



Spring 1999

Hydro-Politics in South Asia: A Commparative Analysis of the Mahakali and the Ganges Treaties

Salman M. Salman

Kishor Uprety

Recommended Citation

Salman M. Salman & Kishor Uprety, *Hydro-Politics in South Asia: A Commparative Analysis of the Mahakali and the Ganges Treaties*, 39 NAT. RES. J. 295 (1999).

Available at: <https://digitalrepository.unm.edu/nrj/vol39/iss2/5>

This Article is brought to you for free and open access by the Law Journals at UNM Digital Repository. It has been accepted for inclusion in Natural Resources Journal by an authorized editor of UNM Digital Repository. For more information, please contact disc@unm.edu.

Hydro-Politics in South Asia: A Comparative Analysis of the Mahakali and the Ganges Treaties

ABSTRACT

The numerous problems raised by the management of water resources are currently receiving ever-greater attention from governments around the globe. These problems stem from the fact that water resources are qualitatively and quantitatively limited, and that opportunities for the exploitation of these resources abound. These factors have led to an increasing need to adopt an integrated approach to the development of water resources. In this context, the triangular relations between Bangladesh, India, and Nepal in South Asia posit an intriguing and unique set of circumstances that illustrates the effect that the practices of one country can have on other surrounding countries. India has significantly shaped the foreign economic relations between India and Bangladesh and India and Nepal, especially insofar as water resources development and cooperation are concerned. Indeed, the geographic proximity of Bangladesh and Nepal to India has compelled these countries to cooperate with India in each country's utilization of water resources. In order to formalize this cooperation, two treaties of significant importance were entered into in 1996 between India and Nepal and India and Bangladesh. These treaties are known as the Mahakali River Treaty between India and Nepal and the Ganges River Treaty between India and Bangladesh. This article provides a comparative analysis of the two treaties and focuses on the problematique related to their finalization. The article also discusses the interesting political twists of events and highlights the critical aspects of the implementation of the treaties, and further analyzes the opportunities provided by the treaties for cooperation between India, Bangladesh, and Nepal in the area of water resources management.

I. INTRODUCTION AND SCOPE

1996 was an important year for those interested in the study of the development of water resources cooperation within the South Asian sub-

* Members of the Legal Department of the World Bank. The views expressed in this article are those of the authors and should not be read as representing the views of the World Bank. The authors thank Dr. M. Nawaz, former director of the IFAD Legal Department, for his comments on an earlier version of this article.

continent, and particularly for those interested in bilateral regimes established by international treaties relating to international rivers.¹ In February 1996, India and Nepal entered into the Mahakali River Treaty (Mahakali Treaty). This treaty is important because it sets forth the foundation for an integrated development approach to water use between India and Nepal on the Mahakali River.² Subsequently, in December 1996 the Ganges River Treaty (Ganges Treaty) was entered into between India and Bangladesh. This treaty is equally important because it attempts to resolve the highly sensitive political problems encountered between India and Bangladesh in their efforts to share the waters of the Ganges River.³

On the surface, these two treaties appear to be independent of each other. It is important to understand, however, that the Mahakali River itself is a tributary of the Ganges River. Also noteworthy is the fact that India is a lower riparian user of the Mahakali River vis-a-vis Nepal,⁴ and an upper riparian user of the Ganges River vis-a-vis Bangladesh. Both of these treaties therefore potentially may have an impact on the other based on the fact that water use between these three countries is intertwined. Not only do both treaties attempt to resolve long-standing water disputes between Nepal and India and Bangladesh and India, the treaties also create new standards that may affect sub-regional water resource cooperation agreements among these three countries in the future.

The primary purpose of this article is to examine the provisions of the Mahakali Treaty as compared with the provisions of the Ganges Treaty.

1. An international river is one either flowing through the territory of more than one country (also referred to as a successive river), or one separating the territory of two countries from one another (also referred to as a boundary river or a contiguous river). See THE LAW OF INTERNATIONAL DRAINAGE BASINS 16 (A.H. Garrestson et al. eds., 1967). The use of the terms "international river" and "international waterway" has gradually, over the years, given way to the more appropriate and inclusive term "international watercourse." The United Nations Convention on the Law of Non-Navigational Uses of International Watercourses defines watercourse as "a system of surface waters and groundwater constituting by virtue of their physical relationship a unitary whole and normally flowing into a common terminus." The Convention defines international watercourse as "a watercourse parts of which are situated in different states." See United Nations Convention on the Law of the Non-Navigational Uses of International Watercourses, May 21, 1997, art. 2(a), (b), 36 I.L.M. 700, 705.

