation Storage and the initial filling below Dead Storage Level, at any site, shall be carried out at such times and in accordance with such rules as may be agreed upon between the Commissioners. In case the Commissioners are unable to reach agreement, India may carry out the filling as follows:

[. . .]

- (b) if the site is on The Jhelum, between 21st June and 20th August; and

[. . .]

19. The Dead Storage shall not be depleted except in an unforeseen emergency. If so depleted, it will be re-filled in accordance with the conditions of its initial filling.

514. In approaching these provisions, the Court cannot separate the prohibition on depletion in Paragraph 19 from the provisions on refilling. By referring to Paragraph 19 as well as Paragraph 18 (containing the schedule for initial filling), the drafters of Annexure D evidently intended to provide for a situation of refilling. Far from being irrelevant, however, the circumstances in which a reservoir can be depleted are directly related to the need to refill it. This is all the more true insofar as the second sentence of Paragraph 19 begins with the words “[i]f so depleted” and is grammatically incoherent if incorporated without the preceding text. It therefore follows that Annexure D transposes Paragraph 19 of Annexure E in its entirety—including the prohibition on the depletion of Dead Storage. Further, it is undisputed between the Parties that sediment accumulation would not constitute an unforeseen emergency.⁷²⁰

515. Having identified at least one operative provision of Annexure D that prohibits the depletion of Dead Storage for drawdown flushing, the Court considers it sufficient to note that the definition of Dead Storage in Annexure D—“that portion of the storage which is not used for operational purposes”—is consistent with this outcome. The Court considers it unnecessary, under the circumstances, to decide whether the definition alone would constitute a prohibition. The Court does, however, consider it appropriate to emphasize that a distinction between “operation” and “maintenance” (advanced by India primarily in reference to the definition of Dead Storage) would not permit India to carry out drawdown flushing in the face of the restrictions the Court

⁷²⁰ It is undisputed between the Parties that Paragraph 19 of Annexure E, insofar as it applies, constitutes a prohibition on drawdown flushing (the need for sediment management not being an unforeseen emergency). See Pakistan’s Memorial, para. 6.21; India’s Counter-Memorial, para. 737 (accepting that Paragraph 19 prohibits drawdown flushing in the context of Annexure E).

has identified in Paragraphs 14 and 15.⁷²¹ In an instrument as detailed and comprehensive as the present Treaty, the Court cannot accept that a category of “maintenance purposes” nowhere specified in the Treaty can be invoked to free a party from restrictions that are explicitly laid down in the Treaty.

(d) The necessity of drawdown flushing for power generation on the Western Rivers

516. To complete its analysis, the Court turns to the key factor that bears further consideration in light of the prohibition on flushing apparent in the text: the question of whether drawdown flushing is indispensable to any sustainable generation of hydro-electric power on the Western Rivers.⁷²² Such an inquiry requires an examination of the impact any proscription of drawdown flushing would have on the viability of Indian Run-of-River Plants on the Western Rivers.
517. Having reviewed the technical documentation submitted by the Parties⁷²³ and in reliance on the opinions of the experts presented by them, the Court concludes that the constraints imposed by the Treaty should not condemn the KHEP or other Indian hydro-electric projects on the Western Rivers to an impractical and uneconomically short project life.⁷²⁴ While the prohibition on reservoir depletion will preclude India from having recourse to flushing with

⁷²¹ With respect to the limits on flow in Paragraph 15, India has in fact conceded that they would remain applicable during any flushing operation. India’s Counter-Memorial, para. 7.51. Although this would ordinarily suffice to dispense with the matter, the Court notes certain statements by India’s expert to the effect that categorizing flushing as maintenance would disable any restriction, including those on flow and even the express prohibition on depletion in Annexure E. *See* Hearing Tr., (Day 3), 22 August 2012, at 90:2 to 94:18. In light of this suggestion in the record, the Court considers it appropriate to address this question expressly.

⁷²² In the Court’s view, the Parties’ discussion of whether drawdown flushing was understood and was within the expectation of the Treaty drafters in 1960 is subsumed within the question of whether such flushing is necessary at the KHEP and other Run-of-River installations today. The Court accepts that the Treaty is to be interpreted in light of technological developments and that the Parties are not bound to the technology of 1960. Nevertheless, any 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. This may well mean that some techniques that would be considered state-of-the-art will be unavailable to India in the future; so long as other methods are available and can be made effective, however, India is bound by the constraints of the Treaty.

⁷²³ *See* the sources listed above at note 708 in this Partial Award.

⁷²⁴ India has both stated that drawdown flushing is “one of the effective techniques” for maintaining the sustainability of reservoirs (India’s Counter-Memorial, para. 7.81), and asserted that drawdown flushing is “essential” or “necessary” to the sustainability of the KHEP (India’s Counter-Memorial, para. 7.89), comparing its projected lifespan with and without drawdown flushing (India’s Counter-Memorial, para. 7.88).

drawdown below Dead Storage Level, the Court recalls that flushing is but one of a number of techniques available for sediment control.⁷²⁵

518. With respect to the KHEP, the Court accepts Dr Morris's opinion that sediment sluicing offers a feasible alternative to drawdown flushing. Sluicing, the Court recalls, is the technique whereby sediment-laden inflows are released through the dam before the sediment particles can settle in the reservoir. As the Court understands it, the basis for Dr Morris's opinion is the historically well-established record of effective sediment control at run-of-river installations through the use of a high-level intake to the power turbines and of sediment sluices in the immediate vicinity of the intake.⁷²⁶ In Dr Morris's opinion—which the Court also accepts—no significant difference follows from the fact that the KHEP is a Run-of-River Plant located on top of the reservoir created by a high dam, rather than at a low barrage. Where a high dam is being used to raise the elevation of the intake and the corresponding generating capacity—and not to create usable storage behind the dam—the Dead Storage can fill with sediment without consequence. Once the Dead Storage is filled with sediment, the upper reaches of the reservoir would operate identically to a low barrage⁷²⁷ and could be cleared of sediment through sluicing, without a need to draw down the reservoir.⁷²⁸ According to Dr Morris, it is the KHEP's current intake design—rather than anything inherent in the height of the dam or the size of the reservoir—that prevents the KHEP from simply sluicing sediment like a barrage.⁷²⁹
519. The essence of Dr Morris's opinion on the feasibility of sluicing at the KHEP site has not been contradicted by India's experts. Despite Dr Rangaraju's view that drawdown flushing is "essential," the Court considers his testimony to establish that drawdown flushing is an appropriate (and perhaps preferable) technique, but not the only possible one.⁷³⁰ With reference

⁷²⁵ See paras. 495-502 of this Partial Award. *See also* Hearing Tr., (Day 2), 21 August 2012, at 101:14 to 104:13 (cross-examination of Dr Morris); Hearing Tr., (Day 3), 22 August 2012, at 78:3-20; 105:22 to 107:6 (cross-examination of Dr Rangaraju); for a short list of sediment management options, *see* ICOLD, Bulletin 115, "Dealing with reservoir sedimentation," 1999, (Annex IN-TX-1), pp. 13, 15.

⁷²⁶ Morris Report, p. 10.

⁷²⁷ Hearing Tr., (Day 2), 21 August 2012, at 108:2 to 110:3 (cross-examination of Dr Morris).

⁷²⁸ Because significantly lower water velocities are required to remove suspended sediment from the reservoir than to dislodge accumulated sediment (which is the purpose of drawdown flushing), sluicing, unlike flushing, can be carried out without or with only partial drawdown. *See* ICOLD, Bulletin 115, "Dealing with reservoir sedimentation," 1999, (Annex IN-TX-1), § 3.1.1.

⁷²⁹ Morris Report, pp. 14-15.

⁷³⁰ Hearing Tr., (Day 3), 22 August 2012, at 105:22 to 107:6 (cross-examination of Dr Rangaraju); *see also* India's Counter-Memorial, para. 7.81.

to drawdown flushing, Dr Rangaraju stated that “nobody can claim that this is the only technique possible”⁷³¹ and further acknowledged that he had not examined whether sluicing would suffice to control sediment at the KHEP.⁷³²

520. Similarly, the Court understands the report of Dr Schleiss to state that drawdown flushing is essential for the sustained operation of the KHEP *as currently designed*, but not to exclude other possible designs that could operate on a different basis. Dr Schleiss’s principal concern involves the encroachment of coarse sediment from the delta at the upper end of the reservoir on the KHEP’s submerged power intake; other sediments would be controlled through “normal spillway operation” (i.e., operation not requiring drawdown) and by venting turbidity currents containing a “high amount of suspended fine sediment.”⁷³³ In the Court’s view, this is not in fact fundamentally inconsistent with the testimony of Dr Morris, who asserts sluicing is feasible on the basis of alternative intake designs. Ultimately, the Court considers that Dr Schleiss has not established to its satisfaction that another intake design that could operate without drawdown flushing would be technically unworkable.⁷³⁴

521. The Court’s view that India’s right to generate hydro-electric power on the Western Rivers can meaningfully be exercised without drawdown flushing extends beyond the specifics of the KHEP to other, future Run-of-River Plants. Based on the evidence provided to it, the Court notes that, in general, sluicing is recommended for narrow, hydrologically small⁷³⁵ reservoirs

⁷³¹ Hearing Tr., (Day 3), 22 August 2012, at 78:19-20 (cross-examination of Dr Rangaraju).

⁷³² Hearing Tr., (Day 3), 22 August 2012, at 82 to 83 (cross-examination of Dr Rangaraju).

⁷³³ Schleiss Report, p. 6.

⁷³⁴ Dr Schleiss states that a submerged intake is required at the KHEP in light of the need to maintain water pressure throughout the head-race tunnel. *See* Schleiss Report, p. 4 (“the intake has to have sufficient submergence from the operation level of the reservoir in order to avoid vortex formation and consequently air entrainment into the intake as well as to ensure pressure flow in the headrace tunnel under all operation conditions”). He further states, without elaboration, that the topographical conditions at the site require the intake to draw water directly from the reservoir itself, rather than by way of a separate weir and desilting basin. *See ibid.*, p. 5 (“Under the local topographic condition of the KHEP it is technically not feasible to design free surface desilting basins.”). For the Court, this suffices to establish that the current design of the KHEP may well be the simplest alternative and the use of drawdown flushing the most economical approach to sediment management; it does not establish that these approaches are the only ones available.

⁷³⁵ The hydrological size of the reservoir is computed as the ratio of total reservoir volume to mean annual inflow. From a sediment management perspective, it is more significant than a reservoir’s absolute size. Reservoirs with a capacity inflow ratio exceeding 30 or 50 percent are considered hydrologically large. *See* Gregory L. Morris and Jiahua Fan, *Reservoir Sedimentation Handbook: Design and Management of Reservoirs, Dams, and Watersheds for Sustainable Use*, Electronic version 1.01, September 2009, (Annex IN-135), § 3.3.1; W. Rodney White, “Flushing of Sediments from Reservoirs,” Contributing Paper to the World Commission on Dams, (Annex IN-TX-9), p. vi.

located on rivers where surplus inflow is available for discharging sediment,⁷³⁶ and that sluicing with little drawdown is particularly effective in regions where a significant percentage of the annual sediment load is carried by the river in short and predictable periods.⁷³⁷ While acknowledging that the potential impact of sediment must be evaluated and modelled in relation to each particular site and dam design, the Court presently sees no reason why the factors favouring the feasibility of a sluicing mode of operation at the KHEP site would not apply equally to other sites on the Western Rivers at which India would be likely to construct Run-of-River Plants.

522. In carrying out this evaluation, the Court emphasizes that it is not considering whether the development of hydro-electric power without recourse to drawdown flushing is preferable for India. It is not for the Court to apply “best practices” in resolving this dispute. India has quite understandably argued in these proceedings for a right to the optimal design and operation of its hydro-electric installations on the upstream stretches of the Western Rivers. However, any exercise of design involves consideration of a variety of factors—not all of them technical. Hydrologic, geologic, social, economic, environmental and regulatory considerations are all directly relevant,⁷³⁸ and the Court considers the Treaty restraints on the construction and operation by India of reservoirs to be such a regulatory factor.⁷³⁹ For the Court, the optimal design and operation of a hydro-electric plant is that which can practically be achieved within the constraints imposed by the Treaty.

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⁷³⁶ ICOLD, Bulletin 115, (Annex IN-TX-1), §§ 3.1.2, 3.1.3; Gregory L. Morris and Jiahua Fan, *Reservoir Sedimentation Handbook: Design and Management of Reservoirs, Dams, and Watersheds for Sustainable Use*, Electronic version 1.01, September 2009, (Annex IN-135), § 13.1.3.

⁷³⁷ Hearing Tr., (Day 2), 21 August 2012, at 127:15-25 (cross-examination of Dr Morris); Durga Prasad Sangroula, “Sediment Management for Sustainability of Storage Projects in Himalayas: A Case Study of the Kulekhani Reservoir in Nepal,” International Conference on Small Hydropower: Hydro Sri Lanka, October 2007, (Annex IN-TX-5), pp. 7-8; Gregory L. Morris, “Reservoir Sedimentation and Sustainable Development in India: Problem Scope and Remedial Strategies,” Proceedings of the 6th International Symposium on Reservoir Sedimentation, 1995, (Annex IN-137), p. 59.

⁷³⁸ See Hearing Tr., (Day 2), 21 August 2012, at 100:13 to 101:4, 118:7 to 119:12 (cross-examination of Dr Morris); see also Alessandro Palmieri, *Sustainability of Dams – Reservoir Sedimentation Management and Safety Implications* (World Bank, 1998), (Annex IN-TX-2), p. 4.

⁷³⁹ 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.

523. The Court is conscious of the fact that the issues of reservoir construction and operation raised by the Second Dispute come before it at a time at which the process of harnessing the potential for the generation of hydro-electricity on the Western Rivers, as foreseen by the Treaty, is already under way. This does not alter the duty of the Court to interpret and apply the Treaty in the manner required by Paragraph 29 of Annexure G. It would not be in accordance with the governing principles enunciated in this Partial Award for the interpretation of the Treaty, and its application, to cast doubt retrospectively on any Run-of-River Plants already in operation on the Western Rivers. For the same reasons, the Court wishes to make plain that this Partial Award may not be so interpreted as to affect retrospectively any such Plant already under construction (although not yet in operation) the design of which, having been duly communicated by India under the provisions of Annexure D, had not been objected to by Pakistan as provided for in Annexure D. That is plainly not the case for the Kishenganga Hydro-Electric Project itself.

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V. DECISION

Having considered the Parties' written and oral submissions, the Court of Arbitration unanimously decides:

A. In relation to the First Dispute,

- (1) The Kishenganga Hydro-Electric Project, as described to the Court by India, constitutes a Run-of-River Plant for the purpose of Paragraph 15 of Annexure D to the Indus Waters Treaty, and in particular sub-paragraph (iii) thereof.
- (2) India may accordingly divert water from the Kishenganga/Neelum River for power generation by the Kishenganga Hydro-Electric Plant and may deliver the water released below the power station into the Bonar Nallah.
- (3) India is however under an obligation to construct and operate the Kishenganga Hydro-Electric Plant in such a way as to maintain a minimum flow of water in the Kishenganga/Neelum River, at a rate to be determined by the Court in a Final Award.

B. In relation to the Second Dispute,

- (1) Except in the case of an unforeseen emergency, the Treaty does not permit reduction below Dead Storage Level of the water level in the reservoirs of Run-of-River Plants on the Western Rivers.
- (2) The accumulation of sediment in the reservoir of a Run-of-River Plant on the Western Rivers does not constitute an unforeseen emergency that would permit the depletion of the reservoir below Dead Storage Level for drawdown flushing purposes.
- (3) Accordingly, India may not employ drawdown flushing at the reservoir of the Kishenganga Hydro-Electric Plant to an extent that would entail depletion of the reservoir below Dead Storage Level.
- (4) Paragraphs B(1) and B(2) above do not apply to Run-of-River Plants that are in operation on the date of issuance of this Partial Award. Likewise, Paragraphs B(1) and B(2) do not apply to Run-of-River Plants already under construction on the date of issuance of this Partial Award, the design of which, having been duly communicated by India under the provisions of Annexure D, had not been objected to by Pakistan as provided for in Annexure D.

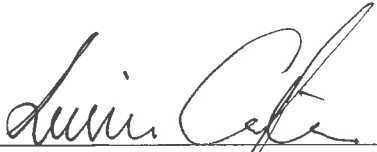
C. This Partial Award imposes no further restrictions on the construction and operation of the Kishenganga Hydro-Electric Plant, which remain subject to the provisions of the Treaty as interpreted in this Partial Award.

D. To enable the Court to determine the minimum flow of water in the Kishenganga/Neelum River referred to in paragraph A(3) above, the Parties are required to submit to the Court the information specified in paragraphs 458 to 462 within the time periods set out in paragraph 463 of this Partial Award.

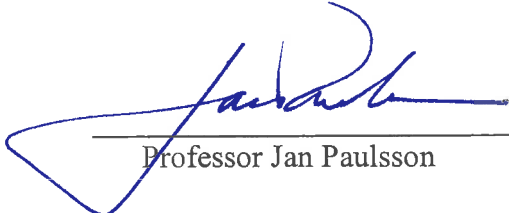
E. The interim measures indicated by the Court in its 23 September 2011 *Order on the Interim Measures Application of Pakistan dated June 6, 2011* are hereby lifted.

F. The costs of the proceedings to be awarded by the Court pursuant to Paragraph 26 of Annexure G to the Treaty shall be determined in the Court's Final Award.


Done at the Peace Palace, The Hague
Dated: February 18, 2013



Professor Lucius Caflisch




Professor Jan Paulsson



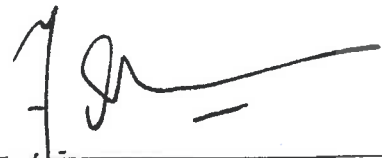
Judge Bruno Simma



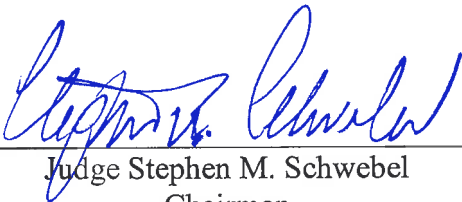
H.E. Judge Peter Tomka



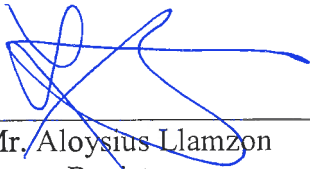
Professor Howard S. Wheeler FREng



Sir Franklin Berman KCMG QC



Judge Stephen M. Schwebel
Chairman



Mr. Aloysius Llamzon
Registrar

ADDENDUM

THE INDUS WATERS TREATY 1960¹ BETWEEN THE GOVERNMENT OF INDIA, THE GOVERNMENT OF PAKISTAN AND THE INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT.

SIGNED AT KARACHI, ON 19 SEPTEMBER 1960

PREAMBLE

The Government of India and the Government of Pakistan, being equally desirous of attaining the most complete and satisfactory utilisation of the waters of the Indus system of rivers and recognising the need, therefore, of 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 and of making provision for the settlement, in a cooperative spirit, of all such questions as may hereafter arise in regard to the interpretation or application of the provisions agreed upon herein, have resolved to conclude a Treaty in furtherance of these objectives, and for this purpose have named as their plenipotentiaries :

The Government of India :

Shri Jawaharlal Nehru, Prime Minister of India, and

The Government of Pakistan :

Field Marshal Mohammad Ayub Khan, H.P., H.J., President of Pakistan ;

who, having communicated to each other their respective Full Powers and having found them in good and due form, have agreed upon the following Articles and Annexures :

Article I

DEFINITIONS

As used in this Treaty :

- (1) The terms "Article" and "Annexure" mean respectively an Article of, and an Annexure to, this Treaty. Except as otherwise indicated, references to Paragraphs are to the paragraphs in the Article or in the Annexure in which the reference is made.
- (2) The term "Tributary" of a river means any surface channel, whether in continuous or intermittent flow and by whatever name called, whose waters in the natural course would fall into that river, e.g. a tributary, a torrent, a natural drainage, an artificial drainage, a *nadi*, a *nallah*, a *nai*, a *khad*, a *cho*. The term also includes any subtributary or branch or subsidiary channel, by whatever name called, whose waters, in the natural course, would directly or otherwise flow into that surface channel.

¹ Came into force on 12 January 1961, upon the exchange of the instruments of ratification at New Delhi, with retroactive effect from 1 April 1960, in accordance with article XII (2).

The text printed herein incorporates the corrections effected by the Protocol signed on 27 November, 2 and 23 December 1960 (*see* 419 U.N.T.S 290).

- (3) The term “The Indus,” “The Jhelum,” “The Chenab,” “The Ravi,” “The Beas” or “The Sutlej” means the named river (including Connecting Lakes, if any) and all its Tributaries : Provided however that
 - (i) none of the rivers named above shall be deemed to be a Tributary ;
 - (ii) The Chenab shall be deemed to include the river Panjnad ; and
 - (iii) the river Chandra and the river Bhaga shall be deemed to be Tributaries of The Chenab,
- (4) The term “Main” added after Indus, Jhelum, Chenab, Sutlej, Beas or Ravi means the main stem of the named river excluding its Tributaries, but including all channels and creeks of the main stem of that river and such Connecting Lakes as form part of the main stem itself. The Jhelum Main shall be deemed to extend up to Verinag, and the Chenab Main up to the confluence of the river Chandra and the river Bhaga,
- (5) The term “Eastern Rivers” means The Sutlej, The Beas and The Ravi taken together.
- (6) The term “Western Rivers” means The Indus, The Jhelum and The Chenab taken together.
- (7) The term “the Rivers” means all the rivers, The Sutlej, The Beas, The Ravi, The Indus, The Jhelum and The Chenab.
- (8) The term “Connecting Lake” means any lake which receives water from, or yields water to, any of the Rivers ; but any lake which occasionally and irregularly receives only the spill of any of the Rivers and returns only the whole or part of that spill is not a Connecting Lake.
- (9) The term “Agricultural Use” means the use of water for irrigation, except for irrigation of household gardens and public recreational gardens.
- (10) The term “Domestic Use” means the use of water for :
 - (a) drinking, washing, bathing, recreation, sanitation (including the conveyance and dilution of sewage and of industrial and other wastes), stock and poultry, and other like purposes ;
 - (b) household and municipal purposes (including use for household gardens and public recreational gardens) ; and
 - (c) industrial purposes (including mining, milling and other like purposes) ;but the term does not include Agricultural Use or use for the generation of hydro-electric power.
- (11) The term “Non-Consumptive Use” means any control or use of water for navigation, floating of timber or other property, flood protection or flood control, fishing or fish culture, wild life or other like beneficial purposes, provided that, exclusive of seepage and evaporation of water incidental to the control or use, the water (undiminished in volume within the practical range of measurement) remains in, or is returned to, the same river or its Tributaries ; but the term does not include Agricultural Use or use for the generation of hydro-electric power.
- (12) The term “Transition Period” means the period beginning and ending as provided in Article II (6).
- (13) The term “Bank” means the International Bank for Reconstruction and Development.
- (14) The term “Commissioner” means either of the Commissioners appointed under the provisions of Article VIII (1) and the term “Commission” means the Permanent Indus Commission constituted in accordance with Article VIII (3).
- (15) The term “interference with the waters” means :
 - (a) Any act of withdrawal therefrom ; or

- (b) Any man-made obstruction to their flow which causes a change in the volume (within the practical range of measurement) of the daily flow of the waters : Provided however that an obstruction which involves only an insignificant and incidental change in the volume of the daily flow, for example, fluctuations due to afflux caused by bridge piers or a temporary by-pass, etc., shall not be deemed to be an interference with the waters.
- (16) The term “Effective Date” means the date on which this Treaty takes effect in accordance with the provisions of Article XII, that is, the first of April 1960.

Article II

PROVISIONS REGARDING EASTERN RIVERS

- (1) All the waters of the Eastern Rivers shall be available for the unrestricted use of India, except as otherwise expressly provided in this Article.
- (2) Except for Domestic Use and Non-Consumptive Use, Pakistan shall be under an obligation to let flow, and shall not permit any interference with, the waters of the Sutlej Main and the Ravi Main in the reaches where these rivers flow in Pakistan and have not yet finally crossed into Pakistan. The points of final crossing are the following : (a) near the new Hasta Bund upstream of Suleimanke in the case of the Sutlej Main, and (b) about one and a half miles upstream of the syphon for the B-R-B-D Link in the case of the Ravi Main.
- (3) Except for Domestic Use, Non-Consumptive Use and Agricultural Use (as specified in Annexure B), Pakistan shall be under an obligation to let flow, and shall not permit any interference with, the waters (while flowing in Pakistan) of any Tributary which in its natural course joins the Sutlej Main or the Ravi Main before these rivers have finally crossed into Pakistan.
- (4) All the waters, while flowing in Pakistan, of any Tributary which, in its natural course, joins the Sutlej Main or the Ravi Main after these rivers have finally crossed into Pakistan shall be available for the unrestricted use of Pakistan : Provided however that this provision shall not be construed as giving Pakistan any claim or right to any releases by India in any such Tributary. If Pakistan should deliver any of the waters of any such Tributary, which on the Effective Date joins the Ravi Main after this river has finally crossed into Pakistan, into a reach of the Ravi Main upstream of this crossing, India shall not make use of these waters ; each Party agrees to establish such discharge observation stations and make such observations as may be necessary for the determination of the component of water available for the use of Pakistan on account of the aforesaid deliveries by Pakistan, and Pakistan agrees to meet the cost of establishing the aforesaid discharge observation stations and making the aforesaid observations.
- (5) There shall be a Transition Period during which, to the extent specified in Annexure H, India shall
 - (i) limit its withdrawals for Agricultural Use,
 - (ii) limit abstractions for storages, and
 - (iii) make deliveries to Pakistan from the Eastern Rivers.
- (6) The Transition Period shall begin on 1st April 1960 and it shall end on 31st March 1970, or, if extended under the provisions of Part 8 of Annexure H, on the date up to which it has been extended. In any event, whether or not the replacement referred to in Article IV (1) has been accomplished, the Transition Period shall end not later than 31st March 1973.
- (7) If the Transition Period is extended beyond 31st March 1970, the provisions of Article V (5) shall apply.

- (8) If the Transition Period is extended beyond 31st March 1970, the provisions of Paragraph (5) shall apply during the period of extension beyond 31st March 1970.
- (9) During the Transition Period, Pakistan shall receive for unrestricted use the waters of the Eastern Rivers which are to be released by India in accordance with the provisions of Annexure H. After the end of the Transition Period, Pakistan shall have no claim or right to releases by India of any of the waters of the Eastern Rivers. In case there are any releases, Pakistan shall enjoy the unrestricted use of the waters so released after they have finally crossed into Pakistan : Provided that in the event that Pakistan makes any use of these waters, Pakistan shall not acquire any right whatsoever, by prescription or otherwise, to a continuance of such releases or such use.

Article III

PROVISIONS REGARDING WESTERN RIVERS

- (1) Pakistan shall receive for unrestricted use all those waters of the Western Rivers which India is under obligation to let flow under the provisions of Paragraph (2).
- (2) India shall be under an obligation to let flow all the waters of the Western Rivers, and shall not permit any interference with these waters, except for the following uses, restricted (except as provided in item (c) (ii) of Paragraph 5 of Annexure C) in the case of each of the rivers, The Indus, The Jhelum and The Chenab, to the drainage basin thereof :
 - (a) Domestic Use ;
 - (b) Non-Consumptive Use ;
 - (c) Agricultural Use, as set out in Annexure C ; and
 - (d) Generation of hydro-electric power, as set out in Annexure D.
- (3) Pakistan shall have the unrestricted use of all waters originating from sources other than the Eastern Rivers which are delivered by Pakistan into The Ravi or The Sutlej, and India shall not make use of these waters. Each Party agrees to establish such discharge observation stations and make such observations as may be considered necessary by the Commission for the determination of the component of water available for the use of Pakistan on account of the aforesaid deliveries by Pakistan.
- (4) Except as provided in Annexures D and E, India shall not store any water of, or construct any storage works on, the Western Rivers.

Article IV

PROVISIONS REGARDING EASTERN RIVERS AND WESTERN RIVERS

- (1) Pakistan shall use its best endeavours to construct and bring into operation, with due regard to expedition and economy, that part of a system of works which will accomplish the replacement, from the Western Rivers and other sources, of water supplies for irrigation canals in Pakistan which, on 15th August 1947, were dependent on water supplies from the Eastern Rivers.
- (2) Each Party agrees that any Non-Consumptive Use made by it shall be so made as not to materially change, on account of such use, the flow in any channel to the prejudice of the uses on that channel by the other Party under the provisions of this Treaty. In executing any scheme of flood protection or flood control each Party will avoid, as far as practicable, any material damage to the other Party, and any such scheme carried out by India on the Western Rivers shall not involve any use of water or any storage in addition to that provided under Article III.