2. See Treaty Concerning the Integrated Development of the Mahakali River, Feb. 12, 1996, India-Nepal, 36 I.L.M. 531 [hereinafter Mahakali Treaty].

3. See Treaty on Sharing of the Ganges Waters at Farakka, Dec. 12, 1996, Bangladesh-India, 36 I.L.M. 519 [hereinafter Ganges Treaty].

4. In addition to being an international river with upper and lower riparian users, the Mahakali River, according to the preamble to the Mahakali Treaty, is also "a boundary river on major stretches between the two countries." See Mahakali Treaty, *supra* note 2, Preamble, 36 I.L.M. at 533. The words "on major stretches" imply that the Mahakali River is not exclusively a boundary river. The drafters of the treaty were striving to illustrate that, in some locations, the river is entirely within one single country.

In order to facilitate this discussion, the article will first briefly describe the political climate that existed between India and Nepal and between India and Bangladesh prior to the respective conclusion of each treaty. This discussion will provide a valuable understanding of the evolutionary features of the cooperative forces involved in developing the Mahakali Treaty and the Ganges Treaty. With this background in mind, in light of the importance and potential impact of the two treaties on the Indo-Nepal-Bangladesh region, this article will analyze and compare the ways similar issues are dealt with by the two treaties. The article argues that in this connection, although the conclusion of the Mahakali and Ganges treaties is a major achievement for all three countries concerned, the actual success of each of the treaties is contingent on extrinsic factors. For example, success of the Mahakali Treaty is largely dependent on the generation of a detailed project report that will lead to the effective carrying out of works pertaining to the Pancheshwar Multipurpose Project on the Mahakali River. Likewise, success in the Ganges Treaty will only be realized if there is enough water in the Ganges River to meet the agreed upon water-sharing amounts between India and Bangladesh. Finally, the article will discuss possibilities for future water resources cooperation between Nepal, India, and Bangladesh.

II. THE SETTING

A. The Mahakali River

Three separate river systems, each having its headwaters in the Tibetan plateau, flow through Nepal. The Sapta-Kosi River system flows from the eastern mountains, the Gandaki River system flows from the central mountains, and the Karnali River system flows from the far western mountains. In addition to these three principal river systems, there is another river system in the far western area of Nepal known as the Mahakali River System. The Mahakali River begins where two rivers, the Kali River beginning in the Taklakot area in the east, and the Kuthi-Yankti River originating in the Zanskar range of the Himalayas, meet at Kawa Malla in the Darchula District in Nepal. The merging of the Kali and Kuthi-Yankti Rivers is known as the Mahakali River. The Mahakali River flows southwest, where it makes numerous oxbow lakes and is joined by many tributaries, the largest among which are the Chamlia River and the Chavandigad River.⁵

5. See N.B. & D.D. THAPA, *GEOGRAPHY OF NEPAL: PHYSICAL, ECONOMIC, CULTURAL AND REGIONAL* 23-24 (1969).

The Mahakali River drains an area of 188 sq. km in Nepal. The average discharge of water recorded from the river is 7,288 cubic meters per second, while the maximum discharge amount is 121 cubic meters per second. The maximum annual discharge from the river is 1,066 cubic meters per second.⁶

The Mahakali River serves as a western boundary for long distances between Nepal and India along the border of the Indian State of Uttar Pradesh. It is called the Sarada River in India, and after it is joined by the Ghaghra River in the State of Uttar Pradesh, it is called the Ghaghra River. The Ghaghra River continues to flow eastward, and joins the Ganges River immediately after crossing the State of Uttar Pradesh in the State of Bihar.⁷

B. The Ganges River

The Ganges River, known in India as the Ganga River, and in Bangladesh as the Padma River, is an international river, to which India, Bangladesh, Nepal and, to a small extent, China are riparians. The Ganges River is the largest river in India. It originates in the state of Uttar Pradesh and is joined by a number of tributaries originating inside India, such as the Yamuna River, the Tons River, and the Gomti River. As mentioned above, other tributaries originating in Nepal also join the Ganga River, including the Ghaghra River (also known as the Sarada River or Mahakali River), as well as others that originate near the Nepal-China border in Tibet, such as the Kosi River and the Gandak River.⁸

The delta of the Ganges River starts at Farakka, in the Indian State of West Bengal. Downstream from Farakka the river splits into the Padma River, which flows eastward into Bangladesh, and the Bhagirathi River, which continues to flow southward into West Bengal. After the Jalangi River joins the Bhagirathi River, it is known as the Hooghly River. Calcutta City, the capital of West Bengal and one of India's most important ports, is situated on the Hooghly River. South of Calcutta, the Hooghly River is joined by the Damodar River, which flows into the Bay of Bengal.⁹

In Bangladesh, the Ganges River, also known as the Padma River, is joined by the Brahmaputra River (known in Bangladesh as the Jamuna

6. See CHANDRA K. SHARMA, *GEOLOGY OF NEPAL* 16 (1973).

7. See A. Ramachandra Rao & T. Prasad, *Water Resources Development of the Indo-Nepal Region*, 10 *WATER RESOURCES DEV.* 157, 160-61 (1994).

8. See B.R. CHAUHAN, *SETTLEMENT OF INTERNATIONAL AND INTER-STATE WATER DISPUTES IN INDIA* 107. See also Rao & Prasad, *supra* note 7, at 160-161.

9. For a detailed description of the Ganges basin, see CHAUHAN, *supra* note 8, at 98.

River) and also by the Meghna River.¹⁰ The combination of these three rivers, which continues to be called the Padma River, splits downstream into a number of channels that flow into the Bay of Bengal. The total length of the Ganges is about 1,600 miles (about 2,500 kilometers).¹¹ The Ganges River Basin is one of the most densely populated basins in the world. The total population of this basin is more than 300 million, of whom about 10 million reside in Nepal, about 40 million live in Bangladesh, and the rest, about 250 million, are located in India. This heavy population density has, among other things, caused the Ganges River to be one of the most polluted rivers in the world.¹² Interestingly indeed, in spite of the tremendous importance of the Ganges River on the livelihood of most riparian countries, the four riparian states of the Ganges River (India, Nepal, Bangladesh, and China) have never entered into a water-management treaty for the Ganges River, nor has any joint river basin management forum for these riparian states been organized. This is perhaps due to the political and ideological differences, as well as the varying, and possibly conflicting interests amongst the riparian countries.

III. THE HISTORICAL CONTEXT

Although political relations between India and Nepal have, in general, been smooth over the centuries, the relations between these two countries regarding the development of water projects on shared rivers have not. In fact, these two countries have had a long-standing dispute concerning water sharing in the major rivers originating in Nepal and flowing into India.¹³ A significant factor fueling this dispute is that the provisions contained in the existing treaties lack specificity. This has left

10. Both the Brahmaputra River and the Meghna River are international rivers. The riparian states for the Brahmaputra are China, Bhutan, India, and Bangladesh. The Meghna River is shared only by India and Bangladesh. See CHAUHAN, *supra* note 8, at 98, 103; BEN CROW ET AL., *SHARING THE GANGES - THE POLITICS AND TECHNOLOGY OF RIVER DEVELOPMENT* 185-86 (1995).

11. See CHAUHAN, *supra* note 8, at 99.

12. "[One hundred and fourteen] cities pour untreated sewage into India's most important river, the Ganges. Its Yamuna tributary picks up a daily 200 million litres of sewage and 20 million litres of industrial waste in Delhi alone." Peter Wallensteen & Ashok Swain, *International Fresh Water Resources: Conflict or Cooperation*, in *COMPREHENSIVE ASSESSMENT OF THE FRESHWATER RESOURCES OF THE WORLD* 6 (1997).