- (3) Nothing in this Treaty shall be construed as having the effect of preventing either Party from undertaking schemes of drainage, river training, conservation of soil against erosion and dredging, or from removal of stones, gravel or sand from the beds of the Rivers : Provided that
- (a) in executing any of the schemes mentioned above, each Party will avoid, as far as practicable, any material damage to the other Party ;
 - (b) any such scheme carried out by India on the Western Rivers shall not involve any use of water or any storage in addition to that provided under Article III ;
 - (c) except as provided in Paragraph (5) and Article VII (1) (b), India shall not take any action to increase the catchment area, beyond the area on the Effective Date, of any natural or artificial drainage or drain which crosses into Pakistan, and shall not undertake such construction or remodelling of any drainage or drain which so crosses or falls into a drainage or drain which so crosses as might cause material damage in Pakistan or entail the construction of a new drain or enlargement of an existing drainage or drain in Pakistan ; and
 - (d) should Pakistan desire to increase the catchment area, beyond the area on the Effective Date, of any natural or artificial drainage or drain, which receives drainage waters from India, or, except in an emergency, to pour any waters into it in excess of the quantities received by it as on the Effective Date, Pakistan shall, before undertaking any work for these purposes, increase the capacity of that drainage or drain to the extent necessary so as not to impair its efficacy for dealing with drainage waters received from India as on the Effective Date.
- (4) Pakistan shall maintain in good order its portions of the drainages mentioned below with capacities not less than the capacities as on the Effective Date :
- (i) Hudiara Drain
 - (ii) Kasur Nala
 - (iii) Salimshah Drain
 - (iv) Fazilka Drain.
- (5) If India finds it necessary that any of the drainages mentioned in Paragraph (4) should be deepened or widened in Pakistan, Pakistan agrees to undertake to do so as a work of public interest, provided India agrees to pay the cost of the deepening or widening.
- (6) Each Party will use its best endeavours to maintain the natural channels of the Rivers, as on the Effective Date, in such condition as will avoid, as far as practicable, any obstruction to the flow in these channels likely to cause material damage to the other Party.
- (7) Neither Party will take any action which would have the effect of diverting the Ravi Main between Madhopur and Lahore, or the Sutlej Main between Harike and Suleimanke, from its natural channel between high banks.
- (8) The use of the natural channels of the Rivers for the discharge of flood or other excess waters shall be free and not subject to limitation by either Party, and neither Party shall have any claim against the other in respect of any damage caused by such use. Each Party agrees to communicate to the other Party, as far in advance as practicable, any information it may have in regard to such extraordinary discharges of water from reservoirs and flood flows as may affect the other Party.
- (9) Each Party declares its intention to operate its storage dams, barrages and irrigation canals in such manner, consistent with the normal operations of its hydraulic systems, as to avoid, as far as feasible, material damage to the other Party.
- (10) Each Party declares its intention to prevent, as far as practicable, undue pollution of the waters of the Rivers which might affect adversely uses similar in nature to those to which

the waters were put on the Effective Date, and agrees to take all reasonable measures to ensure that, before any sewage or industrial waste is allowed to flow into the Rivers, it will be treated, where necessary, in such manner as not materially to affect those uses : Provided that the criterion of reasonableness shall be the customary practice in similar situations on the Rivers.

- (11) The Parties agree to adopt, as far as feasible, appropriate measures for the recovery, and restoration to owners, of timber and other property floated or floating down the Rivers, subject to appropriate charges being paid by the owners.
- (12) The use of water for industrial purposes under Articles II (2), II (3) and III (2) shall not exceed :
 - (a) in the case of an industrial process known on the Effective Date, such quantum of use as was customary in that process on the Effective Date ;
 - (b) in the case of an industrial process not known on the Effective Date :
 - (i) such quantum of use as was customary on the Effective Date in similar or in any way comparable industrial processes ; or
 - (ii) if there was no industrial process on the Effective Date similar or in any way comparable to the new process, such quantum of use as would not have a substantially adverse effect on the other Party.
- (13) Such part of any water withdrawn for Domestic Use under the provisions of Articles II (3) and III (2) as is subsequently applied to Agricultural Use shall be accounted for as part of the Agricultural Use specified in Annexure B and Annexure C respectively ; each Party will use its best endeavours to return to the same river (directly or through one of its Tributaries) all water withdrawn therefrom for industrial purposes and not consumed either in the industrial processes for which it was withdrawn or in some other Domestic Use.
- (14) 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.
- (15) Except as otherwise required by the express provisions of this Treaty, nothing in this Treaty shall be construed as affecting existing territorial rights over the waters of any of the Rivers or the beds or banks thereof, or as affecting existing property rights under municipal law over such waters or beds or banks.

Article V

FINANCIAL PROVISIONS

- (1) In consideration of the fact that the purpose of part of the system of works referred to in Article IV (1) is the replacement, from the Western Rivers and other sources, of water supplies for irrigation canals in Pakistan which, on 15th August 1947, were dependent on water supplies from the Eastern Rivers, India agrees to make a fixed contribution of Pounds Sterling 62,060,000 towards the costs of these works. The amount in Pounds Sterling of this contribution shall remain unchanged irrespective of any alteration in the par value of any currency.
- (2) The sum of Pounds Sterling 62,060,000 specified in Paragraph (1) shall be paid in ten equal annual instalments on the 1st of November of each year. The first of such annual instalments shall be paid on 1st November 1960, or if the Treaty has not entered into force by that date, then within one month after the Treaty enters into force.
- (3) Each of the instalments specified in Paragraph (2) shall be paid to the Bank for the credit of the Indus Basin Development Fund to be established and administered by the Bank, and

payment shall be made in Pounds Sterling, or in such other currency or currencies as may from time to time be agreed between India and the Bank.

- (4) The payments provided for under the provisions of Paragraph (3) shall be made without deduction or set-off on account of any financial claims of India on Pakistan arising otherwise than under the provisions of this Treaty : Provided that this provision shall in no way absolve Pakistan from the necessity of paying in other ways debts to India which may be outstanding against Pakistan.
- (5) If, at the request of Pakistan, the Transition Period is extended in accordance with the provisions of Article II (6) and of Part 8 of Annexure H, the Bank shall thereupon pay to India out of the Indus Basin Development Fund the appropriate amount specified in the Table below :

<i>Period of Aggregate Extension of Transition Period</i>	<i>Table</i>	<i>Payment to India £ Stg.</i>
One year		3,125,000
Two years		6,406,250
Three years		9,850,000

- (6) The provisions of Article IV (1) and Article V (1) shall not be construed as conferring upon India any right to participate in the decisions as to the system of works which Pakistan constructs pursuant to Article IV (1) or as constituting an assumption of any responsibility by India or as an agreement by India in regard to such works.
- (7) Except for such payments as are specifically provided for in this Treaty, neither Party shall be entitled to claim any payment for observance of the provisions of this Treaty or to make any charge for water received from it by the other Party.

Article VI

EXCHANGE OF DATA

- (1) The following data with respect to the flow in, and utilisation of the waters of, the Rivers shall be exchanged regularly between the Parties :
 - (a) Daily (or as observed or estimated less frequently) gauge and discharge data relating to flow of the Rivers at all observation sites.
 - (b) Daily extractions for or releases from reservoirs.
 - (c) Daily withdrawals at the heads of all canals operated by government or by a government agency (hereinafter in this Article called canals), including link canals.
 - (d) Daily escapages from all canals, including link canals.
 - (e) Daily deliveries from link canals.

These data shall be transmitted monthly by each Party to the other as soon as the data for a calendar month have been collected and tabulated, but not later than three months after the end of the month to which they relate : Provided that such of the data specified above as are considered by either Party to be necessary for operational purposes shall be supplied daily or at less frequent intervals, as may be requested. Should one Party request the supply of any of these data by telegram, telephone, or wireless, it shall reimburse the other Party for the cost of transmission.

- (2) If, in addition to the data specified in Paragraph (1) of this Article, either Party requests the supply of any data relating to the hydrology of the Rivers, or to canal or reservoir operation connected with the Rivers, or to any provision of this Treaty, such data shall be supplied by the other Party to the extent that these are available.

Article VII

FUTURE CO-OPERATION

- (1) The two Parties recognize that they have a common interest in the optimum development of the Rivers, and, to that end, they declare their intention to co-operate, by mutual agreement, to the fullest possible extent. In particular :
 - (a) Each Party, to the extent it considers practicable and on agreement by the other Party to pay the costs to be incurred, will, at the request of the other Party, set up or install such hydrologic observation stations within the drainage basins of the Rivers, and set up or install such meteorological observation stations relating thereto and carry out such observations thereat, as may be requested, and will supply the data so obtained.
 - (b) Each Party, to the extent it considers practicable and on agreement by the other Party to pay the costs to be incurred, will, at the request of the other Party, carry out such new drainage works as may be required in connection with new drainage works of the other Party.
 - (c) At the request of either Party, the two Parties may, by mutual agreement, co-operate in undertaking engineering works on the Rivers.

The formal arrangements, in each case, shall be as agreed upon between the Parties.

- (2) If either Party plans to construct any engineering work which would cause interference with the waters of any of the Rivers and which, in its opinion, would affect the other Party materially, it shall notify the other Party of its plans and shall supply such data relating to the work as may be available and as would enable the other Party to inform itself of the nature, magnitude and effect of the work. If a work would cause interference with the waters of any of the Rivers but would not, in the opinion of the Party planning it, affect the other Party materially, nevertheless the Party planning the work shall, on request, supply the other Party with such data regarding the nature, magnitude and effect, if any, of the work as may be available.

Article VIII

PERMANENT INDUS COMMISSION

- (1) India and Pakistan shall each create a permanent post of Commissioner for Indus Waters, and shall appoint to this post, as often as a vacancy occurs, a person who should ordinarily be a high-ranking engineer competent in the field of hydrology and water-use. Unless either Government should decide to take up any particular question directly with the other Government, each Commissioner will be the representative of his Government for all matters arising out of this Treaty, and will serve as the regular channel of communication on all matters relating to the implementation of the Treaty, and, in particular, with respect to
 - (a) the furnishing or exchange of information or data provided for in the Treaty ; and
 - (b) the giving of any notice or response to any notice provided for in the Treaty.
- (2) The status of each Commissioner and his duties and responsibilities towards his Government will be determined by that Government.
- (3) The two Commissioners shall together form the Permanent Indus Commission.
- (4) The purpose and functions of the Commission shall be to establish and maintain co-operative arrangements for the implementation of this Treaty, to promote co-operation between the Parties in the development of the waters of the Rivers and, in particular,

- (a) to study and report to the two Governments on any problem relating to the development of the waters of the Rivers which may be jointly referred to the Commission by the two Governments : in the event that a reference is made by one Government alone, the Commissioner of the other Government shall obtain the authorization of his Government before he proceeds to act on the reference ;
 - (b) to make every effort to settle promptly, in accordance with the provisions of Article IX (1) any question arising thereunder ;
 - (c) to undertake, once in every five years, a general tour of inspection of the Rivers for ascertaining the facts connected with various developments and works on the Rivers ;
 - (d) to 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 ; and
 - (e) to take, during the Transition Period, such steps as may be necessary for the implementation of the provisions of Annexure H.
- (5) The Commission shall meet regularly at least once a year, alternately in India and Pakistan. This regular annual meeting shall be held in November or in such other month as may be agreed upon between the Commissioners. The Commission shall also meet when requested by either Commissioner.
 - (6) To enable the Commissioners to perform their functions in the Commission, each Government agrees to accord to the Commissioner of the other Government the same privileges and immunities as are accorded to representatives of member States to the principal and subsidiary organs of the United Nations under Sections 11, 12 and 13 of Article IV of the Convention on the Privileges and Immunities of the United Nations (dated 13th February, 1946) during the periods specified in those Sections. It is understood and agreed that these privileges and immunities are accorded to the Commissioners not for the personal benefit of the individuals themselves but in order to safeguard the independent exercise of their functions in connection with the Commission ; consequently, the Government appointing the Commissioner not only has the right but is under a duty to waive the immunity of its Commissioner in any case where, in the opinion of the appointing Government, the immunity would impede the course of justice and can be waived without prejudice to the purpose for which the immunity is accorded.
 - (7) For the purposes of the inspections specified in Paragraph (4) (c) and (d), each Commissioner may be accompanied by two advisers or assistants to whom appropriate facilities will be accorded.
 - (8) The Commission shall submit to the Government of India and to the Government of Pakistan, before the first of June of every year, a report on its work for the year ended on the preceding 31st of March, and may submit to the two Governments other reports at such times as it may think desirable.
 - (9) Each Government shall bear the expenses of its Commissioner and his ordinary staff. The cost of any special staff required in connection with the work mentioned in Article VII (1) shall be borne as provided therein.
 - (10) The Commission shall determine its own procedures.

Article IX

SETTLEMENT OF DIFFERENCES AND DISPUTES

- (1) Any question which arises between the Parties concerning the interpretation or application of this Treaty or the existence of any fact which, if established, might constitute a breach of

this Treaty shall first be examined by the Commission, which will endeavour to resolve the question by agreement.

- (2) If the Commission does not reach agreement on any of the questions mentioned in Paragraph (1), then a difference will be deemed to have arisen, which shall be dealt with as follows :
- (a) Any difference which, in the opinion of either Commissioner, falls within the provisions of Part 1 of Annexure F shall, at the request of either Commissioner, be dealt with by a Neutral Expert in accordance with the provisions of Part 2 of Annexure F ;
 - (b) If the difference does not come within the provisions of Paragraph (2) (a), or if a Neutral Expert, in accordance with the provisions of Paragraph 7 of Annexure F, has informed the Commission that, in his opinion, the difference, or a part thereof, should be treated as a dispute, then a dispute will be deemed to have arisen which shall be settled in accordance with the provisions of Paragraphs (3), (4) and (5) :

Provided that, at the discretion of the Commission, any difference may either be dealt with by a Neutral Expert in accordance with the provisions of Part 2 of Annexure F or be deemed to be a dispute to be settled in accordance with the provisions of Paragraphs (3), (4) and (5), or may be settled in any other way agreed upon by the Commission.

- (3) As soon as a dispute to be settled in accordance with this and the succeeding paragraphs of this Article has arisen, the Commission shall, at the request of either Commissioner, report the fact to the two Governments, as early as practicable, stating in its report the points on which the Commission is in agreement and the issues in dispute, the views of each Commissioner on these issues and his reasons therefor.
- (4) Either Government may, following receipt of the report referred to in Paragraph (3), or if it comes to the conclusion that this report is being unduly delayed in the Commission, invite the other Government to resolve the dispute by agreement. In doing so it shall state the names of its negotiators and their readiness to meet with the negotiators to be appointed by the other Government at a time and place to be indicated by the other Government. To assist in these negotiations, the two Governments may agree to enlist the services of one or more mediators acceptable to them.
- (5) A Court of Arbitration shall be established to resolve the dispute in the manner provided by Annexure G
 - (a) upon agreement between the Parties to do so ; or
 - (b) at the request of either Party, if, after negotiations have begun pursuant to Paragraph (4), in its opinion the dispute is not likely to be resolved by negotiation or mediation ; or
 - (c) at the request of either Party, if, after the expiry of one month following receipt by the other Government of the invitation referred to in Paragraph (4), that Party comes to the conclusion that the other Government is unduly delaying the negotiations.
- (6) The provisions of Paragraphs (3), (4) and (5) shall not apply to any difference while it is being dealt with by a Neutral Expert.

Article X

EMERGENCY PROVISION

If, at any time prior to 31st March 1965, Pakistan should represent to the Bank that, because of the outbreak of large-scale international hostilities arising out of causes beyond the control of Pakistan, it is unable to obtain from abroad the materials and equipment necessary for the completion, by 31st March 1973, of that part of the system of works referred to in Article IV (1)

which relates to the replacement referred to therein, (hereinafter referred to as the “replacement element”) and if, after consideration of this representation in consultation with India, the Bank is of the opinion that

- (a) these hostilities are on a scale of which the consequence is that Pakistan is unable to obtain in time such materials and equipment as must be procured from abroad for the completion, by 31st March 1973, of the replacement element, and
- (b) since the Effective Date, Pakistan has taken all reasonable steps to obtain the said materials and equipment and, with such resources of materials and equipment as have been available to Pakistan both from within Pakistan and from abroad, has carried forward the construction of the replacement element with due diligence and all reasonable expedition,

the Bank shall immediately notify each of the Parties accordingly. The Parties undertake, without prejudice to the provisions of Article XII (3) and (4), that, on being so notified, they will forthwith consult together and enlist the good offices of the Bank in their consultation, with a view to reaching mutual agreement as to whether or not, in the light of all the circumstances then prevailing, any modifications of the provisions of this Treaty are appropriate and advisable and, if so, the nature and the extent of the modifications.

Article XI

GENERAL PROVISIONS

- (1) It is expressly understood that
 - (a) this Treaty governs the rights and obligations of each Party in relation to the other with respect only to the use of the waters of the Rivers and matters incidental thereto ; and
 - (b) nothing contained in this Treaty, and nothing arising out of the execution thereof, shall be construed as constituting a recognition or waiver (whether tacit, by implication or otherwise) of any rights or claims whatsoever of either of the Parties other than those rights or claims which are expressly recognized or waived in this Treaty.

Each of the Parties agrees that it will not invoke this Treaty, anything contained therein, or anything arising out of the execution thereof, in support of any of its own rights or claims whatsoever or in disputing any of the rights or claims whatsoever of the other Party, other than those rights or claims which are expressly recognized or waived in this Treaty.
- (2) Nothing in this Treaty shall be construed by the Parties as in any way establishing any general principle of law or any precedent.
- (3) The rights and obligations of each Party under this Treaty shall remain unaffected by any provisions contained in, or by anything arising out of the execution of, any agreement establishing the Indus Basin Development Fund.

Article XII

FINAL PROVISIONS

- (1) This Treaty consists of the Preamble, the Articles hereof and Annexures A to H hereto, and may be cited as “The Indus Waters Treaty 1960”.
- (2) This Treaty shall be ratified and the ratifications thereof shall be exchanged in New Delhi. It shall enter into force upon the exchange of ratifications, and will then take effect retrospectively from the first of April 1960.

- (3) The provisions of this Treaty may from time to time be modified by a duly ratified treaty concluded for that purpose between the two Governments.
- (4) The provisions of this Treaty, or the provisions of this Treaty as modified under the provisions of Paragraph (3), shall continue in force until terminated by a duly ratified treaty concluded for that purpose between the two Governments.

IN WITNESS WHEREOF the respective Plenipotentiaries have signed this Treaty and have hereunto affixed their seals.

Done in triplicate in English at Karachi on this Nineteenth day of September 1960.

For the Government of India :

(Signed) Jawaharlal NEHRU

For the Government of Pakistan :

(Signed) Mohammad Ayub KHAN
Field Marshal, H.P., H.J.

For the International Bank for Reconstruction and Development
for the purposes specified in Articles V and X and Annexures F, G and H :

(Signed) W. A. B. ILIFF

ANNEXURE A—EXCHANGE OF NOTES BETWEEN GOVERNMENT OF INDIA
AND GOVERNMENT OF PAKISTAN

[. . .]

ANNEXURE B—AGRICULTURAL USE BY PAKISTAN FROM
CERTAIN TRIBUTARIES OF THE RAVI

[. . .]

ANNEXURE C—AGRICULTURAL USE BY INDIA
FROM THE WESTERN RIVERS

(Article III (2) (c))

1. The provisions of this Annexure shall apply with respect to the Agricultural Use by India from the Western Rivers under the provisions of Article III (2) (c) and, subject to the provisions of this Annexure, such use shall be unrestricted.
2. As used in this Annexure, the term “Irrigated Cropped Area” means the total area under irrigated crops in a year, the same area being counted twice if it bears different crops in *kharif* and *rabi*. The term shall be deemed to exclude small blocks of *ghair mumkim* lands in an irrigated field, lands on which cultivation is dependent on rain or snow and to which no irrigation water is applied, areas naturally inundated by river flow and cultivated on *sailab* thereafter, any area under floating gardens or *demb* lands in and along any lakes, and any area under waterplants growing within the water-spread of any lake or in standing water in a natural depression.
3. India may withdraw from the Chenab Main such waters as India may need for Agricultural Use on the following canals limited to the maximum withdrawals noted against each :

<i>Name of Canal</i>	<i>Maximum Withdrawals for Agricultural Use</i>
(a) Ranbir Canal.....	1,000 cusecs from 15th April to 14th October, and 350 cusecs from 15th October to 14th April.
(b) Pratap Canal	400 cusecs from 15th April to 14th October, and 100 cusecs from 15th October to 14th April.

Provided that :

- (i) The maximum withdrawals shown above shall be exclusive of any withdrawals which may be made through these canals for purposes of silt extraction on condition that the waters withdrawn for silt extraction are returned to The Chenab.
 - (ii) India may make additional withdrawals through the Ranbir Canal up to 250 cusecs for hydro-electric generation on condition that the waters so withdrawn are returned to The Chenab.
 - (iii) If India should construct a barrage across the Chenab Main below the head regulators of these two canals, the withdrawals to be then made, limited to the amounts specified in (a) and (b) above, during each 10-day period or subperiod thereof, shall be as determined by the Commission in accordance with sound irrigation practice and, in the absence of agreement between the Commissioners, by a Neutral Expert in accordance with the provisions of Annexure F.
4. Apart from the irrigation from the Ranbir and Pratap Canals under the provisions of Paragraph 3, India may continue to irrigate from the Western Rivers those areas which were so irrigated as on the Effective Date.

5. In addition to such withdrawals as may be made in accordance with the provisions of Paragraphs 3 and 4, India may, subject to the provisions of Paragraphs 6, 7, 8 and 9, make further withdrawals from the Western Rivers to the extent India may consider necessary to meet the irrigation needs of the areas specified below :

<i>Particulars</i>	<i>Maximum Irrigated Cropped Area (over and above the cropped area irrigated under the provisions of Paragraphs 3 and 4) (acres)</i>
(a) From The Indus, in its drainage basin	70,000
(b) From The Jhelum, in its drainage basin.....	400,000
(c) From The Chenab	
(i) in its drainage basin.....	225,000 of which not more than 100,000 acres will be in the Jammu District.
(ii) outside its drainage basin in the area west of the Deg Nadi (also called Devak River), the aggregate capacity of irrigating channels leading out of the drainage basin of the Chenab to this area not to exceed 120 cusecs.	6,000

Provided that

- (i) in addition to the maximum Irrigated Cropped Area specified above, India may irrigate road-side trees from any source whatever ;
 - (ii) the maximum Irrigated Cropped Area shown against items (a), (b) and (c) (i) above shall be deemed to include cropped areas, if any, irrigated from an open well, a tube-well, a spring, a lake (other than a Connecting lake) or a tank, in excess of the areas so irrigated as on the Effective Date ; and
 - (iii) the aggregate of the areas specified against items (a), (b) and (c) (i) above may be re-distributed among the three drainage basins in such manner as may be agreed upon between the Commissioners.
6. (a) Within the limits of the maximum Irrigated Cropped Areas specified against items (b) and (c) (i) in Paragraph 5, there shall be no restriction on the development of such of these areas as may be irrigated from an open well, a tube-well, a spring, a lake (other than a Connecting Lake) or a tank.
- (b) Within the limits of the maximum Irrigated Cropped Areas specified against items (b) and (c) in Paragraph 5, there shall be no restriction on the development of such of these areas as may be irrigated from General Storage (as defined in Annexure E) : the areas irrigated from General Storage may, however, receive irrigation from river flow also, but, unless the Commissioners otherwise agree, only in the following periods :-
- (i) from The Jhelum : 21st June to 20th August
 - (ii) from The Chenab : 21st June to 31st August :

Provided that withdrawals for such irrigation, whether from General Storage or from river flow, are controlled by Government.

7. Within the limits of the maximum Irrigated Cropped Areas specified against items (b) and (c) in Paragraph 5, the development of these areas by withdrawals from river flow (as distinct from withdrawals from General Storage *cum* river flow in accordance with Paragraph 6 (b)) shall be regulated as follows :
- (a) Until India can release water from Conservation Storage (as defined in Annexure E) in accordance with sub-paragraphs (b) and (c) below, the new area developed shall not exceed the following :
 - (i) from The Jhelum : 150,000 acres

- (ii) from The Chenab : 25,000 acres during the Transition Period and 50,000 acres after the end of the Transition Period.
 - (b) In addition to the areas specified in (a) above, there may be developed from The Jhelum or The Chenab an aggregate area of 150,000 acres if there is released annually from Conservation Storage, in accordance with Paragraph 8, a volume of 0.2 MAF into The Jhelum and a volume of 0.1 MAF into The Chenab ; provided that India shall have the option to store on and release into The Chenab the whole or a part of the volume of 0.2 MAF specified above for release into The Jhelum.
 - (c) Any additional areas over and above those specified in (a) and (b) above may be developed if there is released annually from Conservation Storage a volume of 0.2 MAF into The Jhelum or The Chenab, in accordance with Paragraph 8, in addition to the releases specified in (b) above.
8. The releases from Conservation Storage, as specified in Paragraphs 7 (b) and 7 (c), shall be made in accordance with a schedule to be determined by the Commission which shall keep in view, first, the effect, if any, on Agricultural Use by Pakistan consequent on the reduction in supplies available to Pakistan as a result of the withdrawals made by India under the provisions of Paragraph 7 and, then, the requirements, if any, of hydro-electric power to be developed by India from these releases. In the absence of agreement between the Commissioners, the matter may be referred under the provisions of Article IX (2) (a) for decision to a Neutral Expert.
 9. On those Tributaries of The Jhelum on which there is any Agricultural Use or hydro-electric use by Pakistan, any new Agricultural Use by India shall be so made as not to affect adversely the then existing Agricultural Use or hydro-electric use by Pakistan on those Tributaries.
 10. Not later than 31st March 1961, India shall furnish to Pakistan a statement showing, for each of the Districts and Tehsils irrigated from the Western Rivers, the Irrigated Cropped Area as on the Effective Date (excluding only the area irrigated under the provisions of Paragraph 3), arranged in accordance with items (a), (b) and (c) (i) of Paragraph 5 : Provided that, in the case of areas in the Punjab, the date may be extended to 30th September 1961.
 11. (a) As soon as the statistics for each crop year (commencing with the beginning of *kharif* and ending with the end of the following *rabi*) have been compiled at the District Headquarters, but not later than the 30th November following the end of that crop year, India shall furnish to Pakistan a statement showing for each of the Districts and Tehsils irrigated from the Western Rivers, the total Irrigated Cropped Areas (excluding the area irrigated under the provisions of Paragraph 3) arranged in accordance with items (a), (b), (c) (i) and (c) (ii) of Paragraph 5 : Provided that, in the case of areas in the Punjab, the 30th November date specified above may be extended to the following 30th June in the event of failure of communications.
 - (b) If the limits specified in Paragraph 7 (a) or 7 (b) are exceeded for any crop year, the statement shall also show the figures for Irrigated Cropped Areas falling under Paragraph 6 (a) and 6 (b) respectively, unless appropriate releases from Conservation Storage under the provisions of Paragraph 8 have already begun to be made.

ANNEXURE D—GENERATION OF HYDRO-ELECTRIC POWER
BY INDIA ON THE WESTERN RIVERS

(Article III (2) (d))

1. The provisions of this Annexure shall apply with respect to the use by India of the waters of the Western Rivers for the generation of hydro-electric power under the provisions of Article III (2) (d) and, subject to the provisions of this Annexure, such use shall be unrestricted : Provided that the design, construction and operation of new hydro-electric plants which are incorporated in a Storage Work (as defined in Annexure E) shall be governed by the relevant provisions of Annexure E.

PART 1—DEFINITIONS

2. As used in this Annexure :
 - (a) “Dead Storage” means that portion of the storage which is not used for operational purposes and “Dead Storage Level” means the level corresponding to Dead Storage.
 - (b) “Live Storage” means all storage above Dead Storage.
 - (c) “Pondage” means 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.
 - (d) “Full Pondage Level” means the level corresponding to the maximum Pondage provided in the design in accordance with Paragraph 8 (c).
 - (e) “Surcharge Storage” means uncontrollable storage occupying space above the Full Pondage Level.
 - (f) “Operating Pool” means the storage capacity between Dead Storage level and Full Pondage Level.
 - (g) “Run-of-River Plant” means a hydro-electric plant that develops power without Live Storage as an integral part of the plant, except for Pondage and Surcharge Storage.
 - (h) “Regulating Basin” means the basin whose only purpose is to even out fluctuations in the discharge from the turbines arising from variations in the daily and the weekly loads of the plant.
 - (i) “Firm Power” means the hydro-electric power corresponding to the minimum mean discharge at the site of a plant, the minimum mean discharge being calculated as follows :

The average discharge for each 10-day period (1st to 10th, 11th to 20th and 21st to the end of the month) will be worked out for each year for which discharge data, whether observed or estimated, are proposed to be studied for purposes of design. The mean of the yearly values for each 10-day period will then be worked out. The lowest of the mean values thus obtained will be taken as the minimum mean discharge. The studies will be based on data for as long a period as available but may be limited to the latest 5 years in the case of Small Plants (as defined in Paragraph 18) and to the latest 25 years in the case of other Plants (as defined in Paragraph 8).
 - (j) “Secondary Power” means the power, other than Firm Power, available only during certain periods of the year.