13. Generally speaking, the waters from more than 6,000 rivers and rivulets in Nepal ultimately flow toward the Ganges. However, more specifically, the Indo-Nepal river system can be classified into seven river systems that range from east to west: Mahananda, Kosi, Kamla Balan, Bagmati, Burhi Gandaki, Gandak, and Ghaghra. All these rivers as well as their major tributaries originate in Nepal and, after traversing various distances in Nepal, enter Indian territory and join the Ganges. See Rao & Prasad, *supra* note 7, at 160-61.

room for ambiguity and controversy in the interpretation and enforcement of the provisions of these water-sharing agreements. In addition, the subject matter of the treaties varies depending on what the pressing issue was at the time the treaty was negotiated. For example, these treaties deal with such topics as catchment area ratios, land area development ratios, investment ratios, riparian rights, and the value of water in varying degrees. Recall that the Mahakali River is an international river that flows from Nepal into India, and that it also serves as a boundary for large distances between these two countries. With respect to the Mahakali River, therefore, these problems are further complicated and intensified because the river also serves as an international border between the two countries in major stretches.

The history of negotiations regarding water projects for this river has been dominated by controversies due primarily to a lack of trust between the citizens and governments of the two countries. Most Nepalese are convinced that they have not been equitably treated by the treaties.¹⁴ These Nepalese believe further that India is draining Nepal's watershed for its own benefit.¹⁵ As support for this conviction, many Nepalese maintain that the kindness and generosity of Nepal in sharing its water with India in previous agreements (e.g., the Sarada Treaty of 1920, the Kosi Treaty of 1954, and the Gandak Treaty of 1959) have been taken advantage of by India because the people of Nepal have received far less benefits than the people of India from the projects constructed under these treaties.¹⁶

The Indian stance has been that of defending, as a lower riparian country, its equitable use of these international rivers according to international law and practice. India contends that it has the right to use the water in accordance with its need for the water. India has, however, interpreted the term "need" to describe its socio-economic requirements for the waters of the Mahakali as unconstrained. As a result, India believes it should have access to the waters of the Mahakali unfettered by the need for this water by Nepal.

The Indo-Nepal efforts to cooperate in the management of water resources have, thus, always revolved around this dichotomy of perception and have always involved continual controversy. This tense relationship, however, has led to a slow development of water resources projects that may prove to be beneficial to both India and Nepal.

14. See Rao & Prasad, *supra* note 7, at 166.

15. See *id.*

16. See *id.*

A. The Sarada Treaty

The efforts toward exploitation of Himalayan river waters began before India's independence from Britain.¹⁷ The British Government in India formalized the negotiations of the Sarada Treaty by exchanging letters with its Nepalese counterpart in 1920.¹⁸ The agreement provided for the construction of a barrage (a dam) on the Mahakali River (which is known as the Sarada River in India) at Banbassa, bordering the present Mahendra Nagar in Nepal. The treaty also provided for the construction of a power station at Khatima in connection with the Sarada Canal Project¹⁹ in the state of Uttar Pradesh in India. Under the Sarada Treaty, the government of Nepal agreed to exchange 4,000 acres of its territory for construction purposes with an equal amount of land from the British Indian Government.²⁰ As a result, The British Indian Government built the Banbassa Barrage across the Sarada River. In this agreement, Nepal also obtained the right to use a minimum of 400 cubic-feet per second (cusecs) and a maximum of 1,000 cubic-feet per second (cusecs) of water from the Sarada Canal for irrigation purposes.²¹ This land exchange placed the location of the left abutment of the weir and the left bank works within Indian territory. The headwork (the containing bank) of the Sarada Canal is situated a few miles below the point where the river emerges from the hills and forms part of the boundary between India and Nepal.

In spite of the conclusion of the Sarada Treaty, Nepal was not entirely satisfied with the quantum of water it had been able to obtain under the Treaty (400 cusecs) and tried continuously to obtain an increase over the guaranteed flow of 400 cusecs. All efforts to obtain this increase failed and the resulting shortage of water thus hindered Nepal from developing an upstream project.²² Amidst this tug of war between the two countries over the quantum of water, the regime established by the Sarada Treaty continued to exist for seventy-six years, from 1920 to 1996, until the Mahakali Treaty replaced it in 1996.²³

17. See B.C. UPRETI, *POLITICS OF HIMALAYAN RIVERS WATERS* 94 (1993).

18. Letter from Maharaja Chandra, Nepal, to Colonel Kennion (Aug. 23, 1920); Letter from The British Legation, Nepal, to Maharaja Chandra, Nepal (Oct. 21, 1920) [hereinafter *Sarada Treaty*] (on file with the Nepal National Archives and with authors).

19. See *id.* The Sarada Canal Project for the irrigation of about a million acres in Uttar Pradesh was started in 1915 and completed in 1926.

20. See *id.* ¶ 2.

21. See *id.* ¶ 1.

22. The project is called the Mahakali Irrigation Project, a mega project which was later also called the Pancheshwar Project. The Project was expected to generate 2,000 MW and provide irrigation benefits. See text *infra* § IV(A)(3).

23. See text *infra* § IV.

B. The Tanakpur Agreement

In the spirit of furthering cooperation within the Mahakali River area, the governments of India and Nepal entered into a Memorandum of Understanding (MOU), commonly referred to as the Tanakpur Agreement, on December 6, 1991.²⁴ The agreement provided for the construction of the left afflux bund (the retaining wall) on Nepalese territory for which the Nepalese provided 2.9 hectares of land. Unlike the Sarada Treaty, however, the Tanakpur Agreement did not provide for an even exchange of land from India. The agreement, instead, provided for the installation of a head regulator (the main part of the reservoir that regulates the water flow) at the Tanakpur Barrage with a capacity of 1,000 cusecs, and required India to construct a canal so that 150 cusecs of water could be delivered to Nepal. India was further required to provide Nepal with 10 megawatts of electricity. Furthermore, the Tanakpur Agreement stated that when there was an increase in the water supply at the Pancheshwar Reservoir, the supply of water to Nepal would also be increased. The provision of water and electricity by India to Nepal was seen as the *quid pro quo* to Nepal for providing India with 2.9 hectares of its land, which was needed to construct the afflux bund.²⁵

In hindsight, however, entering into the Tanakpur Agreement with India in December 1991 now seems like a hasty decision. The Nepalese government, led by Mr. Girija Koirala, the Prime Minister at that time, either did not appreciate the legal, socio-economic, and political ramifications involved in the issue, or decided to overlook them to appease India.²⁶ The deal, which relinquished 2.9 hectares of Nepalese land to India to build a dam and a 120-megawatt power station in return for a share of the water and power, was immediately criticized by most of Nepal's opposing political parties.²⁷

The issues raised in the objection of the deal primarily dealt with a concern for Nepalese territorial sovereignty and a belief that Nepal had not benefited equally with India from the project. Those opposing the agreement argued that since the agreement dealt with natural resources it fell under the articles of the Constitution and required ratification by a two-

24. Memorandum of Understanding on Tanakpur Barrage Project, Dec. 6, 1991, signed by Maheshwar Prasad Singh, Nepalese Minister of Law and Justice, and Madhav Singh Solonki, Indian Foreign Minister [hereinafter MOU or Tanakpur Agreement]. The MOU was published in Nepali in the NEPAL GAZETTE, Jan. 1992, (copy on file with authors).

25. See Abu Taher Salahuddin Ahmed, *Challenges of Governance in Nepal: Politico-Economic and Ethno-Religious Dimensions*, 24 J. CONTEMP. ASIA 351, 360-64 (1994).

26. See *id.* at 360.

27. See *id.*

thirds majority of Parliament.²⁸ A writ petition was filed in the Supreme Court, with the Prime Minister as one of the respondents, challenging the validity of the Tanakpur Agreement.²⁹ The petitioners maintained that the agreement should have been presented to Parliament for ratification prior to its enforcement in accordance with the provisions of the Constitution.³⁰

The Prime Minister argued that the decision to give 2.9 hectares of land to India was merely part of a *memorandum of understanding* signed by the Nepalese Minister of Law and Justice and the Indian Foreign Minister, and therefore was not a "treaty" that was subject to the Constitutional provisions requiring ratification.³¹ This argument, however, was rejected by most of the Nepalese, who saw the Tanakpur Agreement as another concession to India regarding water resource issues.³² Gradually the circumstances surrounding the Tanakpur Agreement became more complex and controversial. The Supreme Court issued its verdict in December 1992 and concluded that the Tanakpur Agreement was, indeed, a *treaty* that required ratification by the Parliament, and was not a mere *memorandum of understanding*.³³