PART 2—HYDRO-ELECTRIC PLANTS IN OPERATION, OR UNDER
CONSTRUCTION, AS ON THE EFFECTIVE DATE

3. There shall be no restriction on the operation of the following hydro-electric plants which were in operation as on the Effective Date :

<i>Name of Plant</i>	<i>Capacity (exclusive of standby units) (kilowatts)</i>
(i) Pahalgam.....	186
(ii) Bandipura.....	30
(iii) Dachhigam	40
(iv) Ranbir Canal	1,200
(v) Udampur.....	640
(vi) Poonch.....	160

4. There shall be no restriction on the completion by India, in accordance with the design adopted prior to the Effective Date, or on the operation by India, of the following hydro-electric plants which were actually under construction on the Effective Date, whether or not the plant was on that date in partial operation :

<i>Name of Plant</i>	<i>Designed capacity (exclusive of standby units) (kilowatts)</i>
(i) Mahora	12,000
(ii) Ganderbal	15,000
(iii) Kupwara	150
(iv) Bhadarwah	600
(v) Kishtwar	350
(vi) Rajouri.....	650
(vii) Chinani.....	14,000
(viii) Nichalani Banihal.....	600

5. As soon as India finds it possible to do so, but not later than 31st March 1961, India shall communicate to Pakistan the information specified in Appendix I to this Annexure for each of the plants specified in Paragraphs 3 and 4. If any such information is not available or is not pertinent to the design of the plant or to the conditions at the site, it will be so stated.
6. (a) If any alteration proposed in the design of any of the plants specified in Paragraphs 3 and 4 would result in a material change in the information furnished to Pakistan under the provisions of Paragraph 5, India shall, at least 4 months in advance of making the alteration, communicate particulars of the change to Pakistan in writing and the provisions of Paragraph 7 shall then apply.
- (b) In the event of an emergency arising which requires repairs to be undertaken to protect the integrity of any of the plants specified in Paragraphs 3 and 4, India may undertake immediately the necessary repairs or alterations and, if these repairs or alterations result in a change in the information furnished to Pakistan under the provisions of Paragraph 5, India shall as soon as possible communicate particulars of the change to Pakistan in writing. The provisions of Paragraph 7 shall then apply.
7. Within three months of the receipt of the particulars specified in Paragraph 6, Pakistan shall communicate to India in writing any objection it may have with regard to the proposed change on the ground that the change involves a material departure from the criteria set out in Paragraph 8 or 18 of this Annexure or Paragraph 11 of Annexure E as the case may be. If no objection is received by India from Pakistan within the specified period of three months, then Pakistan shall be deemed to have no objection. If a question arises as to whether or not the change involves a material departure from such of the criteria mentioned above as may

be applicable, then either Party may proceed to have the question resolved in accordance with the provisions of Article IX (1) and (2).

PART 3—NEW RUN-OF-RIVER PLANTS

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.
 - (d) 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.
 - (e) 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.
 - (f) 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.
 - (g) If any Plant is constructed on the Chenab Main at a site below Kotru (Longitude 74°-59' East and Latitude 33°-09' North), a Regulating Basin shall be incorporated.
9. To enable Pakistan to satisfy itself that the design of a Plant conforms to the criteria mentioned in Paragraph 8, India shall, at least six months in advance of the beginning of construction of river works connected with the Plant, communicate to Pakistan, in writing, the information specified in Appendix II to this Annexure. If any such information is not available or is not pertinent to the design of the Plant or to the conditions at the site, it will be so stated.
10. Within three months of the receipt by Pakistan of the information specified in Paragraph 9, Pakistan shall communicate to India, in writing, any objection that it may have with regard to the proposed design on the ground that it does not conform to the criteria mentioned in Paragraph 8. If no objection is received by India from Pakistan within the specified period of three months, then Pakistan shall be deemed to have no objection.
11. If a question arises as to whether or not the design of a Plant conforms to the criteria set out in Paragraph 8, then either Party may proceed to have the question resolved in accordance with the provisions of Article IX (1) and (2).
12. (a) If any alteration proposed in the design of a Plant before it comes into operation would result in a material change in the information furnished to Pakistan under the provisions of Paragraph 9, India shall immediately communicate particulars of the change to Pakistan in writing and the provisions of Paragraphs 10 and 11 shall then apply, but the period of three months specified in Paragraph 10 shall be reduced to two months.

(b) If any alteration proposed in the design of a Plant after it comes into operation would result in a material change in the information furnished to Pakistan under the provisions of Paragraph 9, India shall, at least four months in advance of making the alteration,

communicate particulars of the change to Pakistan in writing and the provisions of Paragraphs 10 and 11 shall then apply, but the period of three months specified in Paragraph 10 shall be reduced to two months.

13. In the event of an emergency arising which requires repairs to be undertaken to protect the integrity of a Plant, India may undertake immediately the necessary repairs or alterations ; if these repairs or alterations result in a change in the information furnished to Pakistan under the provisions of Paragraph 9, India shall, as soon as possible, communicate particulars of the change to Pakistan in writing to enable Pakistan to satisfy itself that after such change the design of the Plant conforms to the criteria specified in Paragraph 8. The provisions of Paragraphs 10 and 11 shall then apply.
14. The filling of Dead Storage shall be carried out in accordance with the provisions of Paragraph 18 or 19 of Annexure E.
15. Subject to the provisions of Paragraph 17, the works connected with a Plant shall be so operated that (a) the 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, and (b) in any one period of 24 hours within that seven-day period, the volume delivered into the river below the Plant shall be not less than 30%, and not more than 130%, of the volume received in the river above the Plant during the same 24-hour period : Provided however that :
 - (i) where a Plant is located at a site on the Chenab Main below Ramban, the volume of water received in the river upstream of the Plant in any one period of 24 hours shall be delivered into the river below the Plant within the same period of 24 hours ;
 - (ii) where a Plant is located at a site on the Chenab Main above Ramban, the volume of water delivered into the river below the Plant in any one period of 24 hours shall not be less than 50% and not more than 130%, of the volume received above the Plant during the same 24-hour period ; and
 - (iii) where a Plant is located on a Tributary of The Jhelum on which Pakistan has any Agricultural use or hydro-electric use, the water released below the Plant may be delivered, if necessary, into another Tributary but only to the extent that the then existing Agricultural Use or hydro-electric use by Pakistan on the former Tributary would not be adversely affected.
16. For the purpose of Paragraph 15, the period of 24 hours shall commence at 8 a.m. daily and the period of 7 consecutive days shall commence at 8 a.m. on every Saturday. The time shall be Indian Standard Time.
17. The provisions of Paragraph 15 shall not apply during the period when the Dead Storage at a Plant is being filled in accordance with the provisions of Paragraph 14. In applying the provisions of Paragraph 15 :
 - (a) a tolerance of 10% in volume shall be permissible ; and
 - (b) Surcharge Storage shall be ignored.
18. The provisions of Paragraphs 8, 9, 10, 11, 12 and 13 shall not apply to a new Run-of-River Plant which is located on a Tributary and which conforms to the following criteria (hereinafter referred to as a Small Plant) :
 - (a) the aggregate designed maximum discharge through the turbines does not exceed 300 cusecs ;
 - (b) no storage is involved in connection with the Small Plant, except the Pondage and the storage incidental to the diversion structure ; and

- (c) the crest of the diversion structure across the Tributary, or the top level of the gates, if any, shall not be higher than 20 feet above the mean bed of the Tributary at the site of the structure.
- 19. The information specified in Appendix III to this Annexure shall be communicated to Pakistan by India at least two months in advance of the beginning of construction of the river works connected with a Small Plant. If any such information is not available or is not pertinent to the design of the Small Plant or to the conditions at the site, it will be so stated.
- 20. Within two months of the receipt by Pakistan of the information specified in Appendix III, Pakistan shall communicate to India, in writing, any objection that it may have with regard to the proposed design on the ground that it does not conform to the criteria mentioned in Paragraph 18. If no objection is received by India from Pakistan within the specified period of two months, then Pakistan shall be deemed to have no objection.
- 21. If a question arises as to whether or not the design of a Small Plant conforms to the criteria set out in Paragraph 18, then either Party may proceed to have the question resolved in accordance with the provisions of Article IX (1) and (2).
- 22. If any alteration in the design of a Small Plant, whether during the construction period or subsequently, results in a change in the information furnished to Pakistan under the provisions of Paragraph 19, then India shall immediately communicate the change in writing to Pakistan.
- 23. If, with any alteration proposed in the design of a Small Plant, the design would cease to comply with the criteria set out in Paragraph 18, then the provisions of Paragraphs 18 to 22 inclusive shall no longer apply and, in lieu thereof, the provisions of Paragraphs 8 to 13 inclusive shall apply.

PART 4—NEW PLANTS ON IRRIGATION CHANNELS

- 24. Notwithstanding the foregoing provisions of this Annexure, there shall be no restriction on the construction and operation by India of new hydro-electric plants on any irrigation channel taking off the Western Rivers, provided that
 - (a) the works incorporate no storage other than Pondage and the Dead Storage incidental to the diversion structure, and
 - (b) no additional supplies are run in the irrigation channel for the purpose of generating hydro-electric power.

PART 5—GENERAL

- 25. If the change referred to in Paragraphs 6 (a) and 12 is not material, India shall communicate particulars of the change to Pakistan, in writing, as soon as the alteration has been made or the repairs have been undertaken. The provisions of Paragraph 7 or Paragraph 23, as the case may be, shall then apply.

APPENDIX I TO ANNEXURE D

(Paragraph 5)

1. Location of Plant

General map showing the location of the site ; if on a Tributary, its situation with respect to the main river.

2. Hydraulic Data

- (a) Stage-area and stage-capacity curves of the reservoir, forebay and Regulating Basin.

- (b) Full Pondage Level, Dead Storage Level and Operating Pool.
- (c) Dead Storage capacity.
- 3. *Particulars of Design*
 - (a) Type of spillway, length and crest level ; size, number and top level of spillway gates.
 - (b) Outlet works : function, type, size, number, maximum designed capacity and sill levels.
 - (c) Aggregate designed maximum discharge through the turbines.
 - (d) Maximum aggregate capacity of power units (exclusive of standby units) for Firm Power and Secondary Power.
 - (e) Regulating Basin and its outlet works : dimensions and maximum discharge capacity.
- 4. *General*

Probable date of completion of river works, and dates on which various stages of the plant would come into operation.

APPENDIX II TO ANNEXURE D

(Paragraph 9)

- 1. *Location of Plant*

General map showing the location of the site ; if on a Tributary, its situation with respect to the main river.
- 2. *Hydrologic Data*
 - (a) General map (Scale : $\frac{1}{4}$ inch or more = 1 mile) showing the discharge observation site or sites or rainfall gauge stations on whose data the design is based. In case of a Plant on a Tributary, this map should also show the catchment area of the Tributary above the site.
 - (b) Observed or estimated daily river discharge data on which the design is based (observed data will be given for as long a period as available ; estimated data will be given for as long a period as possible ; in both cases data may be limited to the latest 25 years).
 - (c) Flood data, observed or estimated (with details of estimation).
 - (d) Gauge-discharge curve or curves for site or sites mentioned in (a) above.
- 3. *Hydraulic Data*
 - (a) Stage-area and stage-capacity curves of the reservoir, forebay and Regulating Basin, with contoured survey maps on which based.
 - (b) Full Pondage Level, Dead Storage Level and Operating Pool together with the calculations for the Operating Pool.
 - (c) Dead Storage capacity.
 - (d) Estimated evaporation losses in the reservoir, Regulating Basin, head-race, forebay and tail-race.
 - (e) Maximum designed flood discharge, discharge-capacity curve for spillway and maximum designed flood level.

- (f) Designated range of operation.
- 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.
 - (j) Regulating Basin and its outlet works : type, number, size, sill levels and designed maximum discharge capacity.
- 5. *General*
 - (a) Estimated effect of proposed development on the flow pattern below the last plant downstream (with details of estimation).
 - (b) Probable date of completion of river works, and dates on which various stages of the Plant would come into operation.

APPENDIX III TO ANNEXURE D

(Paragraph 19)

- I. *Location of Small Plant*

General map showing the location of the site on the Tributary and its situation with respect to the main river.
- 2. *Hydrologic Data*
 - (a) Observed or estimated daily Tributary discharge (observed data will be given for as long a period as available ; estimated data will be given for as long a period as possible ; in both cases, data may be limited to the latest five years).
 - (b) Flood data, observed or estimated (with details of estimation).
 - (c) Gauge-discharge curve relating to discharge site.
- 3. *Hydraulic Data*
 - (a) Stage-area and stage-capacity curves of the forebay with survey map on which based.
 - (b) Full Pondage Level, Dead Storage Level and Operating Pool together with the calculations for the Operating Pool.

4. *Particulars of Design*

- (a) Dimensioned plan showing diversion works, outlet works, head-race and forebay, powerhouse and tail-race.
- (b) Type of diversion works, length and height of crest or top level of gates above the mean bed of the Tributary at the site.
- (c) Cross-section of the Tributary at the site ; mean bed level.
- (d) Head-race and tail-race : length, size and designed maximum capacity.
- (e) Aggregate designed maximum discharge through the turbines.
- (f) Spillway, if any : type, length and crest level ; size, number and top level of gates.
- (g) Maximum aggregate capacity of power units (exclusive of standby units) for Firm Power and Secondary Power.

ANNEXURE E—STORAGE OF WATERS
BY INDIA ON THE WESTERN RIVERS

(Article III (4))

- 1. The provisions of this Annexure shall apply with respect to the storage of water on the Western Rivers, and to the construction and operation of Storage Works thereon, by India under the provisions of Article III (4).
- 2. As used in this Annexure :
 - (a) “Storage Work” means a work constructed for the purpose of impounding the waters of a stream ; but excludes
 - (i) a Small Tank,
 - (ii) the works specified in Paragraphs 3 and 4 of Annexure D, and
 - (iii) a new work constructed in accordance with the provisions of Annexure D.
 - (b) “Reservoir Capacity” means the gross volume of water which can be stored in the reservoir.
 - (c) “Dead Storage Capacity” means that portion of the Reservoir Capacity which is not used for operational purposes, and “Dead Storage” means the corresponding volume of water.
 - (d) “Live Storage Capacity” means the Reservoir Capacity excluding Dead Storage Capacity, and “Live Storage” means the corresponding volume of water.
 - (e) “Flood Storage Capacity” means that portion of the Reservoir Capacity which is reserved for the temporary storage of flood waters in order to regulate downstream flows, and “Flood Storage” means the corresponding volume of water.
 - (f) “Surcharge Storage Capacity” means the Reservoir Capacity between the crest of an uncontrolled spillway or the top of the crest gates in normal closed position and the maximum water elevation above this level for which the dam is designed, and “Surcharge Storage” means the corresponding volume of water.
 - (g) “Conservation Storage Capacity” means the Reservoir Capacity excluding Flood Storage Capacity, Dead Storage Capacity and Surcharge Storage Capacity, and “Conservation Storage” means the corresponding volume of water.

- (h) “Power Storage Capacity” means that portion of the Conservation Storage Capacity which is designated to be used for generating electric energy, and “Power Storage” means the corresponding volume of water.
 - (i) “General Storage Capacity” means the Conservation Storage Capacity excluding Power Storage Capacity, and “General Storage” means the corresponding volume of water.
 - (j) “Dead Storage Level” means the level of water in a reservoir corresponding to Dead Storage Capacity, below which level the reservoir does not operate.
 - (k) “Full Reservoir Level” means the level of water in a reservoir corresponding to Conservation Storage Capacity.
 - (l) “Multi-purpose Reservoir” means a reservoir capable of and intended for use for more than one purpose.
 - (m) “Single-purpose Reservoir” means a reservoir capable of and intended for use for only one purpose.
 - (n) “Small Tank” means a tank having a Live Storage of less than 700 acre-feet and fed only from a non-perennial small stream : Provided that the Dead Storage does not exceed 50 acre-feet.
3. There shall be no restriction on the operation as heretofore by India of those Storage Works which were in operation as on the Effective Date or on the construction and operation of Small Tanks.
 4. As soon as India finds it possible to do so, but not later than 31st March 1961, India shall communicate to Pakistan in writing the information specified in the Appendix to this Annexure for such Storage Works as were in operation as on the Effective Date. If any such information is not available or is not pertinent to the design of the Storage Work or to the conditions at the site, it will be so stated.
 5. (a) If any alteration proposed in the design of any of the Storage Works referred to in Paragraph 3 would result in a material change in the information furnished to Pakistan under the provisions of Paragraph 4, India shall, at least 4 months in advance of making the alteration, communicate particulars of the change to Pakistan in writing and the provisions of Paragraph 6 shall then apply.
 (b) In the event of an emergency arising which requires repairs to be undertaken to protect the integrity of any of the Storage Works referred to in Paragraph 3, India may undertake immediately the necessary repairs or alterations and, if these repairs or alterations result in a change in the information furnished to Pakistan under the provisions of Paragraph 4, India shall as soon as possible communicate particulars of the change to Pakistan in writing. The provisions of Paragraph 6 shall then apply.
 6. Within three months of the receipt of the particulars specified in Paragraph 5, Pakistan shall communicate to India in writing any objection it may have with regard to the proposed change on the ground that the change involves a material departure from the criteria set out in Paragraph 11. If no objection is received by India from Pakistan within the specified period of three months, then Pakistan shall be deemed to have no objection. If a question arises as to whether or not the change involves a material departure from such of the criteria mentioned above as may be applicable, then either Party may proceed to have the question resolved in accordance with the provisions of Article IX (1) and (2).
 7. The aggregate storage capacity of all Single-purpose and Multi-purpose Reservoirs which may be constructed by India after the Effective Date on each of the River Systems specified in Column (2) of the following table shall not exceed, for each of the categories shown in Columns (3), (4) and (5), the quantities specified therein :

(1)	River System	Conservation Storage Capacity		Flood Storage Capacity
		General Storage Capacity	Power Storage Capacity	
(1)	(2)	(3)	(4)	(5)
		<i>million acre-feet</i>		
(a)	The Indus	0.25	0.15	Nil
(b)	The Jhelum (excluding the Jhelum Main)	0.50	0.25	0.75
(c)	The Jhelum Main	Nil	Nil	As provided in Paragraph 9
(d)	The Chenab (excluding the Chenab Main) ...	0.50	0.60	Nil
(e)	The Chenab Main	Nil	0.60	Nil

Provided that

- (i) the storage specified in Column (3) above may be used for any purpose whatever, including the generation of electric energy ;
 - (ii) the storage specified in Column (4) above may also be put to Non-Consumptive Use (other than flood protection or flood control) or to Domestic Use ;
 - (iii) India shall have the option to increase the Power Storage Capacity specified against item (d) above by making a reduction by an equal amount in the Power Storage Capacity specified against items (b) or (e) above ; and
 - (iv) Storage Works to provide the Power Storage Capacity on the Chenab Main specified against item (e) above shall not be constructed at a point below Naunut (Latitude 33° 19' N. and Longitude 75° 59' E.).
8. The figures specified in Paragraph 7 shall be exclusive of the following :
- (a) Storage in any Small Tank.
 - (b) Any natural storage in a Connecting Lake, that is to say, storage not resulting from any man-made works.
 - (c) Waters which, without any man-made channel or works, spill into natural depressions or borrow-pits during floods.
 - (d) Dead Storage.
 - (e) The volume of Pondage for hydro-electric plants under Annexure D and under Paragraph 21 (a).
 - (f) Surcharge Storage.
 - (g) Storage in a Regulating Basin (as defined in Annexure D).
 - (h) Storage incidental to a barrage on the Jhelum Main or on the Chenab Main not exceeding 10,000 acre-feet.
9. India may construct on the Jhelum Main such works as it may consider necessary for flood control of the Jhelum Main and may complete any such works as were under construction on the Effective Date : Provided that
- (i) any storage which may be effected by such works shall be confined to off-channel storage in side valleys, depressions or lakes and will not involve any storage in the Jhelum Main itself ; and

- (ii) except for the part held in lakes, borrow-pits or natural depressions, the stored waters shall be released as quickly as possible after the flood recedes and returned to the Jhelum Main lower down.

These works shall be constructed in accordance with the provisions of Paragraph 11 (d).

10. Notwithstanding the provisions of Paragraph 7, any Storage Work to be constructed on a Tributary of The Jhelum on which Pakistan has any Agricultural Use or hydro-electric use shall be so designed and operated as not to adversely affect the then existing Agricultural Use or hydro-electric use on that Tributary.
11. The design of any Storage Work (other than a Storage Work falling under Paragraph 3) shall conform to the following criteria :
 - (a) The Storage Work shall not be capable of raising artificially the water level in the reservoir higher than the designed Full Reservoir Level except to the extent necessary for Flood Storage, if any, specified in the design.
 - (b) The design of the works shall take due account of the requirements of Surcharge Storage.
 - (c) The volume between the Full Reservoir Level and the Dead Storage Level of any reservoir shall not exceed the Conservation Storage Capacity specified in the design.
 - (d) With respect to the Flood Storage mentioned in Paragraph 9, the design of the works on the Jhelum Main shall be such that no water can spill from the Jhelum Main into the off-channel storage except when the water level in the Jhelum Main rises above the low flood stage.
 - (e) Outlets or other works of sufficient capacity shall be provided to deliver into the river downstream the flow of the river received upstream of the Storage Work, except during freshets or floods. These outlets or works shall be located at the highest level consistent with sound and economical design and with satisfactory operation of the Storage Work.
 - (f) Any outlets below the Dead Storage Level necessary for sediment control or any other technical purpose shall be of the minimum size, and located at the highest level, consistent with sound and economical design and with satisfactory operation of the Storage Work.
 - (g) If a power plant is incorporated in the Storage Work, the intakes for the turbines shall 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 for the designated range of the plant's operation.
12. To enable Pakistan to satisfy itself that the design of a Storage Work (other than a Storage Work falling under Paragraph 3) conforms to the criteria mentioned in Paragraph 11, India shall, at least six months in advance of the beginning of construction of the Storage Work, communicate to Pakistan in writing the information specified in the Appendix to this Annexure ; if any such information is not available or is not pertinent to the design of the Storage Work or to the conditions at the site, it will be so stated :

Provided that, in the case of a Storage Work falling under Paragraph 9,

 - (i) if the work is a new work, the period of six months shall be reduced to four months, and
 - (ii) if the work is a work under construction on the Effective Date, the information shall be furnished not later than 31st December 1960.
13. Within three months (or two months, in the case of a Storage Work specified in Paragraph 9) of the receipt by Pakistan of the information specified in Paragraph 12, Pakistan shall communicate to India in writing any objection that it may have with regard

to the proposed design on the ground that the design does not conform to the criteria mentioned in Paragraph 11. If no objection is received by India from Pakistan within the specified period of three months (or two months, in the case of a Storage Work specified in Paragraph 9), then Pakistan shall be deemed to have no objection.

14. If a question arises as to whether or not the design of a Storage Work (other than a Storage Work falling under Paragraph 3) conforms to the criteria set out in Paragraph 11, then either Party may proceed to have the question resolved in accordance with the provisions of Article IX (1) and (2).
15. (a) If any alteration proposed in the design of a Storage Work (other than a Storage Work falling under Paragraph 3) before it comes into operation would result in a material change in the information furnished to Pakistan under the provisions of Paragraph 12, India shall immediately communicate particulars of the change to Pakistan in writing and the provisions of Paragraphs 13 and 14 shall then apply, but where a period of three months is specified in Paragraph 13, that period shall be reduced to two months.

(b) If any alteration proposed in the design of a Storage Work (other than a Storage Work falling under Paragraph 3), after it comes into operation would result in a material change in the information furnished to Pakistan under the provisions of Paragraph 12, India shall, at least four months in advance of making the alteration, communicate particulars of the change to Pakistan in writing and the provisions of Paragraphs 13 and 14 shall then apply, but where a period of three months is specified in Paragraph 13, that period shall be reduced to two months.
16. In the event of an emergency arising which requires repairs to be undertaken to protect the integrity of a Storage Work (other than a Storage Work falling under Paragraph 3), India may undertake immediately the necessary repairs or alterations ; if these repairs or alterations result in a change in the information furnished to Pakistan under the provisions of Paragraph 12, India shall, as soon as possible, communicate particulars of the change to Pakistan in writing to enable Pakistan to satisfy itself that after such change the design of the work conforms to the criteria specified in Paragraph 11. The provisions of Paragraphs 13 and 14 shall then apply.
17. The Flood Storage specified against item (b) in Paragraph 7 may be effected only during floods when the discharge of the river exceeds the amount specified for this purpose in the design of the work ; the storage above Full Reservoir Level shall be released as quickly as possible after the flood recedes.
18. The annual filling of Conservation Storage and the initial filling below the Dead Storage Level, at any site, shall be carried out at such times and in accordance with such rules as may be agreed upon between the Commissioners. In case the Commissioners are unable to reach agreement, India may carry out the filling as follows :
 - (a) if the site is on The Indus, between 1st July and 20th August ;
 - (b) if the site is on The Jhelum, between 21st June and 20th August ; and
 - (c) if the site is on The Chenab, between 21st June and 31st August at such rate as not to reduce, on account of this filling, the flow in the Chenab Main above Merala to less than 55,000 cusecs.
19. The Dead Storage shall not be depleted except in an unforeseen emergency. If so depleted, it will be refilled in accordance with the conditions of its initial filling.
20. Subject to the provisions of Paragraph 8 of Annexure C, India may make releases from Conservation Storage in any manner it may determine.
21. If a hydro-electric power plant is incorporated in a Storage Work (other than a Storage Work falling under Paragraph 3), the plant shall be so operated that :

- (a) the maximum Pondage (as defined in Annexure D) shall not exceed the Pondage required for the firm power of the plant, and the water-level in the reservoir corresponding to maximum Pondage shall not, on account of this Pondage, exceed the Full Reservoir Level at any time ; and
 - (b) except during the period in which a filling is being carried out in accordance with the provisions of Paragraph 18 or 19, the volume of water delivered into the river below the work during any period of seven consecutive days shall not be less than the volume of water received in the river upstream of the work in that seven-day period.
22. In applying the provisions of Paragraph 21 (b) :
- (a) the period of seven consecutive days shall commence at 8 a.m. on every Saturday and the time shall be Indian Standard Time ;
 - (b) a tolerance of 10% in volume shall be permissible and adjusted as soon as possible ; and
 - (c) any temporary uncontrollable retention of water due to variation in river supply will be accounted for.
23. When the Live Storage Capacity of a Storage Work is reduced by sedimentation, India may, in accordance with the relevant provisions of this Annexure, construct new Storage Works or modify existing Storage Works so as to make up the storage capacity lost by sedimentation.
24. If a power plant incorporated in a Storage Work (other than a Storage Work falling under Paragraph 3) is used to operate a peak power plant and lies on any Tributary of The Jhelum on which there is any Agricultural Use by Pakistan, a Regulating Basin (as defined in Annexure D) shall be incorporated.
25. If the change referred to in Paragraph 5 (a) or 15 is not material, India shall communicate particulars of the change to Pakistan, in writing, as soon as the alteration has been made or the repairs have been undertaken. The provisions of Paragraph 6 or Paragraphs 13 and 14, as the case may be, shall then apply.

APPENDIX TO ANNEXURE E

(Paragraphs 4 and 12)

1. *Location of Storage Work*
General map showing the location of the site ; if on a Tributary, its situation with respect to the main river.
2. *Hydrologic Data*
 - (a) General map (Scale : $\frac{1}{4}$ inch or more = 1 mile) showing the discharge observation site or sites or rainfall gauge stations, on whose data the design is based. In case of a work on a Tributary, this map should also show the catchment area of the Tributary above the site.
 - (b) Observed or estimated daily river discharge data on which the design is based (observed data will be given for as long a period as available ; estimated data will be given for as long a period as possible ; in both cases data may be limited to the latest 25 years).
 - (c) Flood data, observed or estimated (with details of estimation).
 - (d) Gauge-discharge curve or curves for site or sites mentioned in (a) above.
 - (e) Sediment data.

3. *Hydraulic Data*

- (a) Stage-area and stage-capacity curves of the reservoir with contoured survey maps on which based.
- (b) Reservoir Capacity, Dead Storage Capacity, Flood Storage Capacity, Conservation Storage Capacity, Power Storage Capacity, General Storage Capacity and Surcharge Storage Capacity.
- (c) Full Reservoir Level, Dead Storage Level and levels corresponding to Flood Storage and Surcharge Storage.
- (d) Estimated evaporation losses in the reservoir.
- (e) Maximum designed flood discharge and discharge-capacity curve for spillway.
- (f) If a power plant is incorporated in a Storage Work :
 - (i) Stage-area and stage-capacity curves of forebay and Regulating Basin, with contoured survey maps on which based.
 - (ii) Estimated evaporation losses in the Regulating Basin, head-race, forebay and tail-race.
 - (iii) Designated range of operation.

4. *Particulars of Design*

- (a) Dimensioned plan showing dam, spillway, diversion works and outlet works.
- (b) Type of dam, length and height above mean bed of the river.
- (c) Cross-section of the river at the site and mean bed level.
- (d) Type of spillway, length and crest level ; size, number and top level of spillway gates.
- (e) Type of diversion works, maximum designed capacity, number and size ; sill levels.
- (f) Outlet works : function, type, size, number, maximum designed capacity and sill levels.
- (g) If a power plant is incorporated in a Storage Work,
 - (i) Dimensioned plan showing head-race and forebay, powerhouse, tail-race and Regulating Basin.
 - (ii) Type of intake, maximum designed capacity, size and sill level.
 - (iii) Head-race and tail-race, length, size and maximum designed capacity.
 - (iv) 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.
 - (v) Maximum aggregate capacity of power units (exclusive of standby units) for firm power and secondary power.
 - (vi) Regulating Basin and its outlet works : type, number, size, sill levels and designed maximum discharge capacity.

5. *General*

- (a) Probable date of completion of river works and probable dates on which various stages of the work would come into operation.
- (b) Estimated effect of proposed Storage Work on the flow pattern of river supplies below the Storage Work or, if India has any other Storage Work or Run-of-River

Plant (as defined in Annexure D) below the proposed Storage Work, then on the flow pattern below the last Storage Work or Plant.

ANNEXURE F—NEUTRAL EXPERT

(Article IX (2))

PART 1—QUESTIONS TO BE REFERRED TO A NEUTRAL EXPERT

1. Subject to the provisions of Paragraph 2, either Commissioner may, under the provisions of Article IX (2) (a) refer to a Neutral Expert any of the following questions :
 - (1) Determination of the component of water available for the use of Pakistan
 - (a) in the Ravi Main, on account of the deliveries by Pakistan under the provisions of Article II (4), and
 - (b) at various points on The Ravi or The Sutlej, on account of the deliveries by Pakistan under the provisions of Article III (3).
 - (2) Determination of the boundary of the drainage basin of The Indus or The Jhelum or The Chenab for the purposes of Article III (2).
 - (3) Whether or not any use of water or storage in addition to that provided under Article III is involved in any of the schemes referred to in Article IV (2) or in Article IV (3) (b) and carried out by India on the Western Rivers.
 - (4) Questions relating to
 - (a) obligations with respect to construction or remodelling of, or pouring of waters into, any drainage or drain as provided in Article IV (3) (e) and Article IV (3) (d) ; and
 - (b) maintenance of drainages specified in Article IV (4).
 - (5) Questions arising under Article IV (7) as to whether any action taken by either Party is likely to have the effect of diverting the Ravi Main between Madhopur and Lahore, or the Sutlej Main between Harike and Suleimanke, from its natural channel between high banks.
 - (6) Determination of facts relating to questions arising under Article IV (11) or Article IV (12).
 - (7) Whether any of the data requested by either Party falls outside the scope of Article VI (2).
 - (8) Determination of withdrawals to be made by India under proviso (iii) to Paragraph 3 of Annexure C.
 - (9) Determination of schedule of releases from Conservation Storage under the provisions of Paragraph 8 of Annexure C.
 - (10) Whether or not any new Agricultural Use by India, on those Tributaries of The Jhelum on which there is any Agricultural Use or hydro-electric use by Pakistan conforms to the provisions of Paragraph 9 of Annexure C.
 - (11) Questions arising under the provisions of Paragraph 7, Paragraph 11 or Paragraph 21 of Annexure D.
 - (12) Whether or not the operation by India of any plant constructed in accordance with the provisions of Part 3 of Annexure D conforms to the criteria set out in Paragraphs 15, 16 and 17 of that Annexure.

- (13) Whether or not any new hydro-electric plant on an irrigation channel taking off the Western Rivers conforms to the provisos to Paragraph 24 of Annexure D.
 - (14) Whether or not the operation of a Storage Work which was in operation as on the Effective Date substantially conforms to the provisions of Paragraph 3 of Annexure E.
 - (15) Whether or not any part of the storage in a Connecting Lake is the result of man-made works constructed after the Effective Date (Paragraph 8 (b) of Annexure E).
 - (16) Whether or not any flood control work constructed on the Jhelum Main conforms to the provisions of Paragraph 9 of Annexure E.
 - (17) Whether or not any Storage Work to be constructed on a Tributary of The Jhelum on which Pakistan has any Agricultural Use or hydro-electric use conforms to the provisions of Paragraph 10 of Annexure E.
 - (18) Questions arising under the provisions of Paragraph 6 or 14 of Annexure E.
 - (19) Whether or not the operation of any Storage Work constructed by India after the Effective Date, conforms to the provisions of Paragraphs 17, 18, 19, 21 and 22 of Annexure E and, to the extent necessary, to the provisions of Paragraph 8 of Annexure C.
 - (20) Whether or not the storage capacity proposed to be made up by India under Paragraph 23 of Annexure E exceeds the storage capacity lost by sedimentation.
 - (21) Determination of modifications to be made in the provisions of Parts 2, 4 or 5 of Annexure H in accordance with Paragraphs 11, 31 or 38 thereof when the additional supplies referred to in Paragraph 66 of that Annexure become available.
 - (22) Modification of Forms under the provisions of Paragraph 41 of Annexure H.
 - (23) Revision of the figure for the conveyance loss from the head of the Madhopur Beas Link to the junction of the Chakki Torrent with the Beas Main under the provisions of Paragraph 45 (c) (ii) of Annexure H.
2. If a claim for financial compensation has been raised with respect to any question specified in Paragraph 1, that question shall not be referred to a Neutral Expert unless the two Commissioners are agreed that it should be so referred.
 3. Either Commissioner may refer to a Neutral Expert under the provisions of Article IX (2) (a) any question arising with regard to the determination of costs under Article IV (5), Article IV (11), Article VII (1) (a) or Article VII (1) (b).

PART 2—APPOINTMENT AND PROCEDURE

4. A Neutral Expert shall be a highly qualified engineer, and, on the receipt of a request made in accordance with Paragraph 5, he shall be appointed, and the terms of his retainer shall be fixed, as follows :
 - (a) During the Transition Period, by the Bank.
 - (b) After the expiration of the Transition Period,
 - (i) jointly by the Government of India and the Government of Pakistan, or
 - (ii) if no appointment is made in accordance with (i) above within one month after the date of the request, then by such person or body as may have been agreed upon between the two Governments in advance, on an annual basis, or, in the absence of such agreement, by the Bank.

Provided that every appointment made in accordance with (a) or (b) (ii) above shall be made after consultation with each of the Parties.

The Bank shall be notified of every appointment, except when the Bank is itself the appointing authority.

5. If a difference arises and has to be dealt with in accordance with the provisions of Article IX (2) (a), the following procedure will be followed :
 - (a) The Commissioner who is of the opinion that the difference falls within the provisions of Part 1 of this Annexure (hereinafter in this paragraph referred to as “the first Commissioner”) shall notify the other Commissioner of his intention to ask for the appointment of a Neutral Expert. Such notification shall clearly state the paragraph or paragraphs of Part 1 of this Annexure under which the difference falls and shall also contain a statement of the point or points of difference.
 - (b) Within two weeks of the receipt by the other Commissioner of the notification specified in (a) above, the two Commissioners will endeavour to prepare a joint statement of the point or points of difference.
 - (c) After expiry of the period of two weeks specified in (b) above, the first Commissioner may request the appropriate authority specified in Paragraph 4 to appoint a Neutral Expert ; a copy of the request shall be sent at the same time to the other Commissioner.
 - (d) The request under (c) above shall be accompanied by the joint statement specified in (b) above ; failing this, either Commissioner may send a separate statement to the appointing authority and, if he does so, he shall at the same time send a copy of the separate statement to the other Commissioner.
6. The procedure with respect to each reference to a Neutral Expert shall be determined by him, provided that :
 - (a) he shall afford to each Party an adequate hearing ;
 - (b) in making his decision, he shall be governed by the provisions of this Treaty and by the *compromis*, if any, presented to him by the Commission ; and
 - (c) without prejudice to the provisions of Paragraph 3, unless both Parties so request, he shall not deal with any issue of financial compensation.
7. Should the Commission be unable to agree that any particular difference falls within Part 1 of this Annexure, the Neutral Expert shall, after hearing both Parties, decide whether or not it so falls. Should he decide that the difference so falls, he shall proceed to render a decision on the merits ; should he decide otherwise, he shall inform the Commission that, in his opinion, the difference should be treated as a dispute. Should the Neutral Expert decide that only a part of the difference so falls, he shall, at his discretion, either :
 - (a) proceed to render a decision on the part which so falls, and inform the Commission that, in his opinion, the part which does not so fall should be treated as a dispute, or
 - (b) inform the Commission that, in his opinion, the entire difference should be treated as a dispute.
8. Each Government agrees to extend to the Neutral Expert such facilities as he may require for the discharge of his functions.
9. The Neutral Expert shall, as soon as possible, render a decision on the question or questions referred to him, giving his reasons. A copy of such decision, duly signed by the Neutral Expert, shall be forwarded by him to each of the Commissioners and to the Bank.
10. Each Party shall bear its own costs. The remuneration and the expenses of the Neutral Expert and of any assistance that he may need shall be borne initially as provided in Part 3 of this Annexure and eventually by the Party against which his decision is rendered, except as, in special circumstances, and for reasons to be stated by him, he may otherwise direct.

He shall include in his decision a direction concerning the extent to which the costs of such remuneration and expenses are to be borne by either Party.

11. The decision of the Neutral Expert on all matters within his competence shall be final and binding, in respect of the particular matter on which the decision is made, upon the Parties and upon any Court of Arbitration established under the provisions of Article IX (5).
12. The Neutral Expert may, at the request of the Commission, suggest for the consideration of the Parties such measures as are, in his opinion, appropriate to compose a difference or to implement his decision.
13. Without prejudice to the finality of the Neutral Expert's decision, if any question (including a claim to financial compensation) which is not within the competence of a Neutral Expert should arise out of his decision, that question shall, if it cannot be resolved by agreement, be settled in accordance with the provisions of Article IX (3), (4) and (5).

PART 3—EXPENSES

14. India and Pakistan shall, within 30 days after the Treaty enters into force, each pay to the Bank the sum of U.S. \$5,000 to be held in trust by the Bank, together with any income therefrom and any other amounts payable to the Bank hereunder, on the terms and conditions hereinafter set forth in this Annexure.
15. The remuneration and expenses of the Neutral Expert, and of any assistance that he may need, shall be paid or reimbursed by the Bank from the amounts held by it hereunder. The Bank shall be entitled to rely upon the statement of the Neutral Expert as to the amount of the remuneration and expenses of himself (determined in accordance with the terms of his retainer) and of any such assistance utilized by him.
16. Within 30 days of the rendering of a decision by the Neutral Expert, the Party or Parties concerned shall, in accordance with that decision, refund to the Bank the amounts paid by the Bank pursuant to Paragraph 15.
17. The Bank will keep amounts held by it hereunder separate from its other assets, in such form, in such banks or other depositories and in such accounts as it shall determine. The Bank may, but it shall not be required to, invest these amounts. The Bank will not be liable to the Parties for failure of any depository or other person to perform its obligations. The Bank shall be under no obligation to make payments hereunder of amounts in excess of those held by it hereunder.
18. If at any time or times the amounts held by the Bank hereunder shall in its judgment be insufficient to meet the payments provided for in Paragraph 15, it will so notify the Parties, which shall, within 30 days thereafter, pay to the Bank, in equal shares, the amount specified in such notice as being the amount required to cover the deficiency. Any amounts so paid to the Bank may, by agreement between the Bank and the Parties, be refunded to the Parties.

ANNEXURE G—COURT OF ARBITRATION

(Article IX (5))

1. If the necessity arises to establish a Court of Arbitration under the provisions of Article IX, the provisions of this Annexure shall apply.
2. The arbitration proceeding may be instituted
 - (a) by the two Parties entering into a special agreement (*compromis*) specifying the issues in dispute, the composition of the Court and instructions to the Court concerning its procedures and any other matters agreed upon between the Parties ; or

- (b) at the request of either Party to the other in accordance with the provisions of Article IX (5) (b) or (c). Such request shall contain a statement setting forth the nature of the dispute or claim to be submitted to arbitration, the nature of the relief sought and the names of the arbitrators appointed under Paragraph 6 by the Party instituting the proceeding.
- 3. The date of the special agreement referred to in Paragraph 2 (a), or the date on which the request referred to in Paragraph 2 (b) is received by the other Party, shall be deemed to be the date on which the proceeding is instituted.
- 4. Unless otherwise agreed between the Parties, a Court of Arbitration shall consist of seven arbitrators appointed as follows :
 - (a) Two arbitrators to be appointed by each Party in accordance with Paragraph 6 ; and
 - (b) Three arbitrators (hereinafter sometimes called the umpires) to be appointed in accordance with Paragraph 7, one from each of the following categories :
 - (i) Persons qualified by status and reputation to be Chairman of the Court of Arbitration who may, but need not, be engineers or lawyers.
 - (ii) Highly qualified engineers.
 - (iii) Persons well versed in international law.

The Chairman of the Court shall be a person from category (b) (i) above.
- 5. The Parties shall endeavour to nominate and maintain a Standing Panel of umpires (hereinafter called the Panel) in the following manner :
 - (a) The Panel shall consist of four persons in each of the three categories specified in Paragraph 4 (b).
 - (b) The Panel will be selected, as soon as possible after the Effective Date, by agreement between the Parties and with the consent of the persons whose names are included in the Panel.
 - (c) A person may at any time be retired from the Panel at the request of either Party : Provided however that he may not be so retired
 - (i) during the period after arbitration proceedings have been instituted under Paragraph 2 (b) and before the process described in Paragraph 7 (a) has been completed ; or
 - (ii) during the period after he has been appointed to a Court and before the proceedings are completed.
 - (d) If a member of the Panel should die, resign or be retired, his successor shall be selected by agreement between the Parties.
- 6. The arbitrators referred to in Paragraph 4 (a) shall be appointed as follows :

The Party instituting the proceeding shall appoint two arbitrators at the time it makes a request to the other Party under Paragraph 2 (b). Within 30 days of the receipt of this request, the other Party shall notify the names of the arbitrators appointed by it.
- 7. The umpires shall be appointed as follows :
 - (a) If a Panel has been nominated in accordance with the provisions of Paragraph 5, each umpire shall be selected as follows from the Panel, from his appropriate category, provided that the category has, at that time, at least three names on the Panel :

The Parties shall endeavour to agree to place the names of the persons in each category in the order in which they shall be invited to serve on the Court. If such

agreement cannot be reached within 30 days of the date on which the proceeding is instituted, the Parties shall promptly establish such an order by drawing lots. If, in any category, the person whose name is placed first in the order so established, on receipt of an invitation to serve on the Court, declines to do so, the person whose name is next on the list shall be invited. The process shall be repeated until the invitation is accepted or all names in the category are exhausted.

- (b) If a Panel has not been nominated in accordance with Paragraph 5, or if there should be less than three names on the Panel in any category or if no person in a category accepts the invitation referred to in Paragraph 7 (a), the umpires, or the remaining umpires or umpire, as the case may be, shall be appointed as follows :

- (i) By agreement between the Parties.
- (ii) Should the Parties be unable to agree on the selection of any or all of the three umpires, they shall agree on one or more persons to help them in making the necessary selection by agreement ; but if one or more umpires remain to be appointed 60 days after the date on which the proceeding is instituted, or 30 days after the completion of the process described in sub-paragraph (a) above, as the case may be, then the Parties shall determine by lot for each umpire remaining to be appointed, a person from the appropriate list set out in the Appendix to this Annexure, who shall then be requested to make the necessary selection.
- (iii) A national of India or Pakistan, or a person who is, or has been, employed or retained by either of the Parties shall be disqualified from selection under sub-paragraph (ii) above :

Provided that

- (1) the person making the selection shall be entitled to rely on a declaration from the appointee, before his selection, that he is not disqualified on any of the above grounds ; and
 - (2) the Parties may by agreement waive any or all of the above disqualifications in the case of any individual appointee.
- (iv) The lists in the Appendix to this Annexure may, from time to time, be modified or enlarged by agreement between the Parties.
8. In selecting umpires pursuant to Paragraph 7, the Chairman shall be selected first, unless the Parties otherwise agree.
9. Should either Party fail to participate in the drawing of lots as provided in Paragraphs 7 and 10, the other Party may request the President of the Bank to nominate a person to draw the lots, and the person so nominated shall do so after giving due notice to the Parties and inviting them to be represented at the drawing of the lots.
10. In the case of death, retirement or disability from any cause of one of the arbitrators or umpires his place shall be filled as follows :
- (a) In the case of one of the arbitrators appointed under Paragraph 6, his place shall be filled by the Party which appointed him. The Court shall, on request, suspend the proceedings but for not longer than 15 days pending such replacement.
 - (b) In the case of an umpire, a new appointment shall be made by agreement between the Parties or, failing such agreement, by a person determined by lot from the appropriate list set out in the Appendix to this Annexure, who shall then be requested to make the necessary selection subject to the provisions of Paragraph 7 (b) (iii). Unless the Parties otherwise agree, the Court shall suspend the proceedings pending such replacement.

11. As soon as the three umpires have accepted appointment, they together with such arbitrators as have been appointed by the two Parties under Paragraph 6 shall form the Court of Arbitration. Unless the Parties otherwise agree, the Court shall be competent to transact business only when all the three umpires and at least two arbitrators are present.
12. Each Party shall be represented before the Court by an Agent and may have the assistance of Counsel.
13. Within 15 days of the date of institution of a proceeding, each Party shall place sufficient funds at the disposal of its Commissioner to meet in equal shares the initial expenses of the umpires to enable them to attend the first meeting of the Court. If either Party should fail to do so, the other Party may initially meet the whole of such expenses.
14. The Court of Arbitration shall convene, for its first meeting, on such date and at such place as shall be fixed by the Chairman.
15. At its first meeting the Court shall
 - (a) establish its secretariat and appoint a Treasurer ;
 - (b) make an estimate of the likely expenses of the Court and call upon each Party to pay to the Treasurer half of the expenses so estimated : Provided that, if either Party should fail to make such payment, the other Party may initially pay the whole of the estimated expenses ;
 - (c) specify the issues in dispute ;
 - (d) lay down a programme for submission by each side of legal pleadings and rejoinders ; and
 - (e) determine the time and place of reconvening the Court.

Unless special circumstances arise, the Court shall not reconvene until the pleadings and rejoinders have been closed. During the intervening period, at the request of either Party, the Chairman of the Court may, for sufficient reason, make changes in the arrangements made under (d) and (e) above.

16. Subject to the provisions of this Treaty and except as the Parties may otherwise agree, the Court shall decide all questions relating to its competence and shall determine its procedure, including the time within which each Party must present and conclude its arguments. All such decisions of the Court shall be by a majority of those present and voting. Each arbitrator, including the Chairman, shall have one vote. In the event of an equality of votes, the Chairman shall have a casting vote.
17. The proceedings of the Court shall be in English.
18. Two or more certified copies of every document produced before the Court by one Party shall be communicated by the Court to the other Party ; the Court shall not take cognizance of any document or paper or fact presented by a Party unless so communicated.
19. The Chairman of the Court shall control the discussions. The discussions shall not be open to the public unless it is so decided by the Court with the consent of the Parties. The discussions shall be recorded in minutes drawn up by the Secretaries appointed by the Chairman. These minutes shall be signed by the Chairman and shall alone have an authentic character.
20. The Court shall have the right to require from the Agents of the Parties the production of all papers and other evidence it considers necessary and to demand all necessary explanations. In case of refusal, the Court shall take formal note of it.
21. The members of the Court shall be entitled to put questions to the Agents and Counsel of the Parties and to demand explanations from them on doubtful points. Neither the questions

put nor the remarks made by the members of the Court during the discussions shall be regarded as an expression of an opinion of the Court or any of its members.

22. When the Agents and Counsel of the Parties have, within the time allotted by the Court, submitted all explanations and evidence in support of their case, the Court shall pronounce the discussions closed. The Court may, however, at its discretion re-open the discussions at any time before making its Award. The deliberations of the Court shall be in private and shall remain secret.
23. The Court shall render its Award, in writing, on the issues in dispute and on such relief, including financial compensation, as may have been claimed. The Award shall be accompanied by a statement of reasons. An Award signed by four or more members of the Court shall constitute the Award of the Court. A signed counterpart of the Award shall be delivered by the Court to each Party. Any such Award rendered in accordance with the provisions of this Annexure in regard to a particular dispute shall be final and binding upon the Parties with respect to that dispute.
24. The salaries and allowances of the arbitrators appointed pursuant to Paragraph 6 shall be determined and, in the first instance, borne by their Governments ; those of the umpires shall be agreed upon with them by the Parties or by the persons appointing them, and (subject to Paragraph 13) shall be paid, in the first instance, by the Treasurer. The salaries and allowances of the secretariat of the Court shall be determined by the Court and paid, in the first instance, by the Treasurer.
25. Each Government agrees to accord to the members and officials of the Court of Arbitration and to the Agents and Counsel appearing before the Court the same privileges and immunities as are accorded to representatives of members states to the principal and subsidiary organs of the United Nations under Sections 11, 12 and 13 of Article IV of the Convention on the Privileges and Immunities of the United Nations (dated 13th February 1946) during the periods specified in these Sections. The Chairman of the Court, with the approval of the Court, has the right and the duty to waive the immunity of any official of the Court in any case where the immunity would impede the course of justice and can be waived without prejudice to the interests of the Court. The Government appointing any of the aforementioned Agents and Counsel has the right and the duty to waive the immunity of any of its said appointees in any case where in its opinion the immunity would impede the course of justice and can be waived without prejudice to the effective performance of the functions of the said appointees. The immunities and privileges provided for in this paragraph shall not be applicable as between an Agent or Counsel appearing before the Court and the Government which has appointed him.
26. In its Award, the Court shall also award the costs of the proceedings, including those initially borne by the Parties and those paid by the Treasurer.
27. At the request of either Party, made within three months of the date of the Award, the Court shall re-assemble to clarify or interpret its Award. Pending such clarification or interpretation the Court may, at the request of either Party and if in the opinion of the Court circumstances so require, grant a stay of execution of its Award. After furnishing this clarification or interpretation, or if no request for such clarification or interpretation is made within three months of the date of the Award, the Court shall be deemed to have been dissolved.
28. Either Party may request the Court at its first meeting to lay down, pending its Award, such interim measures as, in the opinion of that Party, are necessary to safeguard its interests under the Treaty with respect to the matter in dispute, or to avoid prejudice to the final solution or aggravation or extension of the dispute. The Court shall, thereupon, after having afforded an adequate hearing to each Party, decide, by a majority consisting of at least four members of the Court, whether any interim measures are necessary for the reasons hereinbefore stated and, if so, shall specify such measures : Provided that

- (a) the Court shall lay down such interim measures only for such specified period as, in its opinion, will be necessary to render the Award : this period may, if necessary, be extended unless the delay in rendering the Award is due to any delay on the part of the Party which requested the interim measures in supplying such information as may be required by the other Party or by the Court in connection with the dispute ; and
 - (b) the specification of such interim measures shall not be construed as an indication of any view of the Court on the merits of the dispute.
29. Except as the Parties may otherwise agree, the law to be applied by the Court shall be this Treaty and, whenever necessary for its interpretation or application, but only to the extent necessary for that purpose, the following in the order in which they are listed :
- (a) International conventions establishing rules which are expressly recognized by the Parties.
 - (b) Customary international law.

APPENDIX TO ANNEXURE G

(Paragraph 7 (b))

<i>List I for selection of Chairman</i>	<i>List II for selection of Engineer Member</i>	<i>List III for selection of Legal Member</i>
(i) The Secretary-General of the United Nations	(i) The President of Massachusetts Institute of Technology, Cambridge, Mass., U.S.A.	(i) The Chief Justice of the United States
(ii) The President of the International Bank for Reconstruction and Development	(ii) The Rector of the Imperial College of Science and Technology, London, England	(ii) The Lord Chief Justice of England

ANNEXURE H—TRANSITIONAL ARRANGEMENTS

[. . .]

* * *

**IN THE MATTER OF
THE INDUS WATERS KISHENGANGA ARBITRATION**

-before-

**THE COURT OF ARBITRATION CONSTITUTED
IN ACCORDANCE WITH THE INDUS WATERS TREATY 1960
BETWEEN THE GOVERNMENT OF INDIA
AND THE GOVERNMENT OF PAKISTAN
SIGNED ON 19 SEPTEMBER 1960**

-between-

THE ISLAMIC REPUBLIC OF PAKISTAN

-and-

THE REPUBLIC OF INDIA

FINAL AWARD

COURT OF ARBITRATION:

**Judge Stephen M. Schwebel (Chairman)
Sir Franklin Berman KCMG QC
Professor Howard S. Wheeler FREng
Professor Lucius Caflisch
Professor Jan Paulsson
Judge Bruno Simma
H.E. Judge Peter Tomka**

SECRETARIAT:

The Permanent Court of Arbitration

20 December 2013

AGENTS, COUNSEL AND OTHER REPRESENTATIVES OF THE PARTIES

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Mr Saif Ullah Chattha
Secretary
Ministry of Water and Power

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Mr Mohammad Karim Khan Agha
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Essex Court Chambers

Ms Shamila Mahmood
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CO-AGENTS FOR INDIA:

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Joint Secretary (PAI)
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Ambassador of India to the Netherlands

Mr Faris Qazi
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Mr Darpan Talwar
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**REPRESENTATIVE FOR THE
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Secretary of Irrigation and Agriculture

Mr P.K. Saxena
Senior Joint Commissioner, Ministry of Water
Resources & former Director, Central Water
Commission, Technical Adviser

Mr Balraj Joshi
General Manager
NHPC Ltd., Project Representative

Mr Shahid Ali Khan
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TABLE OF CONTENTS

I.	PROCEDURAL HISTORY.....	1
A.	THE INDUS WATERS TREATY AND THE INITIATION OF THIS ARBITRATION	1
B.	THE PROCEEDINGS ON INTERIM MEASURES AND THE MERITS	2
C.	PROCEEDINGS ON INDIA’S REQUEST FOR CLARIFICATION OR INTERPRETATION.....	4
D.	PROCEEDINGS ON THE MATTER OF THE MINIMUM FLOW	5
II.	ARGUMENTS OF THE PARTIES	6
A.	ADMISSIBILITY OF THE PARTIES’ SUBMISSIONS.....	6
B.	THE PARTIES’ SUBMISSIONS ON HYDROLOGY	6
1.	Data previously exchanged under the Treaty vs. “corrected” data.....	8
2.	Reliability and integrity of data from the Nauseri gauging station	10
3.	Regression analysis.....	11
4.	Flow at the Line of Control	12
C.	THE PARTIES’ SUBMISSIONS ON THE EFFECT OF MINIMUM FLOW ON POWER GENERATION AND THE ECONOMICS OF THE KHEP.....	13
D.	THE PARTIES’ SUBMISSIONS ON AGRICULTURAL USES IN THE NEELUM VALLEY	17
E.	THE PARTIES’ SUBMISSIONS ON THE ENVIRONMENTAL IMPACT OF THE KHEP	19
F.	MONITORING THE MINIMUM FLOW	27
III.	ANALYSIS OF THE COURT.....	28
A.	SCOPE OF THE PARTIES’ SUBMISSIONS	28
B.	DETERMINATION OF THE MINIMUM FLOW.....	29
1.	Introduction	29
2.	The Court’s <i>Partial Award</i> and its present task.....	29
3.	The Parties’ submissions on hydrology	32
4.	The downstream effects of the KHEP	33
5.	Maintaining the priority accorded to the KHEP in the <i>Partial Award</i>	37
C.	REVIEW MECHANISM	41
D.	MONITORING.....	42
IV.	COSTS	42
V.	DECISION	43

GLOSSARY OF DEFINED TERMS

Court	The Court of Arbitration in these proceedings as constituted pursuant to Article IX(5) and Annexure G of the Treaty
KHEP	Kishenganga Hydro-Electric Project
GWh	Gigawatt hours
India's Comments, CEA Report, August 2013	India's Comments on the Information Supplied by Pakistan on 21 June 2013, Vol. 2, Tab B, Central Electricity Authority, "Further Submissions on Impact of Minimum Releases from KHEP on Power Generation at KHEP," August 2013
India's Comments, CWC Report, August 2013	India's Comments on the Information Supplied by Pakistan on 21 June 2013, Vol. 2, Tab A, Central Water Commission (CWC), Government of India, "Hydrology Report," August 2013
India's Comments, Kondolf Report, August 2013	India's Comments on the Information Supplied by Pakistan on 21 June 2013, Tab C, G Mathias Kondolf, "Environmental Flows for the Kishenganga River Below KHEP," 13 August 2013
India's Data Submission, CEA Report, June 2013	India's Submission on the Information Requested by the Court in its Partial Award dated 18 February 2013, Vol. 2, Tab B, Central Electricity Authority, "Impact of Minimum Releases from KHEP on Power Generation at KHEP," June 2013
India's Data Submission, CWC Report, June 2013	India's Submission on the Information Requested by the Court in its Partial Award dated 18 February 2013, Vol. 2, Tab A, Central Water Commission (CWC), Government of India, "Hydrology Report," June 2013
India's Data Submission, DHI Report, 2013	India's Submission on the Information Requested by the Court in its Partial Award dated 18 February 2013, Tab F, DHI (India) Water & Environment, "Environmental Studies for Assessment of Impacts of Minimum Flow Releases," June 2013
NJHEP	Neelum-Jhelum Hydro-Electric Project
Order on Interim Measures	Order on the Interim Measures Application of Pakistan issued by the Court on 6 June 2011

Pakistan's Comments, NESPAK Hydrology Report, August 2013	Pakistan's Comments on India's Response dated 21 June 2013 to the Court's Request for Further Information (Made Pursuant to Paragraph 463 of the Partial Award), Annex A, National Engineering Services Pakistan (Pvt.) Limited, "Kishenganga Dam Partial Award: NESPAK's Comments on India's CWC Hydrology Report of June 2013," August 2013
Pakistan's Comments, NESPAK Power Generation Report, August 2013	Pakistan's Comments on India's Response dated 21 June 2013 to the Court's Request for Further Information (Made Pursuant to Paragraph 463 of the Partial Award), Annex C, National Engineering Services Pakistan (Pvt.) Limited, "Kishenganga Dam Partial Award: NESPAK Comments on India's 'CEA' Report on Impact of Minimum Release from KHEP on Power Generation by KHEP," August 2013
Pakistan's Data Submission, Environmental Report, June 2013	Pakistan's Data and Information Submitted in Accordance with the Partial Award (Paragraphs 458-462), Tab A, Water Matters, Southern Waters, Hagler Bailly Pakistan, Beuster, Clarke & Associates: "Kishenganga Dam Partial Award, Data Sought: Environmental Flows," 6 June 2013
Pakistan's Data Submission, NESPAK Hydrology Report, June 2013	Pakistan's Data and Information Submitted in Accordance with the Partial Award (Paragraphs 458-462), Tab C, National Engineering Services Pakistan (Pvt.) Limited, "Kishenganga Dam Partial Award: Detailed Information on Hydrological Estimates," June 2013 (including peer review by Professor Jens Christian Refsgaard in Appendix V)
Pakistan's Data Submission, NESPAK Power Generation Report, June 2013	Pakistan's Data and Information Submitted in Accordance with the Partial Award (Paragraphs 458-462), Tab B, National Engineering Services Pakistan (Pvt.) Limited, "Kishenganga Dam Partial Award: Power Generation at Neelum-Jhelum Hydroelectric Project," June 2013
Pakistan's Memorial, Environmental Report, April 2011	Pakistan's Memorial, Vol. 3, Tab D, Hagler Bailly Pakistan, Water Matters, Southern Waters & Beuster, Clarke and Associates, "Kishenganga/Neelum River Water Diversion: Environmental Assessment," May 2011
Pakistan's Memorial, NESPAK Report, April 2011	Pakistan's Memorial, Vol. 3, Tab B, National Engineering Services Pakistan (Pvt.) Limited, "Kishenganga/Neelum River, Hydrology and Impact of Kishenganga Hydroelectric Plant on Energy Generation in Pakistan," April 2011

Pakistan’s Reply, NESPAK Report, February 2012	Pakistan’s Reply, Vol. II, Tab B, National Engineering Services Pakistan (Pvt.) Limited, “NESPAK Consideration of India’s Hydrology Report,” February 2012
Partial Award	Partial Award issued by the Court on 18 February 2013
Parties	The Islamic Republic of Pakistan and the Republic of India
Treaty	Indus Waters Treaty 1960 Between the Government of India, the Government of Pakistan and the International Bank for Reconstruction and Development signed at Karachi on 19 September 1960, 419 U.N.T.S. 126
World Bank	International Bank for Reconstruction and Development

I. PROCEDURAL HISTORY

1. A detailed history of this arbitration is set out in the Court’s Partial Award of 18 February 2013 (the “*Partial Award*”). In the present procedural summation, the Court records key developments subsequent to the issuance of its *Partial Award*.