It is worth noting that on water resource issues, the political parties in Nepal hold sharply contrasting views. This controversy has had a snowball effect on the political climate in Nepal and continues to polarize the political parties on the issue of nationalism. The Tanakpur controversy has not receded and is not likely to given the entrenched division among the various political forces in Nepal and India's "no-negotiation" posture on the matter. Reportedly, the Indian External Affairs Minister Dinesh Singh's cryptic statement that "Everything hinges on Tanakpur" loomed larger than was generally recognized.³⁴

28. According to the Constitution of Nepal, ratification of, accession to, acceptance of, or approval of treaties or agreements regarding natural resources and the distribution of their uses are to be approved by a two-thirds majority of the members present at a joint sitting of both houses of the Parliament. See NEPAL CONST. art. 126(2)(d) (1990) [hereinafter the Constitution].

29. *Re B. K. Neupane v. Prime Minister of Nepal*, Writ No. 1851 (Nepal Supreme Court 1992).

30. The Petition invoked Article 126 (2) (d) of the Constitution (petition published in the Nepal Supreme Court Bulletin in Nepali).

31. The Vienna Convention on the Law of Treaties, May 23, 1969, I.L.M. 689, defines treaty in Article 2.1(a) as "an international agreement concluded between States in written form and governed by international law, whether embodied in a single instrument or in two or more related instruments and whatever its particular designation." As such the Tanakpur Agreement would qualify as a treaty under international law.

32. See Ahmed, *supra* note 25, at 361.

33. See *id.*

34. See *id.* at 362.

When the then Prime Minister of India, Narasimha Rao, visited Nepal in October 1992, he also made it clear that India would not change its stance on the Tanakpur issue. The water resources issues, and particularly the Tanakpur issue, became the most formidable challenge that has since rocked the succeeding governments in Nepal.³⁵ The Tanakpur Agreement has never formally been ratified because the government has not presented it to Parliament.³⁶ Ironically, however, by the time the Supreme Court verdict was rendered, the physical work at the Tanakpur area, particularly on the Nepalese side, was almost completed. Further discussion on the issue had become moot, therefore.

C. The Farakka Barrage

The history of water sharing between India and Bangladesh, like the history between India and Nepal, is long-standing, has become very complex, and has often been turbulent, particularly over the Ganges River. The dispute over the sharing of the waters of the Ganges River erupted in 1951 because India decided to construct the Farakka Barrage in West Bengal, about ten miles from India's border with Bangladesh.³⁷ India contended that construction of the Farakka Barrage was needed in order to divert waters from the Ganges River to the Hooghly River for a variety of reasons. First, India stated that water from the Ganges River was needed to maintain the flow in the Hooghly River so that the river would remain navigable. India also maintained that more water was needed in the Hooghly River in order to flush out the silt that deposited in the Calcutta Port to ensure that the port would remain accessible. India stated further that additional water was needed in the Hooghly River to counteract a high concentration of salinity in the water and to provide Calcutta with water for irrigation, domestic, and municipal purposes.³⁸

35. See *id.*

36. See Krishna B. Bhattachan, *Nepal in 1993: Business as Usual*, 34 ASIAN SURVEY, Feb. 1994, at 177.

37. See Tauhidul Anwar Khan, *Management and Sharing of the Ganges*, 36 NAT. RESOURCES J. 455, 460-61 (1996).

38. See CROW ET AL., *supra* note 10, at 26-27; UPRETI, *supra* note 17, at 131-32. See generally S.C. Mazumdar, *Ganga Barrage and the Bhagirathi-Hooghly River Problems*, in FARAKKA-A GORDIAN KNOT, PROBLEMS ON SHARING THE GANGA WATER 75 (Sunil Sen Sarma ed., 1986); K.K. Framji, *A Project to Save Calcutta Port*, in FARAKKA-A GORDIAN KNOT, PROBLEMS ON SHARING THE GANGA WATER, *supra*, at 100; K.P. Mathrani, *The Case of the Eastern Rivers*, in FARAKKA-A GORDIAN KNOT, PROBLEMS ON SHARING THE GANGA WATER, *supra*, at 109.