A. THE INDUS WATERS TREATY AND THE INITIATION OF THIS ARBITRATION

2. On 19 September 1960, the Governments of the Republic of India and the Islamic Republic of Pakistan (the “**Parties**”) signed the Indus Waters Treaty (the “**Treaty**”).¹ The Treaty was also signed by the International Bank for Reconstruction and Development (the “**World Bank**”) in respect of the World Bank’s role under certain provisions of the Treaty. Instruments of ratification were exchanged between the Parties on 12 January 1961; the Treaty entered into force on that date with retroactive effect to 1 April 1960, as stated in Article XII(2).
3. Through a *Request for Arbitration* dated 17 May 2010, Pakistan initiated proceedings against India pursuant to Article IX and Annexure G of the Treaty.
4. In its Request for Arbitration, Pakistan stated that the Parties had failed to resolve the “Dispute” concerning the Kishenganga Hydro-Electric Project (the “**KHEP**”) by agreement pursuant to Article IX(4) of the Treaty. Pakistan identified “two questions that are at the centre” of the dispute in the following terms:
 - a. Whether India’s proposed diversion of the river Kishenganga (Neelum) into another Tributary, i.e. the Bonar-Madmati Nallah, being one central element of the Kishenganga Project, breaches India’s legal obligations owed to Pakistan under the Treaty, as interpreted and applied in accordance with international law, including India’s obligations under Article III(2) (let flow all the waters of the Western rivers and not permit any interference with those waters) and Article IV(6) (maintenance of natural channels)?
 - b. Whether under the Treaty, India may deplete or bring the reservoir level of a run-of-river Plant below Dead Storage Level (DSL) in any circumstances except in the case of an unforeseen emergency?²
5. As of 17 December 2010, a Court of Arbitration (the “**Court**”) was constituted, comprising: Judge Stephen M. Schwebel (Chairman), Sir Franklin Berman, Professor Howard S. Wheeler, Professor Lucius Caflisch, Professor Jan Paulsson, Judge Bruno Simma, and H.E. Judge Peter Tomka.

¹ *Indus Waters Treaty 1960 Between the Government of India, the Government of Pakistan and the International Bank for Reconstruction and Development*, 19 September 1960, 419 U.N.T.S. 126 (“Treaty”).

² Pakistan’s Request for Arbitration, para. 4.

B. THE PROCEEDINGS ON INTERIM MEASURES AND THE MERITS

6. On 23 September 2011, further to a request from Pakistan and after receiving the written and oral submissions of both Parties, the Court issued its *Order on the Interim Measures Application of Pakistan dated 6 June 2011* (the “**Order on Interim Measures**”). The operative provisions of the Order read:

152. Having found that it is necessary to lay down certain interim measures in order to “avoid prejudice to the final solution . . . of the dispute” as provided under Paragraph 28 of Annexure G to the Indus Waters Treaty, the Court unanimously rules that:

- (1) For the duration of these proceedings up until the rendering of the Award,
 - (a) It is open to India to continue with all works relating to the Kishenganga Hydro-Electric Project, except for the works specified in (c) below;
 - (b) India may utilize the temporary diversion tunnel it is said to have completed at the Gurez site, and may construct and complete temporary cofferdams to permit the operation of the temporary diversion tunnel, such tunnel being provisionally determined to constitute a “temporary by-pass” within the meaning of Article I(15)(b) as it relates to Article III(2) of the Treaty;
 - (c) Except for the sub-surface foundations of the dam stated in paragraph 151(iv) above, India shall not proceed with the construction of any permanent works on or above the Kishenganga/Neelum River riverbed at the Gurez site that may inhibit the restoration of the full flow of that river to its natural channel; and
- (2) Pakistan and India shall arrange for periodic joint inspections of the dam site at Gurez in order to monitor the implementation of sub-paragraph 1(c) above. The Parties shall also submit, by no later than December 19, 2011, a joint report setting forth the areas of agreement and any points of disagreement that may arise between the Parties concerning the implementation of this Order.

153. The Court shall remain actively seized of this matter, and may revise this Order or issue further orders at any time in light of the circumstances then obtaining.

7. Between May 2011 and May 2012, the Parties made written submissions to the Court. From 20 to 31 August 2012, the Court held a two-week hearing in The Hague.
8. On 18 February 2013, the Court issued its *Partial Award* in which it decided as follows:

Having considered the Parties’ written and oral submissions, the Court of Arbitration unanimously decides:

A. In relation to the First Dispute,

- (1) The Kishenganga Hydro-Electric Project, as described to the Court by India, constitutes a Run-of-River Plant for the purpose of Paragraph 15 of Annexure D to the Indus Waters Treaty, and in particular sub-paragraph (iii) thereof.
- (2) India may accordingly divert water from the Kishenganga/Neelum River for power generation by the Kishenganga Hydro-Electric Plant and may deliver the water released below the power station into the Bonar Nallah.

- (3) India is however under an obligation to construct and operate the Kishenganga Hydro-Electric Plant in such a way as to maintain a minimum flow of water in the Kishenganga/Neelum River, at a rate to be determined by the Court in a Final Award.

B. In relation to the Second Dispute,

- (1) Except in the case of an unforeseen emergency, the Treaty does not permit reduction below Dead Storage Level of the water level in the reservoirs of Run-of-River Plants on the Western Rivers.
- (2) The accumulation of sediment in the reservoir of a Run-of-River Plant on the Western Rivers does not constitute an unforeseen emergency that would permit the depletion of the reservoir below Dead Storage Level for drawdown flushing purposes.
- (3) Accordingly, India may not employ drawdown flushing at the reservoir of the Kishenganga Hydro-Electric Plant to an extent that would entail depletion of the reservoir below Dead Storage Level.
- (4) Paragraphs B(1) and B(2) above do not apply to Run-of-River Plants that are in operation on the date of issuance of this Partial Award. Likewise, Paragraphs B(1) and B(2) do not apply to Run-of-River Plants already under construction on the date of issuance of this Partial Award, the design of which, having been duly communicated by India under the provisions of Annexure D, had not been objected to by Pakistan as provided for in Annexure D.

C. This Partial Award imposes no further restrictions on the construction and operation of the Kishenganga Hydro-Electric Plant, which remain subject to the provisions of the Treaty as interpreted in this Partial Award.

D. To enable the Court to determine the minimum flow of water in the Kishenganga/Neelum River referred to in paragraph A(3) above, the Parties are required to submit to the Court the information specified in paragraphs 458 to 462 within the time periods set out in paragraph 463 of this Partial Award.

E. The interim measures indicated by the Court in its 23 September 2011 *Order on the Interim Measures Application of Pakistan dated 6 June 2011* are hereby lifted.

F. The costs of the proceedings to be awarded by the Court pursuant to Paragraph 26 of Annexure G to the Treaty shall be determined in the Court's Final Award.

9. Paragraphs 458 to 463 of the *Partial Award*, referenced in Section D of the Court's Decision, provide:

458. The Parties are requested to provide further data concerning the impacts of a range of minimum flows to be discharged at the KHEP dam on the following:

For India:

- a) power generation at the KHEP;
- b) environmental concerns from the dam site at Gurez to the Line of Control;

For Pakistan:

- a) power generation at the NJHEP [Neelum-Jhelum Hydro-Electric Project];
- b) agricultural uses of water downstream of the Line of Control to Nauseri; and
- c) environmental concerns at and downstream of the Line of Control to Nauseri.

459. In compiling these further data, the Parties are required to incorporate a sufficient range of minimum flows so as to give the Court a full picture of the sensitivity of the river system.
460. These data should be accompanied by full information on the assumptions underlying these analyses, including those for power generation and environmental concerns, and the associated uncertainty in the Parties' estimates.
461. In addition, the Court would welcome receiving more detailed information on the estimates already put before it by each Party of historical flows at the KHEP dam site, at the Line of Control and at the NJHEP dam site.⁶⁶⁸
462. Finally, the Court would also welcome provision by the Parties of any relevant legislation, regulatory pronouncements or decisions that the Governments of Pakistan and India may have respectively issued concerning environmental flow requirements for hydro-electric or similar projects and, in particular, the Government of India for the KHEP.⁶⁶⁹
463. The Parties are requested to provide the foregoing information to the Court by no later than 120 days from the issuance of this Partial Award (i.e., by 19 June 2013). Each Party is invited to then comment on the information submitted by the other Party no later than 60 days thereafter (i.e., by 19 August 2013). After considering these submissions, the Court will issue its Final Award setting forth its decision on this matter, and will exert its best effort to do so by no later than the end of 2013.

⁶⁶⁸ In the case of Pakistan, these are the daily flow data corresponding to Annexes 3, 4 and 9 of Pakistan's Memorial, vol. 3, Tab B, National Engineering Services Pakistan Limited, "Kishenganga/Neelum River: Hydrology and Impact of Kishenganga Hydroelectric Plant on Energy Generation in Pakistan," April 2011 (covering the period from 1971 to 2004). In the case of India these are daily flow estimates from the KHEP and the Line of Control for the same period. These data should be provided electronically, in Excel format.

⁶⁶⁹ In this regard, the Court recalls the Agent of India's statement at the hearing on the merits that the Indian National Hydroelectric Power Corporation (NHPC) and the Ministry of Environment and Forests had undertaken to cooperate to select an appropriate quantum for a minimum environmental flow at the KHEP. Hearing Tr., (Day 9), 30 August 2012, at 115:7-12.

C. PROCEEDINGS ON INDIA'S REQUEST FOR CLARIFICATION OR INTERPRETATION

10. On 20 May 2013, India submitted to the Court *a Request for Clarification or Interpretation*, pursuant to paragraph 27 of Annexure G to the Treaty, in which it requested "clarification or interpretation with respect to paragraph B.1 of the Court's Decision" in the *Partial Award*.

11. Paragraph 27 of Annexure G provides:

At the request of either Party, made within three months of the date of the Award, the Court shall reassemble to clarify or interpret its Award. Pending such clarification or interpretation the Court may, at the request of either Party and if in the opinion of the Court circumstances so require, grant a stay of execution of its Award. After furnishing this clarification or interpretation, or if no request for such clarification or interpretation is made within three months of the date of the Award, the Court shall be deemed to have been dissolved.

12. At the invitation of the Court, Pakistan presented a *Submission in Response to India's Request for Interpretation or Clarification* on 19 July 2013. India submitted a *Reply on the Request for Clarification or Interpretation* on 2 September 2013. Pakistan presented its *Rejoinder to India's*

Reply dated 2 September 2013 in the matter of India's Request for Clarification or Interpretation on 30 September 2013.

13. On 20 December 2013, the Court issued its *Decision on India's Request for Clarification or Interpretation*, the operative portion of which states as follows:

Having considered the Parties' written submissions, the Court of Arbitration unanimously decides that:

- A. India's Request for Clarification or Interpretation of the Court's *Partial Award* of 18 February 2013 is timely and admissible.
- B. Subject to Paragraph B(4) of the Decision in the *Partial Award* of 18 February 2013, the prohibition on the reduction below Dead Storage Level of the water in the reservoirs of Run-of-River Plants on the Western Rivers, except in the case of unforeseen emergency, is of general application.

D. PROCEEDINGS ON THE MATTER OF THE MINIMUM FLOW

14. On 21 June 2013, Pakistan transmitted its *Data and Information Submitted in Accordance with the Partial Award (Paragraphs 458-462)*, accompanied by (1) two expert reports by National Engineering Services Pakistan (Pvt) Limited; (2) an expert report by Water Matters, Southern Waters, Hagler Bailly Pakistan and Beuster Clarke & Associates; and (3) three supporting reports, submitted electronically, by Southern Waters Ecological Research and Consulting CC in association with Hagler Bailly Pakistan, Beuster, Clarke & Associates, and Streamflow Solutions CC. On the same day, India transmitted its *Submission on the Information Requested by the Court in its Partial Award dated 18 February 2013*, together with expert reports by: (1) the Indian Central Water Commission; (2) the Indian Central Electricity Authority; (3) DHI (India) Water & Environment; (4) Dr Michael J.B. Green; (5) Dr Niels Jepsen; (6) Professor G. Mathias Kondolf; (7) Dr John S. Richardson; and (8) Dr Edmund D. Andrews. After receiving both submissions, the Registry transmitted copies simultaneously to the Parties and to the Court of Arbitration.
15. On 13 August 2013, the Court granted both Parties a one-week extension of the deadline for the submission of the Parties' comments fixed in paragraph 463 of the *Partial Award*.
16. On 26 August 2013, Pakistan submitted its *Comments on India's Response dated 21 June 2013 to the Court's Request for Further Information (Made Pursuant to Paragraph 463 of the Partial Award)*, accompanied by expert reports by: (1) National Engineering Services Pakistan (Pvt.) Limited; (2) Professor Jens Christian Refsgaard; (3) Dr Gregory L. Morris; (4) Water Matters, Southern Waters, Hagler Bailly Pakistan, Streamflow Solutions, Beuster, Clarke & Associates, and Fluvius; and (5) Dr Ian Campbell. On the same day, India presented its *Comments on the Information Supplied by Pakistan on 21 June 2013*, accompanied by expert

reports by: (1) the Indian Central Water Commission, (2) the Indian Central Electricity Authority, (3) Professor G. Mathias Kondolf, (4) Dr Edmund D. Andrews, and (5) Dr Niels Jepsen. After receiving both submissions, the Registry transmitted copies simultaneously to the Parties and to the Court of Arbitration.

II. ARGUMENTS OF THE PARTIES

A. ADMISSIBILITY OF THE PARTIES' SUBMISSIONS

Pakistan's Arguments

17. Pakistan objects to the scope of India's Submission of 21 June 2013 on the ground that India "seek[s] to overturn or revise decisions that have been taken, with final and binding effect, in the Partial Award."³ According to Pakistan, "India has used the occasion of the Court's request to submit data and information as an opportunity to put forward further, new, arguments and to adduce further, new, expert evidence."⁴ Pakistan requests the Court to "extract from the submissions of each Party the data that it requires, and . . . disregard extraneous material."⁵

India's Arguments

18. India objects that the "constellation of environmental material" accompanying Pakistan's submissions goes well beyond the Court's request for data and is "pervaded by what amounts to advocacy."⁶ India criticizes the scope and content of Pakistan's submissions but makes no request to the Court, stating that "India is confident that the Court will see this strategy for what it is."⁷

B. THE PARTIES' SUBMISSIONS ON HYDROLOGY

19. In paragraph 461 of its *Partial Award*, the Court had invited the Parties to provide "more detailed information on the estimates already put before it by each Party of historical flows at the KHEP dam site, at the Line of Control and at the [Neelum-Jhelum Hydro-Electric Project ("NJHEP")] dam site." The accompanying footnote specified that

³ Pakistan's Comments on India's Response dated 21 June 2013 to the Court's Request for Further Information (Made Pursuant to Paragraph 463 of the Partial Award), para. 2.

⁴ *Ibid.*, para. 4.

⁵ *Ibid.*, para. 13.

⁶ India's Comments on the Information Supplied by Pakistan on 21 June 2013, para. 1.3.

⁷ *Ibid.*, para. 1.3.

[i]n the case of Pakistan, these are the daily flow data corresponding to Annexes 3, 4 and 9 of Pakistan's Memorial, vol. 3, Tab B, National Engineering Services Pakistan Limited, "Kishenganga/Neelum River: Hydrology and Impact of Kishenganga Hydroelectric Plant on Energy Generation in Pakistan," April 2011 (covering the period from 1971 to 2004). In the case of India these are daily flow estimates from the KHEP and the Line of Control for the same period.

20. In the reports submitted in response to the Court's order,⁸ Pakistan provides daily flow estimates at the KHEP dam site, the Line of Control and the NJHEP dam site, which substantially reproduce figures previously submitted.⁹ India gives ten-daily flow estimates at the KHEP dam site and the Line of Control, and monthly flow estimates at the Line of Control and the NJHEP dam site.¹⁰ Each Party then uses its figures to evaluate the potential impact of a range of minimum flows on the environment and power generation at the KHEP and NJHEP.¹¹
21. The Parties' methodologies for estimating flow are not dissimilar. Both Parties use flow data from measuring stations located near the targeted location, if such data are available for the

⁸ Pakistan's Data and Information Submitted in Accordance with the Partial Award (Paragraphs 458-462), Tab C, National Engineering Services Pakistan (Pvt.) Limited, "Kishenganga Dam Partial Award: Detailed Information on Hydrological Estimates," June 2013 (including peer review by Professor Jens Christian Refsgaard in Appendix V) ("Pakistan's Data Submission, NESPAK Hydrology Report, June 2013"); Pakistan's Comments on India's Response dated 21 June 2013 to the Court's Request for Further Information (Made Pursuant to Paragraph 463 of the Partial Award), Annex A, National Engineering Services Pakistan (Pvt.) Limited, "Kishenganga Dam Partial Award: NESPAK's Comments on India's CWC Hydrology Report of June 2013," August 2013 ("Pakistan's Comments, NESPAK Hydrology Report, August 2013"); Pakistan's Comments on India's Response dated 21 June 2013 to the Court's Request for Further Information (Made Pursuant to Paragraph 463 of the Partial Award), Annex B, Jens Christian Refsgaard, "Comments to CWC's Hydrology Report of June 2013," August 2013 ("Pakistan's Comments, Refsgaard Report, August 2013").

⁹ Pakistan's Data Submission, NESPAK Hydrology Report, June 2013, Appendices I-III.

¹⁰ India's Submission on the Information Requested by the Court in its Partial Award dated 18 February 2013, Vol. 2, Tab A, Central Water Commission (CWC), Government of India, "Hydrology Report," June 2013 ("India's Data Submission, CWC Report, June 2013"), Annexes II-V. Pakistan emphasizes that, contrary to the "Court's express request," India has failed to provide daily flow estimates, while India explains that reliable daily flow series could not be constructed as "a good amount of statistical approximations have already been performed in view of the uncertainties in observed flows" and any further estimation would be "artificial" and "unrealistic" (Pakistan's Comments on India's Response dated 21 June 2013 to the Court's Request for Further Information (Made Pursuant to Paragraph 463 of the Partial Award), paras. 16-17; India's Data Submission, CWC Report, June 2013, paras. 13.1, 13.5, 14.1). India also submits a second report: India's Comments on the Information Supplied by Pakistan on 21 June 2013, Vol. 2, Tab A, Central Water Commission (CWC), Government of India, "Hydrology Report," August 2013 ("India's Comments, CWC Report, August 2013").

¹¹ See India's Submission on the Information Requested by the Court in its Partial Award dated 18 February 2013, paras. 2.4-2.5, 3.12, 3.19; Pakistan's Data and Information Submitted in Accordance with the Partial Award (Paragraphs 458-462), Tab A, Water Matters, Southern Waters, Hagler Bailly Pakistan, Beuster, Clarke and Associates, "Kishenganga Dam Partial Award, Data Sought: Environmental Flows," June 6, 2013, s. 3.5.2; Pakistan's Data and Information Submitted in Accordance with the Partial Award (Paragraphs 458-462), Tab B, National Engineering Services Pakistan (Pvt.) Limited, "Kishenganga Dam Partial Award: Power Generation at Neelum-Jhelum Hydroelectric Project," June 2013 ("Pakistan's Data Submission, NESPAK Power Generation Report, June 2013"), s. 2.1.

relevant years (1971 to 2004).¹² Both Parties fill in gaps in these data by correlating the available data from the selected measuring stations with those of a reference station and by conducting a regression analysis.¹³ Both Parties use the Muzaffargarh measuring station as their reference station on the Kishenganga/Neelum River.¹⁴ For locations where there are no nearby measuring stations, such as at the Line of Control, both Parties estimate flow using data from stations situated elsewhere along the Kishenganga/Neelum.¹⁵

22. Despite these methodological similarities, the Parties disagree as to: (i) whether data previously exchanged under the Treaty or “corrected” data should be used for calculating the minimum flow; (ii) whether data from the Nauseri gauging station are reliable and sound; and (iii) whether to use Pakistan’s or India’s regression analysis for filling in gaps in the observed data. The Parties also disagree (iv) about the appropriate framework of analysis, and the resultant availability of flow, at the Line of Control.

1. Data previously exchanged under the Treaty vs. “corrected” data

Pakistan’s Arguments

23. With respect to the data it collected at its Muzaffargarh measuring station, Pakistan uses what it calls “corrected” or “quality-assured” data.¹⁶ While Pakistan provides “raw” data to India pursuant to the data exchange requirements of Article VI(1) of the Treaty, these data are subsequently evaluated by Pakistan’s Surface Water Hydrology Directorate to account for variations in the level or stage over the course of the day (in particular during the high-flow season) and to adjust the rating curve between the stage and the river discharge on the basis of

¹² Thus, for the KHEP dam site, both Parties rely on data collected at the Gurez and Wampora gauging stations, which are located 2 km and 5 km respectively from the dam site. Pakistan (but not India) also relies on data obtained at the Nauseri gauging station for its flow estimates at the NJHEP dam site. *See* Pakistan’s Memorial, Vol. 3, Tab B, National Engineering Services Pakistan (Pvt.) Limited, “Kishenganga/Neelum River: Hydrology and Impact of Kishenganga Hydroelectric Plant on Energy Generation in Pakistan,” April 2011 (“Pakistan’s Memorial, NESPAK Report, April 2011”), s. 1.3; India’s Submission on the Information Requested by the Court in its Partial Award dated 18 February 2013, paras. 2.7-2.8, 2.20-2.21.

¹³ Pakistan’s Memorial, NESPAK Report, April 2011, pp. 17-32; India’s Submission on the Information Requested by the Court in its Partial Award dated 18 February 2013, para. 2.9.

¹⁴ Pakistan’s Memorial, NESPAK Report, April 2011, p. 17; India’s Counter-Memorial dated 23 November 2011, Vol. 2A, Tab A, Central Water Commission (CWC), Government of India, “Hydrology Report on Kishenganga Hydro-Electric Project,” October 2011, pp. 37-38.

¹⁵ Pakistan’s Memorial, NESPAK Report, April 2011, pp. 35–40; India’s Data Submission, CWC Report, June 2013, para. 10.2.

¹⁶ Pakistan’s Reply, Vol. II, Tab B, National Engineering Services Pakistan (Pvt.) Limited, “NESPAK Consideration of India’s Hydrology Report,” February 2012 (“Pakistan’s Reply, NESPAK Report, February 2012”), p. 3, s. ES.4.

an annual analysis of potential changes.¹⁷ Pakistan considers such quality assurance to be standard practice,¹⁸ although such data are not, and according to Pakistan cannot be, shared with India within the three-month period required by the Treaty.¹⁹ However, Pakistan submits that India could have accessed these corrected data by consulting, for a fee, the yearbooks of Pakistan's Surface Water Hydrology Directorate.²⁰

24. Pakistan submits that, for the purpose of determining the minimum flow, the Court should use the most reliable data, in accordance with good scientific practice, regardless of whether the data in question were originally exchanged pursuant to the Treaty.²¹
25. Pakistan contends that India's argument that Pakistan tampered with its Muzzafarabad data is baseless, as is evident from the small difference between the Parties' data and the fact that the alleged discrepancies occur during the high-flow periods. Pakistan would derive no benefit from changing the values for discharges that exceed the combined capacity of the KHEP and NJHEP, as such high flows are irrelevant to the Court's minimum flow determination.²²

India's Arguments

26. India submits that, in making its minimum flow determination, the Court should rely solely on data contemporaneously exchanged by the Parties pursuant to Article VI(1) of the Treaty, for three reasons.²³ First, Pakistan has failed to explain why it did not supply India with the corrected data prior to this arbitration.²⁴ Second, according to India, the Parties' intent was that data exchanged pursuant to the Treaty be used in the Treaty's implementation.²⁵ Third, India

¹⁷ Pakistan explains that the data provided to India under Article VI(1) were the current measurements taken at Muzzafarabad. However, these measurements were sporadic, and the gaps in the data could not accurately be filled by correlating the current measurements and the daily water level (stage) measurements taken at Muzzafarabad because the current and stage measurements were taken at different times of day. Pakistan further explains that, for the corrected data, discharge values were computed from stage measurements taken at Muzzafarabad by applying rating curves based on additional data. *See* Pakistan's Data Submission, NESPAK Hydrology Report, June 2013, Appendix IV, pp. 112-115.

¹⁸ Pakistan's Data Submission, NESPAK Hydrology Report, June 2013, Appendix V, pp. 131-33.

¹⁹ *Ibid.*, Appendix IV, p. 112; Appendix V, p. 132.

²⁰ Hearing Tr., (Day 1), 20 August 2012, at 83:12 to 84:6 (Cross-Examination of Mr Mehr Ali Shah).

²¹ Pakistan's Comments on India's Response dated 21 June 2013 to the Court's Request for Further Information (Made Pursuant to Paragraph 463 of the Partial Award), paras. 21-22; *see also* Pakistan's Comments, Refsgaard Report, August 2013, p. 50.

²² Pakistan's Data Submission, NESPAK Hydrology Report, June 2013, Appendix IV, s. 2.1(d).

²³ India's Comments on the Information Supplied by Pakistan on 21 June 2013, para. 2.34.

²⁴ *Ibid.*, para. 2.15.

²⁵ India's Submission on the Information Requested by the Court in its Partial Award dated 18 February 2013, paras. 2.15-2.16.

argues that Pakistan's "corrected" data contain numerous inconsistencies²⁶ and cannot be verified because Pakistan has failed to explain how it arrived at its corrections.²⁷

27. India argues that, as a result of these unexplained corrections of the data, Pakistan underestimates dry season flows at Muzaffarabad and overestimates flows at the KHEP dam site. The effect is thereby to exaggerate the adverse effect of reduced flows on power generation by the NJHEP and to underestimate the adverse effects of any minimum flow on power generation at the KHEP.²⁸
28. India also takes issue with Pakistan's use of the data for the Gurez and Wampora gauging stations previously transmitted by India under the Treaty. India notes that while both Parties have described the high-flow data from the Gurez station and the low-flow data from the Wampora station as unreliable (and both were discarded by India), Pakistan appears to have made use of the low-flow data from Wampora and has otherwise not explained which of India's data it used in calculating the flow at the KHEP and which it discarded.²⁹

2. Reliability and integrity of data from the Nauseri gauging station

Pakistan's Arguments

29. In estimating daily flows at the NJHEP dam site, Pakistan relies, *inter alia*, on data collected during an 18-month period (July 1990 to December 1991) at the Nauseri gauging station, from which it derives a 34-year time-series covering 1971 to 2004 through a correlation to the flows at Muzaffarabad.
30. Pakistan submits that the Nauseri data from this 18-month period are reliable because the Nauseri and Muzaffarabad data are highly correlated for that time.³⁰ A high correlation is not

²⁶ For example, India notes that Pakistan's corrected data indicate that measurements are missing for certain days for which observed data was actually communicated to India under the Treaty and vice versa, and that there are discrepancies between the data provided by Pakistan in this arbitration and the Surface Water Hydrology Directorate's published data. *See* India's Comments on the Information Supplied by Pakistan on 21 June 2013, para. 2.18; India's Data Submission, CWC Report, June 2013, para. 9.10; India's Comments, CWC Report, August 2013, para. 14.

²⁷ India's Submission on the Information Requested by the Court in its Partial Award dated 18 February 2013, paras. 2.17-2.19; India's Comments on the Information Supplied by Pakistan on 21 June 2013, para. 2.17.

²⁸ India's Submission on the Information Requested by the Court in its Partial Award dated 18 February 2013, para. 2.13; India's Comments on the Information Supplied by Pakistan on 21 June 2013, para. 2.19.

²⁹ India's Comments on the Information Supplied by Pakistan on 21 June 2013, paras. 2.5-2.12; India's Data Submission, CWC Report, June 2013, para. 9.11.

³⁰ Pakistan's Reply, NESPAK Report, February 2012, s. 5.1.4.

surprising, given that the two measuring stations are only 35 kilometres apart and have similar catchment areas.³¹

India's Arguments

31. India submits that data collected at the Nauseri gauging station should not be used because they were not communicated to India pursuant to Article VI(1) of the Treaty and because a period of 18 months is too short to determine whether information obtained at a gauging station is reliable.³² India adds that the correlation between the Nauseri and Muzzafarabad data is unusually high, which suggests that the Nauseri data were not observed but rather fully derived from the Muzzafarabad data.³³

3. Regression analysis

Pakistan's Arguments

32. Pakistan submits that, to fill in gaps in the observed data, a single annual regression equation using monthly discharges should be used to correlate data from the various gauging stations on the Kishenganga/Neelum.³⁴ According to Pakistan, India's use of seasonal regression equations (that is, different equations for different groups of months) is less reliable because such equations are based on fewer data points and ignore outliers.³⁵ According to Pakistan, the quantity of data points is a particular concern in light of the "inherent uncertainties" in India's data for the sites at Gurez and Wampora, and the large variation between individual data points and the regression line.³⁶

India's Arguments

33. India uses a seasonal regression analysis, applying three distinct correlation equations for the periods from November to February (the low flow season), March to June (the snow-melt

³¹ Pakistan's Data Submission, NESPAK Hydrology Report, June 2013, Appendix IV, s. 2.2(c).

³² India's Submission on the Information Requested by the Court in its Partial Award dated 18 February 2013, paras. 2.21-2.23; India's Comments on the Information Supplied by Pakistan on 21 June 2013, paras. 2.23(i)&(ii), 2.35; India's Data Submission, CWC Report, June 2013, para. 9.7.

³³ India's Rejoinder, Vol. II, Tab A, Central Water Commission (CWC), "Response to the Replies of NESPAK on CWC's Hydrology Report," April 2012, s. 4.1.

³⁴ Pakistan's Data Submission, NESPAK Hydrology Report, June 2013, Appendix IV, pp. 124-125.

³⁵ Pakistan's Data Submission, NESPAK Hydrology Report, June 2013, Appendix IV, p. 124; Pakistan's Reply, Vol. II, Tab A, Jens Christian Refsgaard, "Review of NESPAK Consideration of India's Hydrology Report," 15 February 2012, p. 4.

³⁶ Pakistan's Comments, NESPAK Hydrology Report, August 2013, para. 5.25.

season), and July to October (the high flow season).³⁷ According to India, this analysis is preferable because it takes into account “the vastly different flow patterns associated with the different seasons affecting the river system.”³⁸

34. India submits that Pakistan’s use of an annual regression analysis may explain why Pakistan’s flow series indicates that flows were greater at the KHEP dam site than at the Line of Control in some months, despite the contribution of tributaries between these two locations.³⁹

4. Flow at the Line of Control

Pakistan’s Arguments

35. Pakistan objects to India’s use of a 90-percent reliable (i.e., dry) year for its analysis. In Pakistan’s view, values from such years ignore extreme conditions that occur from time to time and such an approach “distorts the picture of the hydrology of the river.”⁴⁰ According to Pakistan, the Court’s minimum flow determination should be based on “an understanding of the *actual* existing flow regime, not a flow regime ironed out [to] exclude extreme hydrological conditions that have in fact occurred, and that will continue to reoccur, leading to actual impacts on the riverine ecosystem.”⁴¹
36. According to Pakistan, “India’s presentation seems oriented to depict that there is ample water availability in the form of flow contributions from the intermediate catchment between KHEP dam site and the Line of Control.”⁴² In fact, Pakistan argues, in natural conditions, flows below 10 cumecs at the KHEP occur only 0.7 percent of the time, yet with a minimum flow release of 4.25 cumecs as proposed by India, such low flows would occur 55 percent of the time.⁴³ On

³⁷ India’s Submission on the Information Requested by the Court in its Partial Award dated 18 February 2013, paras. 2.25-2.27; India’s Data Submission, CWC Report, June 2013, para. 6.2, 7.1.

³⁸ India’s Submission on the Information Requested by the Court in its Partial Award dated 18 February 2013, para. 2.29; India’s Data Submission, CWC Report, June 2013, paras. 7.1-7.5, 9.6; India’s Comments on the Information Supplied by Pakistan on 21 June 2013, para. 2.25.

³⁹ India’s Data Submission, CWC Report, June 2013, paras. 9.14-9.16; India’s Comments on the Information Supplied by Pakistan on 21 June 2013, para. 2.31.

⁴⁰ Pakistan’s Comments on India’s Response dated 21 June 2013 to the Court’s Request for Further Information (Made Pursuant to Paragraph 463 of the Partial Award), para. 20(e)&(g).

⁴¹ *Ibid.*, para. 17 (emphasis in original); Pakistan’s Comments, NESPAK Hydrology Report, August 2013, para. 5.34. Pakistan also notes that India’s use of a hydrological year beginning in June is not in accordance with best practices (Pakistan’s Comments, NESPAK Hydrology Report, August 2013, para. 5.30).

⁴² Pakistan’s Comments, NESPAK Hydrology Report, August 2013, para. 5.33.

⁴³ Pakistan’s Comments on India’s Response dated 21 June 2013 to the Court’s Request for Further Information (Made Pursuant to Paragraph 463 of the Partial Award), para. 18; Pakistan’s Comments, NESPAK Hydrology Report, August 2013, paras. 5.51-5.52.

India's own figures, Pakistan contends, India's proposed release would create flows at the Line of Control that are lower than the lowest ever recorded flow 18.5 percent of the time.⁴⁴

India's Arguments

37. India bases its analysis of the flow available at the Line of Control on a 90-percent reliable year (in other words, a flow that will be available in 90 percent of years), arguing that this is the basis on which Indian Run-of-River Plants are designed.⁴⁵ Examining the intermediate flow between the KHEP and the Line of Control under both Indian and Pakistani data, India calculates that intervening tributaries add between 2.1 and 3.31 cumecs with 90 percent reliability.⁴⁶ Combined with even the 3.94-cumec minimum promised by India's Agent at the merits hearing, the flow at the Line of Control would be more than 6 cumecs—and likely more than 7 cumecs—90 percent of the time.⁴⁷ With the addition of a further 3 cumecs from a tributary just 4 kilometres downstream of the Line of Control, India submits that a substantial flow would be available under any minimum release from the KHEP.⁴⁸

C. THE PARTIES' SUBMISSIONS ON THE EFFECT OF MINIMUM FLOW ON POWER GENERATION AND THE ECONOMICS OF THE KHEP

38. As requested by the Court, both Pakistan and India have presented data on the effect of a range of flows on power generation at their respective hydro-electric plants—Pakistan with respect to the NJHEP and India with respect to the KHEP. Each Party has also commented on the other's presentation of effects on power generation at its plant.

Pakistan's Arguments

39. For the NJHEP, Pakistan outlines the lost energy that would result from 17 different scenarios for a minimum release from the KHEP. These scenarios present a reduction in energy generation at the NJHEP ranging from 0 to 13.6 percent. Among these, the minimum flow of 3.94 cumecs promised by India during the merits hearing would result in a loss at the NJHEP of 635 gigawatt hours ("GWh") or 12.3 percent of capacity.⁴⁹ Pakistan also calculates the

⁴⁴ Pakistan's Comments, NESPAK Hydrology Report, August 2013, para. 5.56.

⁴⁵ India's Submission on the Information Requested by the Court in its Partial Award dated 18 February 2013, paras. 2.51, 2.53, 3.11.

⁴⁶ India's Data Submission, CWC Report, June 2013, paras. 15.2-15.8.

⁴⁷ *Ibid.*, para. 15.9.

⁴⁸ *Ibid.*, para. 15.10.

⁴⁹ Pakistan's Data and Information Submitted in Accordance with the Partial Award (Paragraphs 458-462), para. 19.

revenue lost on the basis of “replacement energy by means of energy from fuel oil and high speed diesel power generation” and contends that a 3.94-cumec release would result in an annual loss for Pakistan of USD 130,400,000.⁵⁰ Although the losses vary substantially across the outlined scenarios, Pakistan contends that a minimum flow of less than 80 cumecs at the KHEP would cause a significant loss in energy at the NJHEP.⁵¹

40. Turning to India’s submission on power generation at the KHEP, Pakistan argues that India’s data are misleading and that India’s submission amounts to an attempt to “re-litigate an issue that was exhaustively addressed during the hearing on the merits.”⁵² Pakistan argues that India incorrectly assumes that “the Partial Award gives priority to India’s needs and thus concludes that Pakistan’s entitlement to downstream flows should be ‘limited to a minimum.’”⁵³ According to Pakistan, India then structures its presentation of data accordingly and considers minimum flows only between 0 to 10 cumecs. Pakistan submits that India, in doing so, has neglected the actual finding of the *Partial Award* that “[b]oth Parties’ entitlements under the Treaty must be made effective so far as possible”⁵⁴ and has also failed to “fulfil the Court’s requirement of incorporating a sufficient range of minimum flows to be discharged below the KHEP so as to give the Court a ‘full picture’ of the sensitivity of the river system.”⁵⁵
41. Pakistan further criticizes India’s presentation of data that, in Pakistan’s view, follows from India’s assumption of priority. First, Pakistan disputes the idea that power plants are designed on the basis of dry-year flows and argues that “India is using a dry year as the base scenario for analysis because the effect of downstream releases is magnified in percentage terms when examined in the context of the reduced water flows in a dry year.”⁵⁶ Second, Pakistan objects to the fact that India has presented energy losses only for December, the lowest flow month. In Pakistan’s view, “the point to be examined is the magnitude of those losses in the context of the average annual energy production at KHEP, not the magnitude of those losses in the context of

⁵⁰ *Ibid.*, paras. 19-20.

⁵¹ *Ibid.*, para. 21.

⁵² Pakistan’s Comments on India’s Response dated 21 June 2013 to the Court’s Request for Further Information (Made Pursuant to Paragraph 463 of the Partial Award), paras. 23-24.

⁵³ *Ibid.*, para. 24.

⁵⁴ *Ibid.*, para. 25, quoting Partial Award, para. 446.

⁵⁵ Pakistan’s Comments on India’s Response dated 21 June 2013 to the Court’s Request for Further Information (Made Pursuant to Paragraph 463 of the Partial Award), Annex C, National Engineering Services Pakistan (Pvt.) Limited, “Kishenganga Dam Partial Award: NESPAK Comments on India’s ‘CEA’ Report on Impact of Minimum Release from KHEP on Power Generation by KHEP,” August 2013 (“Pakistan’s Comments, NESPAK Power Generation Report, August 2013”), para. 4.2.

⁵⁶ Pakistan’s Comments on India’s Response dated 21 June 2013 to the Court’s Request for Further Information (Made Pursuant to Paragraph 463 of the Partial Award), para. 28.

the driest month of a dry year.”⁵⁷ Finally, Pakistan objects that India has exaggerated energy losses at the KHEP by comparing them against a scenario of no downstream release, notwithstanding that its own laws already mandate a 4.25-cumec minimum.⁵⁸

42. In presenting its data, Pakistan maintains that India has invoked the threat to the economic viability of the KHEP posed by higher minimum releases, but “has not put before the Court the data that would be needed for any detailed and reliable assessment of the economic viability of KHEP.”⁵⁹ Pakistan accordingly has constructed its own economic analysis, using the cost of the KHEP published in 2011, the cost of energy from other sources in India, and prevailing interest rates.⁶⁰ Based on this analysis, Pakistan concludes that the KHEP would generate an economic internal rate of return ranging from 20.2 percent with no minimum release to 10.9 percent with a 100-cumec minimum release. As even this last figure is well above the 6 percent interest rate prevailing in India at the time the project was approved, Pakistan concludes that the “KHEP remains economically viable for all of the scenarios formulated and tested by Pakistan in its submission of 21 June 2013.”⁶¹

India’s Arguments

43. As context for its data on energy generation at the KHEP, India submits that “the Partial Award makes it clear that the KHEP and NJHEP are not to be treated on a basis of equality.”⁶² According to India, the Court’s reasoning in the *Partial Award* was such that the “obligation to release a ‘minimum flow’ should indeed be limited to a minimum.”⁶³ India also recalls its arguments that Pakistan has much more water available to it at the NJHEP site, that each cumec of water generates significantly more energy at the KHEP than it would at the NJHEP, and that India’s losses are compounded because releases from the KHEP will also reduce energy generation at India’s Uri-I and Uri-II projects on the lower Jhelum.⁶⁴
44. In response to the Court’s request for data, India outlines the effect on power generation during dry (90-percent dependable), average (50-percent dependable), and wet (10-percent dependable) years. India calculates the losses at a range of minimum flows between 0 and 10

⁵⁷ *Ibid.*, para. 29.

⁵⁸ *Ibid.*, para. 30.

⁵⁹ *Ibid.*, para. 32.

⁶⁰ See Pakistan’s Comments, NESPAK Power Generation Report, August 2013, paras. 5.1-5.10.

⁶¹ *Ibid.*, paras. 5.10-5.11.

⁶² India’s Submission on the Information Requested by the Court in its Partial Award dated 18 February 2013, para. 3.5.

⁶³ *Ibid.*, para. 3.7.

⁶⁴ *Ibid.*, para. 3.7.

cumecs and provides both annual and dry season (October-March) figures for percentage loss of generating capacity.⁶⁵ Based on these data, India reaches the following conclusions:

- For every cumec of minimum release below KHEP dam, there is a definite loss in power generation at KHEP.
- The winter months from the October to March are associated with low flows and the power generation will be adversely affected during these months on account of minimum releases from KHEP dam. This reduction would be almost Linear in nature.
- The average annual loss in energy generation at KHEP is the maximum in 90% Dependable Year (Dry Year) viz. about 16% [with a 10-cumec minimum release] which works out as around 32 MU per cumec.
- On monthly basis, the loss in energy on account of minimum release below KHEP dam would be significant in Dry Year (90% dependable year) with the loss being as high as 80.2% in percentage terms in the month of December corresponding to minimum release of 10 cumec.⁶⁶

45. Turning to Pakistan's flow data regarding the NJHEP, India considers Pakistan's seventeen minimum flow scenarios to be "grossly inflated."⁶⁷ In India's view, the releases proposed by Pakistan "would cause the KHEP to be completely shut down for months of the year, and . . . are contrary to the Court's statements in the Partial Award regarding India's right under the Treaty to proceed with the KHEP in a manner that makes the project viable."⁶⁸
46. According to India, any minimum flow greater than 4.25 cumecs would seriously compromise the economic viability of the KHEP.⁶⁹ Examining a 90-percent dependable (dry) year (on the basis of which the KHEP was designed), India submits that a minimum release of 20 cumecs would render the KHEP inoperable for three months of the year, while Pakistan's 100-cumec release would prevent the KHEP from operating for 10 months of the year.⁷⁰ On the whole,

⁶⁵ India's Submission on the Information Requested by the Court in its Partial Award dated 18 February 2013, Vol. 2, Tab B, Central Electricity Authority, "Impact of Minimum Releases from KHEP on Power Generation at KHEP," June 2013 ("India's Data Submission, CEA Report, June 2013").

⁶⁶ India's Data Submission, CEA Report, June 2013, s. 6.

⁶⁷ India's Comments on the Information Supplied by Pakistan on 21 June 2013, para. 4.3. India also objects to the fact that Pakistan's submission presents power losses that are higher than those indicated in its Memorial and Reply submissions as a result of a design change at the NJHEP in April 2012. According to India, "it is inadmissible for Pakistan to augment its alleged losses in this manner at such a late stage of the proceedings, particularly when no evidence supporting how the increase was arrived at has been furnished. Even though the amount of increase is relatively modest – 702 GWh vs. 695 GWh – this still represents a 1% increase [and] . . . each percentage point is important." India's Comments on the Information Supplied by Pakistan on 21 June 2013, para. 4.20.

⁶⁸ India's Comments on the Information Supplied by Pakistan on 21 June 2013, para. 4.3.

⁶⁹ *Ibid.*, para. 4.8; *see generally* India's Comments on the Information Supplied by Pakistan on 21 June 2013, Vol. 2, Tab B, Central Electricity Authority, "Further Submissions on Impact of Minimum Releases from KHEP on Power Generation at KHEP," August 2013 ("India's Comments, CEA Report, August 2013").

⁷⁰ India's Comments on the Information Supplied by Pakistan on 21 June 2013, para. 4.4.

India argues, “Pakistan’s minimum release scenarios of 10 cumecs and above would cause the KHEP to operate below its design discharge for between 60% and 95% of the time, a result that simply would not respect India’s priority of right to the waters.”⁷¹

47. Even with a minimum flow of 10 cumecs, India submits that during a 90-percent dependable (dry) year, the KHEP would suffer a significantly larger percentage loss of generating capacity than would the NJHEP. “Given that the Court has ruled that the KHEP has priority in right over the NJHEP with respect to the use of the waters of the river for hydro-electric power generation,” India argues, “it is impossible to justify a 10 cumec minimum release, let alone higher releases.”⁷²
48. With a minimum release of 7.2 cumecs during a 90-percent dependable (dry) year, India notes, the percentage loss at the two plants would be equal (at 11.2 percent). Nevertheless, in India’s view,

even this 7.2 cumec scenario would result in the KHEP being able to operate at its design discharge for only four months of the year – a result that would run counter to the Court’s admonition that the KHEP must not be made to operate at only a small fraction of its design capacity. Moreover, a minimum release of 7.2 cumec would also not reflect the Court’s finding that the KHEP has priority in right to the waters, a factor which strongly militates in favour of a lower minimum release, and the fact that Pakistan’s losses have been overstated as a result of its new claim and the use of non-Treaty flow data.⁷³

D. THE PARTIES’ SUBMISSIONS ON AGRICULTURAL USES IN THE NEELUM VALLEY

Pakistan’s Arguments

49. Pakistan observes that agriculture in the Neelum Valley is “almost entirely dependent on rain” rather than on water from the Kishenganga/Neelum.⁷⁴ This is, however, a system of “subsistence farming as water is often unavailable to meet crop needs.”⁷⁵ According to Pakistan, improvements in agricultural productivity will depend on the introduction of lift irrigation, using solar, high-speed diesel, or small-scale hydro-electric powered pumps. Looking to the future, Pakistan concludes that “[a]ny future development in the agricultural sector, and hence the possibility of breaking the cycle of poverty, is predicated upon the

⁷¹ India’s Comments on the Information Supplied by Pakistan on 21 June 2013, para. 4.17.

⁷² *Ibid.*, para. 4.31.

⁷³ *Ibid.*, para. 4.31 (footnotes omitted).

⁷⁴ Pakistan’s Reply, para. 4.52.

⁷⁵ *Ibid.*, para. 4.52.

uninterrupted flow of water which, if ensured, will make a substantial difference to the quality of life of the inhabitants of the Neelum Valley.”⁷⁶

50. Pakistan acknowledges the difficulty of providing data with respect to future agricultural uses. It nevertheless maintains that “[a]gricultural uses are . . . expressly protected by paragraph 15(iii) of Annexure D,”⁷⁷ and submits that “some allowance must be made for future development in striking the balance to which the Court has referred in its Partial Award.”⁷⁸

India’s Arguments

51. India submits that for agricultural uses “to be taken into account in calculating a minimal flow that India must release through the Kishenganga dam, Pakistan must establish two facts: (1) that there was river-dependent agricultural use on the stretch between the LOC [Line of Control] and Nauseri during the critical period established by the Court, and (2) that such use will be adversely affected by the KHEP.”⁷⁹ In India’s view, despite initially claiming large areas under cultivation, Pakistan “has failed to show that there is any such agriculture.”⁸⁰ India further notes the Court’s observation in the *Partial Award* that “[i]t appears to the Court that agricultural uses in the Neelum Valley are largely met by the tributary streams that feed the river.”⁸¹
52. As India interprets the Court’s *Partial Award*, any submission with respect to current or future agricultural uses “would not be timely, since it would be beyond the time-frame established in the Treaty, as interpreted in the Partial Award. It would thus be simply too late to be considered in calculating minimum flow, and in fact is irrelevant to such a calculation.”⁸² In India’s view, the Court rejected “Pakistan’s contention that ‘then existing’ means ‘future’” with respect to uses in the context of Paragraph 15(iii) of Annexure D to the Treaty.⁸³ In any event, India considers future uses by Pakistan to be “unidentified, unplanned and unsubstantiated”⁸⁴ and

⁷⁶ *Ibid.*, para. 4.61; Pakistan’s Data and Information Submitted in Accordance with the Partial Award (Paragraphs 458-462), para. 22.

⁷⁷ Pakistan’s Data and Information Submitted in Accordance with the Partial Award (Paragraphs 458-462), para. 22.

⁷⁸ *Ibid.*, para. 23.

⁷⁹ India’s Submission on the Information Requested by the Court in its Partial Award dated 18 February 2013, para. 5.15.

⁸⁰ *Ibid.*, para. 5.15.

⁸¹ *Ibid.*, para. 5.15 fn. 155, *quoting* Partial Award, para. 434.

⁸² *Ibid.*, para. 5.15.

⁸³ India’s Comments on the Information Supplied by Pakistan on 21 June 2013, paras. 3.14, 3.16.

⁸⁴ *Ibid.*, para. 3.13.

submits that Pakistan has ample water for any such development, as “roughly two-thirds of the water at Nauseri enters the river after the KHEP dam site.”⁸⁵

E. THE PARTIES’ SUBMISSIONS ON THE ENVIRONMENTAL IMPACT OF THE KHEP

53. As requested by the Court, both Pakistan and India have presented data on the effect of a range of flows on the environment below the KHEP. Each Party has also commented on the other Party’s environmental submissions.

Pakistan’s Arguments

54. Pakistan presents its data on environmental concerns through a revised submission based on the DRIFT methodology (“Downstream Implications of Flow Transformation”) employed in its expert submissions earlier in these proceedings.⁸⁶ This approach endeavours to estimate the effect of changes to the flow regime through the integrated examination of a large number of indicators related to the hydrology, sediments, hydraulics, geomorphology, water quality, vegetation, macroinvertebrates, and fish of the river.⁸⁷ As described by Pakistan’s experts, the objective of the analysis is to address the Court’s observation that “hydro-electric projects (including Pakistan’s projects) must be planned, built and operated with environmental sustainability in mind” and offer guidance on the flow regime that would be environmentally sustainable in the Kishenganga/Neelum.⁸⁸

⁸⁵ *Ibid.*, para. 3.17.

⁸⁶ See generally Pakistan’s Data and Information Submitted in Accordance with the Partial Award (Paragraphs 458-462), Tab A, Water Matters, Southern Waters, Hagler Bailly Pakistan, Beuster, Clarke & Associates: “Kishenganga Dam Partial Award, Data Sought: Environmental Flows,” June 6, 2013 (“Pakistan’s Data Submission, Environmental Report, June 2013”). As described by Pakistan,

[DRIFT] is a holistic approach that employs a multidisciplinary team to analyse the likely effects of a range of flow scenarios. Its aim is to produce predictions of change in the form of three streams of information—ecological, economic and social—that represent the three pillars of sustainable development. It incorporates a custom-built Decision Support System (DSS) that holds all the relevant data, understanding and local wisdom about the river provided by the team of river and social specialists. DRIFT has been used in many transboundary or basin-wide water development investigations over the last 15 years, including the Orange/Senqu (Lesotho and South Africa); the Mekong (Cambodia, Lao PDR, Thailand, Viet Nam); the Pangani Basin (Tanzania); the Zambezi Delta (Mozambique); the Okavango (Angola, Namibia, Botswana); the Cunene (Angola, Namibia); as well as numerous applications in its country of origin, South Africa. It was designed to meet the needs and realities of water-resource planning in developing countries.

Pakistan’s Memorial, Vol. 3, Tab D, Hagler Bailly Pakistan, Water Matters, Southern Waters & Beuster, Clarke and Associates, “Kishenganga/Neelum River Water Diversion: Environmental Assessment,” May 2011 (“Pakistan’s Memorial, Environmental Report, May 2011”), pp. 2-12.

⁸⁷ For the full list of indicators, see Pakistan’s Data Submission, Environmental Report, June 2013, p. 9.

⁸⁸ *Ibid.*, p. 3, quoting Partial Award, para. 454.

55. By comparison with its earlier submissions, Pakistan has expanded its team of experts to include a hydraulics specialist and specialists in sedimentology and geomorphology and has increased its range of indicators in light of the Court's ruling on drawdown flushing in its *Partial Award*.⁸⁹ Pakistan's experts have also developed 17 flow scenarios (corresponding to those discussed above in relation to power generation). In addition to the current baseline condition, a maximum diversion scenario, and the 3.94-cumec release identified by India during the merits hearing, Pakistan's experts have evaluated minimum releases between 10 and 100 cumecs (in increments of 10 cumecs),⁹⁰ percentage-based scenarios in which between 10 and 90 percent of the flow at the KHEP would be passed downstream,⁹¹ and two variable release scenarios in which the downstream release would vary by season and between dry and normal years.⁹² As in previous submissions, each scenario was evaluated for effects at the Line of Control, at the NJHEP site at Nauseri, and at Dudhnial (halfway between the Line of Control and Nauseri).
56. In keeping with the DRIFT methodology and based on the predicted response of the indicators to various flow regimes, Pakistan's experts graded the resultant ecological condition of the Kishenganga/Neelum under the 17 scenarios on a scale from A to F, ranging from pristine to critically modified.⁹³ The results show that the current baseline condition of the

⁸⁹ *Ibid.*, p. 8. Previously, in light of the significant uncertainty as to whether the flushing of sediments from the KHEP reservoir would be permitted, Pakistan's experts had dealt with the effects of sediment separately.

⁹⁰ Using the nomenclature of Pakistan's expert report, in scenario K10 the minimum flow would be 10 cumecs. In scenario K40, the minimum flow would be 40 cumecs.

⁹¹ Using the nomenclature of Pakistan's expert report, in scenario KH1E9, 10 percent of the flow would be diverted and 90 percent passed downstream. In scenario KH7E3, 70 percent would be diverted and 30 percent passed downstream.

⁹² Under scenario KVT1, the dry season release between 11 October and 13 March would be 16 cumecs (or 13 cumecs in a dry year). Under scenario KVT2, the dry season release between 11 October and 13 March would be 14 cumecs (or 11 cumecs in a dry year). Under both scenarios, the shoulder season release between 14 March and 9 April and between 29 August and 10 October would be 52 cumecs (or 39 cumecs in a dry year). Between 10 April and 28 August (when flow in the river is abundant), neither scenario would mandate a minimum release. See Pakistan's Data Submission, Environmental Report, June 2013, p. 20.

⁹³ In detail, the A to F categories, which Pakistan considers are "intuitively understood by river specialists," are described as follows:

Category A: pristine; natural. No development in the basin, or none that affects the river.

Category B: near-pristine; near-natural. There may be areas of slight deterioration, but these are mostly localised and could easily be reversed with better catchment management. An example would be mild sewage pollution from a small village or town.