Although the decision to construct the Farakka Barrage was made in 1951, actual work on the barrage did not begin until 1961³⁹ and was not completed until 1971. The barrage, which is about 2,240 meters long, began operating on April 21, 1975. The barrage was built to guarantee that the Hooghly River would receive, however low the flow of the Ganges might be, up to 40,000 cubic-feet per second (cusecs) of water from the Ganges River. This decision was premised on the assumption that the availability of water in the Ganges River at Farakka in the worst lean season would be around 50,000 to 55,000 cusecs, and that the remaining 10,000 to 15,000 cusecs would then be available to be released to Bangladesh.⁴⁰

In opposing the barrage, Bangladesh insisted that the lean flow of the Ganges River of 50,000 to 55,000 cusecs constituted the normal and basic requirements of the area for irrigation, domestic, municipal, and other uses. Bangladesh further contended that any decrease in the flow of the Ganges River would negatively affect irrigation, decrease the water supply, inhibit fishery production, reduce groundwater tables, aggravate the salinity problem, and restrict river navigation, which is the most frequently used mode of transportation in Bangladesh.⁴¹

During the 1950s and the 1960s, Pakistan (of which Bangladesh was then a part) strongly opposed the construction of the barrage, and tried different diplomatic channels to stop its construction.⁴² In 1971, the People's Republic of Bangladesh emerged as an independent nation. Despite the

39. In March 1956, India denounced the "Convention and Statute on the Regime of Navigable Waterways of International Concern," known as the Barcelona Convention. Pakistan contended that India's action was meant to pave the way for the construction of the Farakka Barrage. India, however, contended that the Barcelona Convention dealt only with inland navigation. For discussions on the issue, see CROW ET AL., *supra* note 10, at 65-66; B.M. ABBAS A.T., *THE GANGES WATER DISPUTE* 19-20 (2d ed. 1982).

40. See UPRETI, *supra* note 17, at 132; ABBAS, *supra* note 39, at 13.

41. For a detailed history of the Farakka Barrage and the dispute, and for the arguments of each country, see CROW ET AL., *supra* note 10; ABBAS, *supra* note 39; B.G. VERGHESE, *WATERS OF HOPE, INTEGRATED WATER RESOURCE DEVELOPMENT AND REGIONAL COOPERATION WITHIN THE HIMALAYAN-GANGA-BRAHMAPUTRA-BARAK BASIN* (1990). See generally, FARAKKA-A GORDIAN KNOT, *supra* note 38.

42. It should be noted that at the time India and Pakistan were deadlocked over the Ganges River, negotiations that were mediated by the World Bank over the Indus River were proceeding well. The Indus Waters Treaty was signed on Sept. 19, 1960, by Messrs. Jawaharlal Nehru and Mohamed Ayub Khan. The World Bank was also a signatory to the Indus Waters Treaty, but only for the purposes specified in Article V (Financial Provisions-Indus Basin Development Fund administered by the Bank) and Article X (Emergency Provisions), and Annexures F, G and H of the treaty. Indus Water Treaty, Sept. 19, 1960, India-Pakistan, art. V, X, Annexures F, G, H. See Khan, *supra* note 37, at 461.

initial close ties between Bangladesh and India,⁴³ the Farakka Barrage controversy remained a thorny issue, and Bangladesh opposed it vehemently. Bangladesh raised the issue of the Farakka Barrage and lodged complaints about the negative ways in which the barrage would affect Bangladesh at a number of regional and international summits, including the thirty-first session of the United Nations General Assembly in 1976.⁴⁴ Since the emergence of Bangladesh as an independent nation, the issue of the Farakka Barrage has been one of the most dominant and important elements in the Indo-Bangladesh relationship.⁴⁵

D. The Early Agreements on the Ganges River

During June to December, the flow of the Ganges River is usually very high due to rainfall generated by monsoons. Since there is plenty of water during the monsoon season, the need for agreements between India and Bangladesh to share the waters of the Ganges River from June to December is not an issue. During the months of January to May, however, the water in the Ganges River is generally very low, and thus water sharing arrangements between Bangladesh and India are imperative during this time. The water sharing arrangements discussed in this section were only intended to be temporary while a long-term solution for augmentation of the flow of the Ganges River during the low season was being sought.