Category C: moderately modified from natural. Changes will be noticeable, with the loss of some sensitive species, communities and/or habitats. The river could still appear quite attractive but would not be functioning as an optimally efficient ecosystem. If the deterioration was due to water quality changes, for instance, the river would probably not be attaining the level of health expected for recreational use.

Kishenganga/Neelum at the Line of Control is in low category B (near pristine). Various high release scenarios, for example a 20-cumec minimum flow and above, would maintain the river in category C (moderately modified from natural). Other scenarios, including a 10-cumec minimum flow, would achieve high category D conditions (significantly modified from natural), while a minimum flow of 3.94 cumecs and a maximum diversion scenario would reduce the river to low category D.

57. Evaluating these results against international practice, Pakistan maintains that

The UK, the USA and Australia vary slightly in the numbers they give, but generally they recommend that for the maintenance of good ecological condition in high-gradient rivers, daily flows should never fall below about 70% of natural. This number should increase to 80-90% in the dry season, with the percentage of flow remaining in the river being higher the lower the flow is. African studies suggest that 60-70% or more of natural dry season daily flow is needed to maintain a Category B river while more than 40% is needed for a Category C river. . . . African studies tend to recommend lower percentages than those of the UK, Australia and the USA.

All of the scenarios would meet these recommended standards for wet season flows. K40 to K100, and KH1E9 and KH2E8 would meet the UK, USA and Australian recommendations for dry season flows . . . and K20, KH3E7 and KVT1 would be somewhat below them These latter three would also meet or come close to meeting the African recommendations for Category B rivers, while K10, KH5E5, KH7E3 and KVT2 would meet the recommendation for a Category C river. The remaining three scenarios . . . would be well below any of the internationally recognised standards reviewed here for high-altitude, high-gradient, scenic rivers.⁹⁴

58. Pakistan concludes as follows:

Scenarios K40-100, while offering the best prospects for river condition (high C), provide the lowest amounts of water for diversion to KHEP

Scenarios KVT1, KVT2, KH3E7 and K20 offer slightly higher levels of diversion and a lower Category C river condition. This condition is lower than would generally be considered appropriate for such a river.

The other scenarios would not generally be seen among river scientists as offering an acceptable condition for such a river.⁹⁵

Category D: significantly modified from natural. This is a 'working river'. The emphasis could be on the use of the river water for other purposes (e.g. crop irrigation) and so little is available for river maintenance, or it could simply be an ecosystem that has not been considered in urban and rural development plans and so has declined due to lack of care. This would be seen as the lowest level that any river should ever fall to, and would be unacceptable in many areas and under many circumstances.

Category E/F: critically modified. This would be seen as a very degraded and unhealthy river, unacceptable as a future state and requiring urgent remedial action. Alternatively, it could be a canalised or similarly unnatural one.

See Pakistan's Data Submission, Environmental Report, June 2013, pp. 40-41.

⁹⁴ *Ibid.*, p. 42.

⁹⁵ *Ibid.*, p. 43.

59. Turning to India's environmental submission, Pakistan is critical. First, in Pakistan's view, India's decision to analyse minimum flows only below 10 cumecs is inconsistent with the Court's request.⁹⁶ Second, Pakistan notes that the release of 4.25 cumecs mandated by the Indian Ministry of Environment & Forests "is not supported by any reasoning, either in the October 2012 decision of India's Ministry of Environment and Forests or in India's submission."⁹⁷ Finally, Pakistan considers that India's most recent environmental analysis suffers from the same problematic absence of methodology that, in Pakistan's view, characterized India's earlier environmental reports and failed to stand up to scrutiny during the cross-examination of India's experts.⁹⁸ Rather than provide new data, Pakistan argues that India has simply tried to "retrieve this situation" through a further report from the same experts, accompanied by additional peer reviews.⁹⁹
60. Examining the results of India's environmental analysis, Pakistan's experts conclude that although India's experts adopted "a sound way to approach the assessment, as far as we can ascertain they do not carry this through into practice."¹⁰⁰ As the first step, Pakistan considers that the Indian model for flows in the Kishenganga/Neelum is ill-suited to assessing low flows and ignores standard practices in the field of ecohydraulics.¹⁰¹ According to Pakistan, India's experts then consider only the survival of three fish species, and only on the basis of undocumented minimum (rather than optimum) depths for each species.¹⁰² India's experts then

⁹⁶ Pakistan's Comments on India's Response dated 21 June 2013 to the Court's Request for Further Information (Made Pursuant to Paragraph 463 of the Partial Award), para. 35.

⁹⁷ *Ibid.*, para. 36.

⁹⁸ *Ibid.*, para. 37.

⁹⁹ *Ibid.*, para. 37.

¹⁰⁰ Pakistan's Comments on India's Response dated 21 June 2013 to the Court's Request for Further Information (Made Pursuant to Paragraph 463 of the Partial Award), Annex E, Water Matters, Southern Waters, Hagler Bailly Pakistan, Streamflow Solutions, Beuster, Clarke & Associates, Fluvius "Kishenganga Dam Partial Award: Comment on the Environmental aspects of the Indian submission of 21 June 2013" (August 2013) (Pakistan's Comments, Environmental Report, August 2013), p. 25.

¹⁰¹ According to Pakistan's report, India "uses a well-established and useful hydrodynamic model called MIKE 11, which is commendable. Execution of the modelling, however, is in our opinion not fit for purpose. First, it appears to be an application more suited for engineering investigation of high and medium flows than an ecohydraulics investigation of low flows." *Ibid.*, p. 25. Pakistan's experts further note that "[i]n terms of conditions that the aquatic life would face through their 30 scenarios, DHI predicts maximum depths of questionable validity; DHI predicts velocities that are not subsequently used; and DHI does not predict at all how much wetted river bed would be left for the organisms to live in." *Ibid.*, p. 12.

¹⁰² Pakistan's experts conclude that

DHI uses one of their own data sets from 2012 and one other reference to define the habitat needs of three fish species. They do not specify the habitat needs of any other aquatic organisms. Their conclusions that a minimum depth of 0.5 m for trout and 0.25 m for loach are sufficient for survival are not supported by the data they present. Even if they are, DHI's targeting of the lowest depths fish were found at, rather than analysing their data to produce optimum depths, is not appropriate and would not promote fish survival.

proceed to link “maximum water depths with minimum fish depth requirements” in an approach that Pakistan’s experts consider “obscure, simplistic and misleading.”¹⁰³

61. In sum, Pakistan submits that India’s

argument that a release of 4.25 m³/s will be adequate to avoid serious adverse impacts on the river is based upon selective references to a couple of parameters that give results favourable to India, completely ignoring the recognized methodologies for addressing these questions, and ignoring the obviously dramatic impact on the flows along the river at the LOC [Line of Control].¹⁰⁴

India’s Arguments

62. In approaching the question of the environmental effects of the KHEP, India first notes that the Indian Ministry of Environment & Forests has fixed a minimum flow of 4.25 cumecs for the KHEP.¹⁰⁵ According to India, this figure was set after a process that considers “all the relevant environmental and socio-economic factors” leading to results that vary from project to project.¹⁰⁶ India further notes that the 4.25-cumec minimum was fixed before India was aware that the Court would request further environmental data.¹⁰⁷

63. India submits that the Parties are substantially in agreement with respect to the effects (or non-effects) that the diversion of the Kishenganga/Neelum at the KHEP would have. According to India, the Parties are in agreement that the KHEP (1) will not have an impact on any threatened species; (2) will not have any significant impact on mammals or birds; (3) will not have any

Ibid., p. 25.

¹⁰³ According to Pakistan’s Report,

The terms ‘sustain’, ‘maintain’ and ‘protect’ the river ecosystem appear throughout the reports by DHI and some of their reviewers, linked to the recommended flow of 2.0 m³ s⁻¹ or proposed one of 4.25 m³ s⁻¹, but these are inappropriate conclusions for an ecosystem that would, under a release of about 4 m³ s⁻¹ lose more than 60% of its flow in the dry season; that would experience a dry season that was several weeks to months longer; and that would lose more than a third of the wetted bed in the dry season and more than a third of that remaining would be unsuitable for trout. These would be such profound physical changes that it is unimaginable that there will be only a minimal response from the ecosystem.

Ibid., p. 25.

¹⁰⁴ Pakistan’s Comments on India’s Response dated 21 June 2013 to the Court’s Request for Further Information (Made Pursuant to Paragraph 463 of the Partial Award), para. 42.

¹⁰⁵ India’s Submission on the Information Requested by the Court in its Partial Award dated 18 February 2013, para. 4.6.

¹⁰⁶ *Ibid.*, para. 4.5.

¹⁰⁷ *Ibid.*, para. 4.6.

significant impact on other terrestrial flora or fauna; (4) will not increase the risk of any human disease; and (5) will not have a significant impact on tourism.¹⁰⁸ In India's view,

The only questions that remain, therefore, are whether the KHEP will cause significant adverse effects on fish and macro-invertebrates below the LOC, and possibly: whether the KHEP will have any significant adverse effects on the Musk Deer National Park if the effects of Pakistan's proposed dams are not considered; and whether the KHEP will cause significant degradation of the aquatic environment in certain stretches of the river (which Pakistan argued and India refuted in earlier pleadings) other than with respect to the alleged impact on fish and macro-invertebrates.¹⁰⁹

64. In respect of these questions, India's experts conclude that neither changes in the sediment transport patterns nor in the water temperature will be significant enough to affect aquatic life. Although the KHEP will alter the flow of sediment in the Kishenganga/Neelum, the sluicing regime imposed by the Court's *Partial Award* will continue to pass approximately two-thirds of the river's sediment load downstream, and tributaries below the dam will also add sediments. In the view of India's experts, "[t]he reduction in sediment downstream of the KHEP dam resulting from sediment trapping will be minor," and in any event "native species have evolved in a dynamic environment, in which they periodically take refuge from high mainstem sediment concentrations by migrating up tributaries."¹¹⁰ Similarly, India's experts conclude that because the KHEP has limited pondage and retains water for only a short period of time, "alteration in temperature and its impact becomes negligible."¹¹¹
65. Having eliminated sedimentation and temperature as relevant factors, India's experts proceed to evaluate the flow regime in the reach between the KHEP and the Line of Control under a variety of scenarios. India's experts examined the riverbed profile at 12 sites at one kilometre intervals from the KHEP to the Line of Control. At each site, India estimated the water level for minimum flows from 0 to 3 cumecs (at increments of 1 cumec), at 3.94 cumec, and from 4 to 10 cumecs (at increments of 0.25 cumecs), and replicated each calculation across the 99.99-percent, 90-percent, 75-percent, 50-percent, 25-percent and 10-percent dependable flow values.¹¹² India's experts then compared these depths to the minimum depths required by three umbrella species of fish: brown trout, snow trout and Tibetan stone loach. Based on these calculations, India's experts conclude that

¹⁰⁸ *Ibid.*, para. 4.18; see also *ibid.*, paras. 4.9-4.17.

¹⁰⁹ *Ibid.*, para. 4.19.

¹¹⁰ India's Submission on the Information Requested by the Court in its Partial Award dated 18 February 2013, Tab F, DHI (India) Water & Environment, "Environmental Studies for Assessment of Impacts of Minimum Flow Releases," June 2013 ("India's Data Submission, DHI Environmental Report, June 2013"), p. 21.

¹¹¹ *Ibid.*, p. 22.

¹¹² See cross-section depth charts at *ibid.*, pp. 73-102.

The reach between the dam and the first tributary is the most vulnerable to reductions in flow and the site at 6km downstream show the 90th and 99.9th percentile flows as dropping below the minimum 0.5 m depth specified for brown and snow trout. However, *Triplophysa* [Tibetan stone loach] would have sufficient depths even with a minimum flow of 2.0 m³/s. Thus, the analysis indicates depths would drop below minimum depth requirements for trout species about 10 percent of the time in the upper 5.7-km reach below the dam. Downstream of this point, contribution of runoff from the tributaries will dilute the effects of the dam on flow regime.¹¹³

66. Given these limited effects, India argues that “a minimum flow of 2.0 cumec will suffice to protect the three umbrella species in the stretch down to the LOC [Line of Control].”¹¹⁴
67. As to Pakistan’s environmental submission, India argues “that Pakistan is urging the Court to require a far greater minimum environmental flow than is actually necessary to protect the riverine environment below the Line of Control.”¹¹⁵ At the broadest level, India objects to the attention that Pakistan devotes to concepts of sustainable development and “development space.”¹¹⁶ In India’s view, this goes well beyond anything in the Treaty and attempts to arrogate to the Court an inappropriate and indeterminate role that cannot be reconciled with the precise balancing of rights in the Treaty. According to India, “the Court does not have the mandate to define the development future of India. The test that Pakistan proposes is one for planners and policy-makers of India, not for judges or arbitrators.”¹¹⁷
68. India similarly objects to the use of the DRIFT methodology, which in its view, is an element of this expansive conception of the Court’s role: “[DRIFT] is thus designed as a planning tool, not as a normative instrument.”¹¹⁸ India considers DRIFT to be “inappropriate for the purposes in question here” and considers it significant that DRIFT has not been used extensively in Asia, in light of the importance of local knowledge and expertise in the analytic process.¹¹⁹

¹¹³ *Ibid.*, p. 37.

¹¹⁴ India’s Submission on the Information Requested by the Court in its Partial Award dated 18 February 2013, para. 4.35.

¹¹⁵ India’s Comments on the Information Supplied by Pakistan on 21 June 2013, para. 6.4.

¹¹⁶ *Ibid.*, paras. 6.5-6.7.

¹¹⁷ *Ibid.*, para. 6.8.

¹¹⁸ *Ibid.*, para. 6.9.

¹¹⁹ *Ibid.*, paras. 6.9, 6.11. India’s expert, Dr Kondolf notes that

DRIFT assessments are based largely on expert opinion. However, experts require actual data for the river in question, or their expertise may be irrelevant to the questions posed. If the data are sufficient and of good quality and the experts’ training and experience are relevant to the river in question, the assessment may be good, but if experts are not experienced in the river system, and/or, most importantly, if data are lacking on which to base expert judgments, there is no reason to expect the assessment to be accurate.

India’s Comments on the Information Supplied by Pakistan on 21 June 2013, Tab C, G. Mathias Kondolf, “Environmental Flows for the Kishenganga River Below KHEP,” 13 August 2013, p. 5 (“India’s Comments, Kondolf Report, August 2013”). In his view, in Pakistan’s attempt to implement the

According to India, the DRIFT process employs too many indicators, including some that are not a concern,¹²⁰ on the basis of “unsubstantiated” response curves, to generate a single assessment of the river on the basis of “amorphously and arbitrarily described”¹²¹ categories of “ecosystem integrity,” a term which is never defined and which has no accepted scientific definition.¹²² In India’s view, “[e]nvironmental impacts cannot be combined in some sort of environmental cost-benefit analysis,” and “summing cumulative impacts based on parameters whose relationships are not defined and unsupported by data is not a statistically, let alone ecologically, valid approach”—in particular in a trans-boundary context.¹²³ Finally, given the lack of instances in which the DRIFT approach has been previously tested and validated, in particular in Himalayan rivers, India submits that Pakistan’s DRIFT software is a “work in progress.”¹²⁴

69. Beyond the question of whether DRIFT is an appropriate methodology for application to the Kishenganga/Neelum, India takes issue with a number of aspects of Pakistan’s implementation of the approach. First, India objects to Pakistan’s consideration of a mix of minimum release, percentage release, and variable release scenarios. As Pakistan makes use of a constant minimum flow on its own dams, India views this as the only permissible approach at the KHEP for, in its view, the Treaty limits the obligations on the Parties to “customary practices followed in similar situations” when assessing what measures must reasonably be taken (for instance, with respect to such matters as environmental pollution).¹²⁵ Second, India is of the view that the DRIFT model neglects important factors, including the significant role of tributaries in the ecosystem¹²⁶ and additional dams that Pakistan may construct downstream of the Line of

methodology, “[t]he specialists who developed the ‘response curves’ relating habitat conditions to flow levels were not knowledgeable about the Kishenganga system (which is utterly different from the South African rivers on which DRIFT was developed), and had to work in the absence of adequate data on the river.” India’s Comments, Kondolf Report, August 2013, pp. 17-18.

¹²⁰ India notes, in particular, Pakistan’s continued inclusion of otter populations and tourism in the DRIFT model, notwithstanding the Parties’ agreement that these are not issues of concern. *See* India’s Comments on the Information Supplied by Pakistan on 21 June 2013, para. 6.53.

¹²¹ India’s Comments on the Information Supplied by Pakistan on 21 June 2013, para. 6.12.

¹²² *Ibid.*, para. 6.13.

¹²³ *Ibid.*, paras. 6.16, 6.21.

¹²⁴ *Ibid.*, para. 6.22.

¹²⁵ *Ibid.*, paras. 6.33-6.34. Although the Treaty does not, of course, address the question of minimum flows, India submits that “[t]here is no reason to believe that this understanding of reasonableness would not also have been adopted by the Parties in relation to minimum flows if they had foreseen that minimum flow releases would be required.” India’s Comments on the Information Supplied by Pakistan on 21 June 2013, para. 6.34. India also submits that anything other than a constant minimum flow would place excessive administrative burdens on India, which would “inevitably require India to respond to Pakistani requests to justify its measurements, calculations and actual releases.” India’s Comments on the Information Supplied by Pakistan on 21 June 2013, para. 6.36.

¹²⁶ India’s Comments on the Information Supplied by Pakistan on 21 June 2013, para. 6.52.

Control.¹²⁷ Third, India submits that Pakistan’s study was carried out with inadequate observation and lacked sufficient data to generate reliable response curves, in particular with respect to fish prevalence,¹²⁸ sediment transport,¹²⁹ and geomorphology.¹³⁰ India concludes that “Pakistan had almost no information on which to base a DRIFT approach, not to mention to evaluate it over time.”¹³¹

70. Finally, apart from these shortcomings, India submits that “Pakistan’s DRIFT study in fact supports MoEF [the Ministry of Environment & Forests]’s determination that a minimum flow of 4.25 is more than adequate.”¹³² If one looks not immediately at the Line of Control, but downstream at Pakistan’s sites at Dudhnial and Nauseri, India argues, “a minimum flow of 3.94 cumec would result in no substantial impact on fish or macro-invertebrates at either site.”¹³³

F. MONITORING THE MINIMUM FLOW

Pakistan’s Arguments

71. Pakistan submits that “[w]hatever flow regime is ordered by the Court, it is vital that it be accompanied by an adequate monitoring regime.”¹³⁴ Pakistan therefore requests

an order from the Court that the flow regime be supported by India providing to Pakistan, on a real time basis, (i) daily flow data from gauges recording the inflow into the KHEP reservoir and the outflow below the KHEP dam, as well as (ii) the reservoir level, and (iii) with regular inspections permitted to Pakistan of the gauging stations.¹³⁵

India’s Arguments

72. India objects to Pakistan’s request and submits that “such inspection on the territory of another State is unprecedented and beyond the scope of the inspection regime agreed by the Parties in the Treaty.”¹³⁶

¹²⁷ *Ibid.*, paras. 6.42-6.43.

¹²⁸ *Ibid.*, para. 6.45.

¹²⁹ *Ibid.*, para. 6.46.

¹³⁰ *Ibid.*, para. 6.47.

¹³¹ *Ibid.*, para. 6.48.

¹³² *Ibid.*, para. 6.55.

¹³³ *Ibid.*, para. 6.56.

¹³⁴ Pakistan’s Data and Information Submitted in Accordance with the Partial Award (Paragraphs 458-462), para. 30.

¹³⁵ *Ibid.*, para. 32.

¹³⁶ India’s Comments on the Information Supplied by Pakistan on 21 June 2013, para. 7.3.

73. In India's view, an additional inspection regime would be unwarranted and unnecessary. According to India, the Indus Waters Commission already serves the monitoring role that Pakistan seeks. India notes that "[t]here is no reason to believe on the basis of the historical record that this 'communication within the Commission cannot be relied upon as a means for transmitting accurate data in a timely manner'."¹³⁷
74. The only basis for such a regime, in India's view, would be an assumption of bad faith that is neither justified under the circumstances nor permitted by international law.¹³⁸ Far from smoothing relations, the introduction of an additional mechanism "would risk exacerbating tensions between [the Parties]," as it would "override the cooperation mechanisms made available under the Treaty."¹³⁹
75. India maintains that the Parties' exchange of data on flows and water utilization through the Commission under Articles VI and VIII of the Treaty has proceeded regularly and smoothly since its inception.¹⁴⁰

III. ANALYSIS OF THE COURT

A. SCOPE OF THE PARTIES' SUBMISSIONS

76. As set out above (see paragraphs 17 and 18), each Party has voiced concerns regarding the scope and content of the other's response to the Court's request for the submission of additional data. The Court nevertheless considers both Parties' submissions to be reasonable and appropriate in light of the Court's request. Within the substantive areas laid out in Paragraphs 458-462 of the *Partial Award*, the scope of the data requested by the Court was deliberately left unrestrained, and it was to be expected that the Parties would wish to emphasize and draw attention to different aspects in light of their differing views on the issues remaining for the Court.
77. Thus, the Court does not consider any part of the Parties' submissions made following the *Partial Award* to be inadmissible.

¹³⁷ *Ibid.*, para. 7.7.

¹³⁸ *Ibid.*, para. 7.21 citing *Affaire du Lac Lanoux (France v. Spain)*, Award of 16 November 1957, RIAA Vol. 12, p. 281 (French original), 1974 Yearbook of the International Law Commission, vol. 2, part 2, p. 194 (1976) (English translation) (Annex IN-LX-2).

¹³⁹ India's Comments on the Information Supplied by Pakistan on 21 June 2013, para. 7.22.

¹⁴⁰ *Ibid.*, para. 7.7.

B. DETERMINATION OF THE MINIMUM FLOW

1. Introduction

78. As indicated in paragraphs 455-457 of the *Partial Award*, the purpose of this Final Award is to fix the precise rate of the minimum flow to be preserved downstream of the KHEP.
79. The Court will approach this question by initially recalling the matters already decided in its *Partial Award*. It will then address the Parties' differences regarding the hydrologic data record for the Kishenganga/Neelum. Thereafter, the Court will assess, on the basis of the evidence before it, the effects that the KHEP is likely to have on agricultural and hydro-electric uses by Pakistan and on the downstream environment. The Court will then determine, taking into account these effects, the minimum flow. Finally, the Court will address Pakistan's request that the Court establish a monitoring regime.

2. The Court's *Partial Award* and its present task

80. The Court initially considers it appropriate to recall the key elements of its reasoning as set forth in the *Partial Award*.
81. Paragraph 15(iii) of Annexure D to the Treaty provides that:

where a Plant is located on a Tributary of The Jhelum on which Pakistan has any Agricultural use or hydro-electric use, the water released below the Plant may be delivered, if necessary, into another Tributary but only to the extent that the then existing Agricultural Use or hydro-electric use by Pakistan on the former Tributary would not be adversely affected.

The Parties differed as to the meaning of this provision and, in particular, as to what would constitute a "then existing Agricultural Use or hydro-electric use by Pakistan." After considering each Party's interpretation of the phrase, the Court considered that the proper interpretation required elements of each Party's approach to be given effect:

433. The Court considers that neither of the two approaches to interpretation discussed above—the ambulatory and critical period approaches—is fully satisfactory. Rather, the proper interpretation of Paragraph 15(iii) of Annexure D combines certain elements of both approaches. The Court is guided by the need to reflect the equipoise which the Treaty sets out between Pakistan's right to the use of the waters of the Western Rivers (including the Jhelum and its tributary, the Kishenganga/Neelum) and India's right to use the waters of those rivers for hydro-electric generation once a Plant complies with the provisions of Annexure D.

434. Pakistan’s relevant uses in this context are, in the Court’s view, essentially its hydro-electric uses. As for agricultural uses, the Court notes the observation of India—not contradicted by Pakistan—that there are no significant existing agricultural uses of the Kishenganga/Neelum’s main river. It appears to the Court that agricultural uses in the Neelum Valley are largely met by the tributary streams that feed the river.
435. Accordingly, the Court considers that its interpretative task consists of two principal elements. The Court must first establish the critical period at which the KHEP crystallized. Consistent with Part 3 of Annexure D (particularly the notice provisions of Paragraph 9), and using the same critical period criteria, the Court must then determine whether the NJHEP was an “existing use” that India needed to take into account at the time the KHEP crystallized. As shown below, the Court’s determination of the critical period leads to the conclusion that the KHEP preceded the NJHEP, such that India’s right to divert the waters of the Kishenganga/Neelum for power generation by the KHEP is protected under the Treaty.
436. Second, India’s right to divert the waters of the Kishenganga/Neelum cannot be absolute. The premise underlying Paragraph 15(iii)—that Pakistan’s existing uses are to be taken into account in the operation of India’s Plants—remains a guiding principle (albeit not to the preclusive extent of the ambulatory approach). Paragraph 15(iii) protects Pakistan’s right to a portion of the waters of the Kishenganga/Neelum throughout the year for its existing agricultural and hydro-electric uses.¹⁴¹
82. Pursuant to this interpretation, Pakistan’s agricultural and hydro-electric uses are relevant at two distinct times: first, at the time the KHEP crystallized; and, second, on an ongoing basis throughout the operation of India’s Plant.
83. With respect to the first point in time, the Court examined the actions and communications of the Parties from 2004-2006 and concluded that “India has a stronger claim to having coupled intent with action at the KHEP earlier than Pakistan achieved the same at the NJHEP, resulting in the former’s priority in right over the latter with respect to the use of the waters of the Kishenganga/Neelum for hydro-electric power generation.”¹⁴²
84. With respect to the second relevant time and the ongoing accommodation of Pakistan’s agricultural and hydro-electric uses in the operation of India’s Plants, the Court reasoned as follows:
445. India’s right under the Treaty to divert the waters of the Kishenganga/Neelum to operate the KHEP is subject to the constraints specified by the Treaty, including Paragraph 15(iii) of Annexure D as discussed above and, in addition, by the relevant principles of customary international law to be applied by the Court pursuant to Paragraph 29 of Annexure G when interpreting the Treaty. As discussed in the following paragraphs, both of these limitations require India to operate the KHEP in a manner that ensures a minimum flow of water in the riverbed of the Kishenganga/Neelum downstream of the Plant.

¹⁴¹ Partial Award, paras. 433-436 (internal citations omitted).

¹⁴² *Ibid.*, para. 437.

446. Accepting that the KHEP crystallized prior to the NJHEP under the critical period analysis set out above, Pakistan nonetheless retains the right to receive a minimum flow of water from India in the Kishenganga/Neelum riverbed. That right stems in part from Paragraph 15(iii) of Annexure D, which gives rise to India's right to construct and operate hydro-electric projects involving inter-tributary transfers but obliges India to operate those projects in such a way as to avoid adversely affecting Pakistan's "then existing" agricultural and hydro-electric uses.⁶⁵³ The requirement to avoid adverse effects on Pakistan's agricultural and hydro-electric uses of the waters of the Kishenganga/Neelum cannot, however, deprive India of its right to operate the KHEP—a right that vested during the critical period of 2004–2006. Both Parties' entitlements under the Treaty must be made effective so far as possible: India's right to divert water for the operation of the KHEP is tempered by Pakistan's right to hydro-electric and agricultural uses of the waters of the Western Rivers, just as Pakistan's right to these uses is tempered by India's right to divert the waters for the KHEP's operation. Any interpretation that disregards either of these rights would read the principles of Paragraph 15(iii) out of the Treaty, to one or the other Party's injury.¹⁴³

⁶⁵³ The Court notes that it is quite possible, in view of the particular topography of the region, that the KHEP lies at the only location on the Kishenganga/Neelum where an inter-tributary transfer is economically viable (see India's Counter-Memorial, paras. 4.23, 4.70; Pakistan's Reply, paras. 1.4–1.10; India's Rejoinder, paras. 2.42). If this is true, the KHEP may be the only instance in which Paragraph 15(iii) becomes problematic, as any other inter-tributary transfer that may be contemplated on other tributaries of the Jhelum would result in returning waters to the Jhelum Main before crossing the Line of Control, thereby causing no adverse effect to any uses that Pakistan may have.

85. The Court further reasoned that "India's duty to ensure that a minimum flow reaches Pakistan also stems from the Treaty's interpretation in light of customary international law."¹⁴⁴ It discussed the role of customary international law, specifically principles of customary international environmental law, as follows:

452. It is established that principles of international environmental law must be taken into account even when (unlike the present case) interpreting treaties concluded before the development of that body of law. The *Iron Rhine* Tribunal applied concepts of customary international environmental law to treaties dating back to the mid-nineteenth century, when principles of environmental protection were rarely if ever considered in international agreements and did not form any part of customary international law. Similarly, the International Court of Justice in *Gabčíkovo-Nagymaros* ruled that, whenever necessary for the application of a treaty, "new norms have to be taken into consideration, and . . . new standards given proper weight."⁶⁶⁴ It is therefore incumbent upon this Court to interpret and apply this 1960 Treaty in light of the customary international principles for the protection of the environment in force today.¹⁴⁵

⁶⁶⁴ *Case concerning the Gabčíkovo-Nagymaros Project (Hungary/Slovakia)*, Judgment, I.C.J. Reports 1997, p. 7, p. 78.

86. The Court then noted both Parties' recognition of the need for a minimum flow of water downstream of the KHEP for environmental sustainability and concluded:

¹⁴³ *Ibid.*, paras. 445–446.

¹⁴⁴ *Ibid.*, para. 447.

¹⁴⁵ *Ibid.*, para. 452.

455. There is thus no disagreement between the Parties that the maintenance of a minimum flow downstream of the KHEP is required in response to considerations of environmental protection. The Parties differ, however, as to the quantity of water that would constitute an appropriate minimum; thus, the precise amount of flow to be preserved remains to be determined by the Court.¹⁴⁶

87. Taken as a whole, the task facing the Court — now having the benefit of significantly more information and analysis from the Parties — is to determine a minimum flow that will mitigate adverse effects to Pakistan’s agricultural and hydro-electric uses throughout the operation of the KHEP, while preserving India’s right to operate the KHEP and maintaining the priority it acquired from having crystallized prior to the NJHEP. At the same time, in fixing this minimum flow, the Court must give due regard, in keeping with Paragraph 29 of Annexure G, to the customary international law requirements of avoiding or mitigating trans-boundary harm and of reconciling economic development with the protection of the environment.
88. Finally, as the Court emphasized in its *Partial Award*, the need for “stability and predictability in the availability of the waters of the Kishenganga/Neelum for each Party’s use”¹⁴⁷ calls for the Court to fix the precise rate of the minimum flow, even though the operation of the KHEP and the development of Pakistan’s agricultural and hydro-electric uses will likely not remain static, possibly changing over time.

3. The Parties’ submissions on hydrology

89. Before turning to the place of agriculture, hydro-electric power and the environment in the Court’s determination of the minimum flow, the Court must first recall the Parties’ submissions on the hydrology of the Kishenganga/Neelum, as these estimates of the river’s flow under different conditions underpin all other calculations.
90. Although the Parties have submitted extensive evidence highlighting the differences in methodology between them, what is striking for the Court is how similar the Parties’ hydrologic estimates actually are. During the low-flow season, in particular, the Parties’ estimates for average monthly flows rarely differ by a significant amount, and indeed Pakistan’s data for flows at the Line of Control during the driest months of the year are slightly higher than India’s own data. However, significant differences in estimated flows at the Line of Control occur for the very lowest flows. This is not unexpected, given the lack of observations

¹⁴⁶ *Ibid.*, para. 455.

¹⁴⁷ *Ibid.*, para. 457.

at this point and the limited flow data from nearby sites, and the Court has borne these differences in mind in its determination.¹⁴⁸

91. At this point, the Court finds it important to comment on one aspect of the Parties' method of gathering hydrological data. The Parties have disagreed as to the appropriateness of using data exchanged monthly (and not later than within three months of measurement) under Article VI of the Treaty, or data subsequently subjected to statistical analysis and quality control, as was done by Pakistan's Surface Water Hydrology Directorate. In the Court's view, there is no requirement that decisions by the Commission, the Neutral Expert, or Courts of Arbitration rendered in relation to the Treaty be based solely on data exchanged pursuant to Article VI(2). Indeed, the Court considers that quality assurance, if done in a transparent manner, is consonant with best practices in the field of hydrology. At the same time, the Court notes that after undertaking such analysis, Pakistan made no effort to share the published, quality-assured data for the Indus basin with India. In this respect, the Court is not satisfied with the suggestion that India can, for a fee, consult the published data in Pakistan's hydrologic yearbooks. The Court commends to the Parties the practice of undertaking quality assurance on hydrologic data collected on tributaries of the Indus and of sharing such data (together with sufficient elaboration to explain variations from data exchanged under Article VI) through the mechanisms of the Permanent Indus Commission.

4. The downstream effects of the KHEP

92. The Court now turns, on the basis of the Parties' submissions, to the effects that the KHEP may have on Pakistan's agricultural and hydro-electric uses and on the environment downstream and past the Line of Control. In the subdivision thereafter, the Court reviews the interplay of those effects with India's rights under the Treaty as laid down in the *Partial Award*. The Court thus adopts a two-step approach: it will first consider the downstream effects of the KHEP in the light of the responses to its request for additional data, and will then decide how the Treaty, as interpreted in its *Partial Award*, should be applied to these facts.

¹⁴⁸ Taking the monthly average across the full 34-year range submitted by the Parties, India's data indicate average flows in the driest months of October through March of 46.57, 28.24, 22.63, 22.1, 26.14, and 53.72 cumecs, respectively. See India's Data Submission, CWC Report, June 2013, Annex IV. Over the same period, Pakistan's data indicate averages in the same months of 45.3, 30.9, 24.4, 23.3, 28.3, and 60.4 cumecs, respectively. See Pakistan's Data Submission, NESPAK Power Generation Report, June 2013, Appendix II.

As the task before the Court involves a limitation on a plant being built by India, the Court has elected to use India's flow data in subsequent calculations. For the avoidance of doubt, the Court wishes to make clear that this determination of the minimum flow does not depend on which flow data set is employed.

(a) Pakistan's agricultural uses

93. Pakistan has submitted no data on current or anticipated agricultural uses of water from the Kishenganga/Neelum. Pakistan has, however, stated that future development in the Neelum Valley will be contingent on the increased use of lift irrigation from the river and on a move away from subsistence agriculture. The Parties disagree as to whether such potential future uses are relevant to the determination of the minimum flow.
94. As is shown by the passages in the *Partial Award* set out above (see paragraphs 81 to 84), the Court has already decided that—although no Pakistani agricultural use has been established as of the time at which the KHEP crystallized and acquired priority—Pakistan's Treaty rights in this regard will remain relevant to the continuing operation of the KHEP in conformity with Paragraph 15(iii). In now setting a fixed minimum flow, anticipated future agricultural uses would ordinarily feature in the Court's determination. However, as Pakistan has not submitted even an estimate of the likely scope of such development, much less evidence upon which the Court could rely, the Court is unable to take account of such potential uses and has reached its determination of the minimum flow on the basis of hydro-electric and environmental factors alone. Having done so, the Court is nevertheless confident that the minimum flow it prescribes below on the basis of other factors will ensure sufficient water in the river so as not to curtail significantly agricultural development in the Neelum Valley. In this connection, the Court recognizes the flow contribution to the main river of tributaries that lie downstream from the KHEP and past the Line of Control.

(b) Pakistan's hydro-electric uses

95. On the basis of the data submitted by Pakistan, it is apparent that the operation of the KHEP will reduce the potential energy generated by the NJHEP under nearly any minimum flow scenario. According to Pakistan's figures, even a 100-cumec minimum release at the KHEP would lead to a reduction in energy generation of 2 GWh at the NJHEP.¹⁴⁹ India does not challenge these calculations, but objects to Pakistan's flow scenarios, arguing that each would substantially reduce power generation at the KHEP and undermine the priority accorded to the KHEP in the Court's *Partial Award*.¹⁵⁰
96. The Court will consider India's observation subsequently when discussing the implications of the priority accorded to the KHEP. With respect to the effects of the KHEP, the Court notes

¹⁴⁹ Pakistan's Data Submission, NESPAK Power Generation Report, June 2013, p. 12.

¹⁵⁰ See generally India's Comments on the Information Supplied by Pakistan on 21 June 2013, paras. 4.1 to 4.41; India's Comments, CEA Report, August 2013.

only that the NJHEP would be affected by any prescribed minimum flow and that the relationship between flow and energy generation is direct and approximately linear.

(c) The downstream environment

97. The Parties have submitted markedly different assessments of the environmental changes that would occur downstream of the KHEP. As set out in detail above (see paragraphs 54 to 70), Pakistan has undertaken a holistic assessment of the interaction of a range of environmental indicators and predicts moderate to serious changes in the ecosystem at the Line of Control, with the degree of change dependent on the rate of flow in the river.¹⁵¹ India, in contrast, has based its assessment on the anticipated water depth and its effect on three umbrella species of fish, and concludes that there would be no effect on the aquatic environment with a flow of as low as 2 cumecs.
98. In the Court's view, the differences between the Parties must be viewed in light of the evolving science of predicting the environmental changes that would result from altered flow conditions. Pakistan has undertaken a far more extensive analysis, attempting to capture complex interactions within the river ecosystem. The Court notes that assessments of this nature are increasingly used by scientists and policymakers to bring a deeper understanding of ecology to bear on the management and development of river systems.¹⁵² In contrast, India has carried out a simpler assessment, drawing its conclusions essentially from a single indicator—the habitat available for selected fish species.
99. The Court accepts that there is no single “correct” approach to such environmental assessments. For any given river or project, the correct approach will depend upon the existing state of the river, the magnitude of anticipated changes, the importance of the proposed project, and the

¹⁵¹ In this Final Award, the Court refers at various points to a “minimum flow” and to an “environmental flow.” For the sake of clarity, the Court notes the differences between these terms: an environmental flow is not necessarily a fixed minimum, affecting only the dry season, but is rather the flow regime anticipated to maintain environmental change resulting from infrastructure and development within the range considered acceptable under the circumstances of the river in question. Environmental flows may therefore be higher or lower, depending on those circumstances, and may include requirements affecting the high flow seasons of a river that cannot reasonably be described as a “minimum.” Indeed, Pakistan's proposals of percentage or variable release flow regimes are examples of such environmental flows. It is only the particular characteristics of the Kishenganga/Neelum and the fact that low-season flows appear to be the principal drivers of ecological change that permit the Court to discuss environmental flows in terms of a fixed minimum. At the same time, because the Court's ultimate flow determination is based not solely on the environment, but also on hydro-electric power generation as required under the Treaty, the Court's decision fixes a “minimum flow.” Insofar as this minimum flow serves to mitigate significant environmental harm, it also serves as an environmental flow without being synonymous with that term.

¹⁵² See the assessments discussed in Pakistan's Memorial, Environmental Report, May 2011, p. 2-12; and in Pakistan's Data Submission, Environmental Report, June 2013, pp. 27-30.

availability of time, funding, and local expertise. For some situations, a simple assessment may indeed be preferred.

100. Nevertheless, for a project of the magnitude of the KHEP, the Court is of the view that an in-depth assessment of the type that Pakistan has attempted for these proceedings is a more appropriate tool for estimating potential changes in the downstream environment. This does not mean, however, that all of the critiques levelled at Pakistan's assessment are invalid. Certainly, the availability of additional data, more time, and more extensive local familiarity with the Kishenganga/Neelum would have produced a more instructive assessment. But, for the Court, these criticisms go to the degree of certainty to be ascribed to Pakistan's specific results, not to the general value of the attempt to apply contemporary international practices in a challenging setting. In contrast, the Court is not wholly satisfied that India's consideration of the water depths available for fish and its associated analysis offer adequate assurances in light of the complexity of the ecosystem in the Kishenganga/Neelum.
101. The Court acknowledges India's point that the environmental sensitivity that Pakistan urges in these proceedings does not match Pakistan's own historical practices, where the environmental flow has often been set at a low minimum, apparently using a "rule of thumb" approach. The Court will address the issue of the balance to be achieved between the environment and other uses of the Kishenganga/Neelum in subsequent subdivisions. With respect to the information brought to bear on decision-making, however, the Court sees no reason to remain wedded to past practices. On the contrary, more comprehensive and accurate information on the likely impacts of infrastructure projects can only benefit decision-making in both Pakistan and India. The Court urges both Parties to continue or expand their attention to environmental considerations at other projects, including the NJHEP. In the Court's view, such an approach is consistent with the acute need of both Parties for increased production of hydro-power. Indeed, the Court's ultimate decision on the minimum flow is informed by a deep awareness of the critical importance (and shortage) of electricity in both India and Pakistan. Meaningful development in this area need not be at odds with careful consideration of environmental effects.
102. Turning to the results of Pakistan's assessment, the Court notes Pakistan's conclusion that an environmental flow of 40 cumecs or more would offer the "best prospects" for maintaining the river in the "high C" category (in terms of the condition categories discussed above at paragraph 56 and note 93), while a flow of 20 cumecs or a 70-percent release (or one of Pakistan's variable release scenarios) would produce a "lower Category C river condition." In Pakistan's view, "[t]he other scenarios would not generally be seen among river scientists as

offering an acceptable condition for such a river.”¹⁵³ In the Court’s view, the grading of the condition of the Kishenganga/Neelum into categories, while helpful as shorthand, has the potential to suggest mathematical precision, and the Court recalls its earlier comments on the degree of uncertainty inherent in such an exercise. It nevertheless accepts that, if the aim is to moderate changes to the environment at or below the Line of Control, that would require an environmental flow in the Kishenganga/Neelum substantially higher than that which India has proposed in these proceedings.

103. Examining the Parties’ hydrological tables alone, the Court also notes the sensitivity of the hydrograph at the Line of Control and, in particular, the flow duration curve to flow releases from the KHEP. For example, based on India’s 1971-2004 10-day flow estimates, under current conditions, a flow of 12 cumecs at the Line of Control represents an exceptional event, with just nine occurrences of lower 10-day flows in 34 years. As the release from the KHEP drops below 12 cumecs, however, this exceptional condition would become more common, rising to 16 percent of the time with a release of 9 cumecs, and 30 percent of the time with an 8-cumec release. In other words, as the release falls below 12 cumecs, the lowest flows at the Line of Control progressively become the norm for a significant part of the dry season.
104. The Court provisionally concludes that an approach that takes exclusive account of environmental considerations—assessed in the absence of other considerations—would suggest an environmental flow of some 12 cumecs. The Court so estimates despite its appreciation of the uncertainties inherent in environmental projections in this case, based in part as they are on modelling and expert analysis, supported by limited local data. Since the Parties’ data indicate that the effect of the KHEP on dry-season flows is the principal determinant of ecological change, the Court sees no reason to consider a percentage or variable release regime.¹⁵⁴

5. Maintaining the priority accorded to the KHEP in the *Partial Award*

105. As set out in the preceding section, the effects of the KHEP on the environment and on power generation by Pakistan (including at the NJHEP) both suggest the need for a higher minimum flow than India proposes, though one markedly less than what Pakistan appears to espouse. Taking environmental considerations alone, in the appreciation of the Court, would appear to suggest releasing a flow of some 12 cumecs downstream of the KHEP at all times. And if

¹⁵³ Pakistan’s Data Submission, Environmental Report, June 2013, p. 43.

¹⁵⁴ This would, of course, not necessarily be the case with other river conditions, and the Court’s decision in this respect should not be interpreted to equate an environmental flow with a fixed minimum flow. Under other circumstances, in particular where the difficulties of cooperation between the multiple State bureaucracies are not present, the appropriate environmental flow could well involve a regime of variable releases.

Pakistan's hydro-electric uses alone were to be taken into account, moderating the KHEP's effect on the NJHEP might entail even higher releases.

106. Assessing the effects of the KHEP, however, is only the first step of the task facing the Court. Two additional factors must be given effect in its determination of the minimum flow.

107. First, as India correctly observes,¹⁵⁵ the *Partial Award* accorded priority to the KHEP, stating as follows:

having weighed the totality of the record, the Court concludes that India has a stronger claim to having coupled intent with action at the KHEP earlier than Pakistan achieved the same at the NJHEP, resulting in the former's priority in right over the latter with respect to the use of the waters of the Kishenganga/Neelum for hydro-electric power generation.¹⁵⁶

108. While the Court also held that the KHEP must be operated in such a manner that "[b]oth Parties' entitlements under the Treaty must be made effective so far as possible," it stated clearly that "[t]he requirement to avoid adverse effects on Pakistan's agricultural and hydro-electric uses of the waters of the Kishenganga/Neelum cannot, however, deprive India of its right to operate the KHEP."¹⁵⁷ The right to operate the KHEP is a right to operate it effectively.

109. In balancing India's right to operate the KHEP effectively with the needs of the downstream environment, the Court has decided that, on the basis of the evidence currently available, India should have access to at least half of the average flow at the KHEP site during the driest months. In the Court's view, it would not be in conformity with the Treaty to fix a minimum release above half the minimum monthly average flow for the purpose of avoiding adverse effects on the NJHEP.

110. The Court's *Partial Award* did not make the operation of the KHEP immune from environmental considerations. Here, however, the Court considers that a second factor becomes relevant. As India has recalled to the Court,¹⁵⁸ recourse to customary international law is conditioned by Paragraph 29 of Annexure G to the Indus Waters Treaty, which provides as follows:

¹⁵⁵ India's Submission on Information Requested by the Court in its Partial Award dated 18 February 2013, paras. 3.14, 5.5, 5.10, 5.29, 6.5, 6.11; India's Comments on the Information Supplied by Pakistan on 21 June 2013, paras. 1.15, 1.23, 1.29, 1.33-1.38, 4.8, 4.17, 4.31, 4.37, 6.88.

¹⁵⁶ *Partial Award*, para. 437.

¹⁵⁷ *Ibid.*, para. 446.

¹⁵⁸ India's Counter-Memorial, paras. 6.97, 6.104; India's Rejoinder, paras. 1.11-1.12, 2.9, 2.180.

Except as the Parties may otherwise agree, the law to be applied by the Court shall be this Treaty and, whenever necessary for its interpretation or application, but only to the extent necessary for that purpose, the following in the order in which they are listed :

- (a) International conventions establishing rules which are expressly recognized by the Parties.
- (b) Customary international law.¹⁵⁹

111. As the Court noted with approval in its *Partial Award*, the Tribunal in the *Iron Rhine Arbitration*, building on the judgment of the International Court of Justice in the *Case concerning the Gabčíkovo-Nagymaros Project*, held that principles of international environmental law must be taken into account even when interpreting treaties concluded before the development of that body of law.¹⁶⁰ In implementing this holding, the Court notes that the place of customary international law in the interpretation or application of the Indus Waters Treaty remains subject to Paragraph 29. Unlike the treaty at issue in *Iron Rhine*, this Treaty expressly limits the extent to which the Court may have recourse to, and apply, sources of law beyond the Treaty itself.
112. As the Court held in its *Partial Award*, “States have ‘a duty to prevent, or at least mitigate’ significant harm to the environment when pursuing large-scale construction activities.”¹⁶¹ In light of this duty, the Court has no difficulty concluding that the requirement of an environmental flow (without prejudice to the level of such flow) is necessary in the application of the Treaty. At the same time, the Court does not consider it appropriate, and certainly not “necessary,” for it to adopt a precautionary approach and assume the role of policymaker in determining the balance between acceptable environmental change and other priorities, or to permit environmental considerations to override the balance of other rights and obligations expressly identified in the Treaty—in particular the entitlement of India to divert the waters of a tributary of the Jhelum. The Court’s authority is more limited and extends only to mitigating significant harm. Beyond that point, prescription by the Court is not only unnecessary, it is prohibited by the Treaty. If customary international law were applied not to circumscribe, but to negate rights expressly granted in the Treaty, this would no longer be “*interpretation or application*” of the Treaty but the substitution of customary law *in place of* the Treaty. Echoing the Court’s caution in the *Partial Award*, the prioritization of the environment above

¹⁵⁹ Treaty, Annexure G, para. 29.

¹⁶⁰ *Partial Award*, para. 452, citing *Arbitration Regarding the Iron Rhine (“Ijzeren Rijn”) Railway between the Kingdom of Belgium and the Kingdom of the Netherlands*, Award, 24 May 2005, *PCA Award Series* (2007), para. 59; *Case concerning the Gabčíkovo-Nagymaros Project (Hungary/Slovakia)*, Judgment, I.C.J. Reports 1997, p. 7, p. 78.

¹⁶¹ *Partial Award*, para. 451, quoting *Arbitration Regarding the Iron Rhine (“Ijzeren Rijn”) Railway between the Kingdom of Belgium and the Kingdom of the Netherlands*, Award, 24 May 2005, *PCA Award Series* (2007), para. 59.

all other considerations would effectively “read the principles of Paragraph 15(iii) [of Annexure D] out of the Treaty.”¹⁶² That Paragraph 29 does not permit.

113. The Court has also examined India’s flow estimates, and has noted (see above at paragraph 103) the extreme sensitivity of low flows at the Line of Control to the release from the KHEP. The most severe winter in the 34-year record used by both India and Pakistan to assess impacts was 1974-75. The Court notes that, based on India’s data, a minimum flow criterion of 9 cumecs at KHEP is a relatively severe criterion with respect to environmental flow, but would nevertheless be sufficient to maintain the natural flows through the December, January, February period of that winter.¹⁶³
114. Examining the effect that a 9-cumec minimum would have on the KHEP, the Court notes that this would, on average, accord India 51.9 percent of the flow at the KHEP dam site during the month of January, and that India’s portion of the flow would increase to more than 60 percent in November and February, and well over 75 percent in October and March. Preserving a minimum flow of 9 cumecs would result in a monthly reduction in energy generation at the KHEP of, on average, 19.5 GWh from October to March.¹⁶⁴ Although such a reduction is quite significant—in percentage terms—during the driest month of January, over the dry season as a whole it would amount to a 19.2 percent average reduction in energy generation.¹⁶⁵ On an annual basis, the average reduction in energy generation at the KHEP would be 5.7 percent. While India has not included an economic model for the KHEP in its submissions in these proceedings, the evidence before the Court does not establish that a 5.7 percent reduction in annual energy generation would render the KHEP economically unviable.

¹⁶² Partial Award, para. 446.

¹⁶³ The Court notes that Pakistan’s environmental analysis, using Pakistan’s flow estimates, is based on a classification of ‘ecosystem integrity’, with categories from A to E, as defined in paragraph 56, above. Pakistan summarises its estimated effects of different flow regimes in Figure 6.1 of its June 2013 submission and argues, based on environmental considerations, that category C (moderately modified from normal) is appropriate. *See* Pakistan’s Data and Information Submitted in Accordance with the Partial Award (Paragraphs 458-462) at p. 7. The Court agrees that if environmental considerations were the sole consideration, category C would be desirable, and has noted above that a flow of 12 cumecs would be appropriate. However, given the right of India to develop hydropower, and the associated right to operate KHEP effectively, the Court considers that a high category D (‘significantly modified from normal’) represents an appropriate balance between the needs of the environment and India’s rights for power generation.

¹⁶⁴ According to the formula for energy generation at the KHEP provided by India, *see* India’s Submission on the Information Requested by the Court in its Partial Award dated 18 February 2013 at para. 3.10, and an average of India’s flow data across the full 34-year range in which data is available, a 9-cumec minimum flow would reduce the KHEP’s daily energy generation by 641,250 kWh in comparison with the 4.25-cumec minimum required by Indian law, resulting in a monthly average reduction of 19,451,250 kWh between October and March.

¹⁶⁵ The Court’s figures for the net and percentage reduction in energy generation are calculated as against the 4.25-cumec minimum flow ordered by the Indian Ministry of Environment & Forests, which the Court takes as the baseline for its determination and for the purposes of this Award.

115. The Court therefore concludes that a minimum flow criterion of 9 cumecs is consistent with Pakistan's analysis of environmental flows, given the need to balance power generation with environmental and other downstream uses, and, based on India's data, would maintain the natural flow regime in the most severe winter conditions.
116. For all these reasons, the Court fixes the minimum flow to be released downstream from the KHEP dam at 9 cumecs.¹⁶⁶

C. REVIEW MECHANISM

117. As the Court noted in its discussion of Pakistan's environmental submission, a degree of uncertainty is inherent in any attempt to predict environmental responses to changing conditions. In addition, flows at the Line of Control are un-gauged, and understandably subject to estimates which differ between the Parties, at least for the lowest flows. Uncertainty is also present in attempts to predict future flow conditions, and the Court is cognizant that flows in the Kishenganga/Neelum may come to differ, perhaps significantly, from the historical record as a result of factors beyond the control of either Party, including climate change.
118. In its *Partial Award*, the Court stated that "stability and predictability in the availability of the waters of the Kishenganga/Neelum for each Party's use are vitally important for the effective utilization of rights accorded to each Party by the Treaty (including its incorporation of customary international environmental law)."¹⁶⁷ This remains true. Indeed, the Court rejected a fully ambulatory interpretation of Paragraph 15(iii) of the Treaty for this reason. At the same time, the Court considers it important not to permit the doctrine of *res judicata* to extend the life of this Award into circumstances in which its reasoning no longer accords with reality along the Kishenganga/Neelum. The minimum flow will therefore be open to reconsideration as laid down in the following paragraph.
119. The KHEP should be completed in such a fashion as to accommodate possible future variations in the minimum flow requirement. If, beginning seven years after the diversion of the Kishenganga/Neelum through the KHEP, either Party considers that reconsideration of the Court's determination of the minimum flow is necessary, it will be entitled to seek such reconsideration through the Permanent Indus Commission and the mechanisms of the Treaty.

¹⁶⁶ For the avoidance of doubt, if at any time the flow in the Kishenganga/Neelum immediately upstream of the KHEP dam is below 9 cumecs, India is only required to release an amount equivalent to 100 percent of the inflow, until such time as the flow upstream of the KHEP dam again exceeds 9 cumecs.

¹⁶⁷ *Partial Award*, para. 457.

D. MONITORING

120. As recounted in greater detail above (see above at paragraph 71), Pakistan has requested that the Court establish a monitoring regime to permit it to evaluate India's compliance with the minimum flow fixed in this Award.
121. In the Court's view, the appropriate mechanism for the exchange of data and for the monitoring of the Parties' uses on tributaries of the Indus River is the Permanent Indus Commission. The Court recalls, in particular, that Article VI(1) of the Treaty already requires the Parties to exchange "(a) Daily (or as observed or estimated less frequently) gauge and discharge data relating to flow of the Rivers at all observation sites" and "(b) Daily extractions for or releases from reservoirs."¹⁶⁸ The Court is confident that the Parties will continue to do so, and that the data provided by India will include the necessary data relating to the KHEP. The Court further recalls that Article VIII(4) calls for the Commission to "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."¹⁶⁹
122. In light of the foregoing provisions, it is neither necessary, nor within the Court's purview, to instruct the Commission as to the manner in which it carries out its responsibilities or to mandate a special monitoring regime in implementation of this Award.

IV. COSTS

123. Paragraph 26 of Annexure G to the Treaty provides as follows:

In its Award, the Court shall also award the costs of the proceedings, including those initially borne by the Parties and those paid by the Treasurer.

124. In the Court's view, this arbitration presents difficult issues of treaty interpretation disputed by the Parties. The Parties' legal arguments were carefully considered, whether or not they prevailed, and the Parties acted with skill, dispatch, and economy in presenting their respective cases. The Court can therefore see no reason to depart from the principle, common in public international law proceedings, that each Party shall bear its own costs. The costs of the Court will also be shared equally.

¹⁶⁸ Treaty, Art. VI(1)(a)-(b).

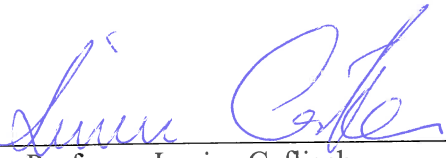
¹⁶⁹ *Ibid.*, Art. VIII(4)(d).

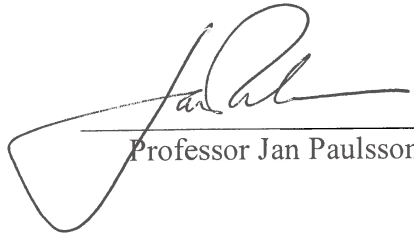
V. DECISION


Having considered the Parties' submissions, the Court of Arbitration unanimously decides:


- A. In the operation of the KHEP:
 - (1) Subject to paragraph (2) below, India shall release a minimum flow of 9 cumecs into the Kishenganga/Neelum River below the KHEP at all times at which the daily average flow in the Kishenganga/Neelum River immediately upstream of the KHEP meets or exceeds 9 cumecs.
 - (2) At any time at which the daily average flow in the Kishenganga/Neelum River immediately upstream of the KHEP is less than 9 cumecs, India shall release 100 percent of the daily average flow immediately upstream of the KHEP into the Kishenganga/Neelum River below the KHEP.
- B. Beginning 7 years after the diversion of water from the Kishenganga/Neelum River for power generation by the KHEP, either Party may seek reconsideration of the minimum flow in paragraph (A) above through the Permanent Indus Commission and the mechanisms of the Treaty.
- C. This Final Award imposes no further restrictions on the operation of the KHEP, which remains subject to the provisions of the Treaty as interpreted in this Final Award and in the Court's *Partial Award*.
- D. Each Party shall bear its own costs. The costs of the Court will be shared equally by the Parties.

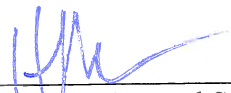
Done at the Peace Palace, The Hague
Dated: 20 DECEMBER 2013



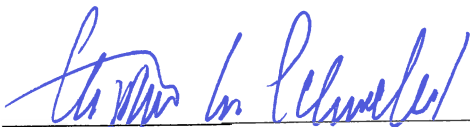
Professor Lucius Caflisch


Professor Jan Paulsson

Judge Bruno Simma

H.E. Judge Peter Tomka

Professor Howard S. Wheeler FREng

Sir Franklin Berman KCMG QC

Judge Stephen M. Schwebel
Chairman

Dr. Aloysius Llamzon
Registrar