Despite India's determination to build and use the Farakka Barrage on the one hand, and the opposition of Bangladesh to the construction and use of the barrage by India on the other hand, a number of agreements were reached between India and Bangladesh prior to the 1996 Ganges Treaty. These agreements primarily dealt with how water from the Ganges could be shared between the two countries during the dry season. The first of these agreements was finalized on April 18, 1975, only three days prior to the commissioning of the Farakka Barrage on April 21, 1975, and

43. On March 19, 1972, India and Bangladesh signed the Indo-Bangladesh Friendship Treaty, which remained in force for 25 years until it lapsed on March 19, 1997. See ABBAS, *supra* note 39, at 32.

44. Viewed from international law principles on international waterways, India's position initially seemed to lean toward the principle of "absolute territorial sovereignty," according to which a riparian state has an unrestricted right to regulate and use within its territory the waters of an international basin. On the other hand, Bangladesh's position seemed to rely on the principle of "territorial integrity" where the lower riparian has the right to demand the natural and uninterrupted flow of the basin. For a full discussion of the different theories on the topic, see Jerome Lipper, *Equitable Utilization*, in *THE LAW OF INTERNATIONAL DRAINAGE BASINS*, *supra* note 1. For details on the UN discussions on the issue, see CROW ET AL., *supra* note 10, at 110-13.

45. See generally ABBAS, *supra* note 39.

remained in effect until May 31, 1975.⁴⁶ In this agreement, India and Bangladesh allocated the waters of the Ganges River during the remaining forty-one days of the dry season of 1975. In effect, this agreement symbolized the acceptance by Bangladesh of India's decision to build the Farakka Barrage as a *fait accompli*.⁴⁷

As a result of the 1975 agreement, the controversy shifted from arguing over whether the barrage should be built to determining the quantity of water to be shared from the Ganges River by India and Bangladesh during the dry season. Under this agreement, India's share of water during each of the four ten-day periods was far less than the 40,000 cusecs it had initially demanded, and represented between 20 percent to 25 percent of the available water in the Ganges River. In contrast, the share of water that Bangladesh was entitled to under the agreement ranged between 75 percent to 80 percent of the available water in the Ganges River.⁴⁸ The actual amount of water that Bangladesh received during those 41 days represented about 77 percent of the total amount of water in the Ganges River for that period, while the actual amount of water that India received for the same period was about 23 percent.⁴⁹

The Agreement expired on May 31, 1975, and was not renewed. Furthermore, no attempt was made by India to enter into another agreement, as Bangladesh had expected. Unfortunately, the first agreement was therefore followed by a vacuum that lasted for about two years. As a consequence, the sharing of the lean flow of the Ganges River between India and Bangladesh during the dry seasons of 1976 and 1977 was not regulated by any agreement between the two countries.⁵⁰

46. The agreement was announced "in the form of a joint press release." ABBAS, *supra* note 39, at 41. For an extract of the main part of the agreement, including the table below, see ABBAS, *supra* note 39, at 41. According to this agreement, the amounts of water to be withdrawn by India were as follows:

Month	Ten-day Period	Withdrawal
April, 1975	21st to 30th	11,000 cusecs
May, 1975	1st to 10th	12,000 cusecs
	11th to 20th	15,000 cusecs
	21st to 31st	16,000 cusecs

The remaining flow would then go to Bangladesh. See also UPRETI, *supra* note 17, at 134.

47. Following the announcement of the 1975 Agreement an official Bangladesh delegation actually attended the commissioning of the Farakka Barrage on April 21, 1975. See ABBAS, *supra* note 39, at 42.

48. Available water for this period according to the 1977 Agreement ranges between 55,000 cusecs and 65,500 cusecs. See *infra* table 1.

49. See UPRETI, *supra* note 17, at 134.

50. The political climate that facilitated the conclusion of the 1975 Agreement, *supra* note 46, changed dramatically following the assassination of the president of Bangladesh, Sheikh Mujibur Rahman on August 15, 1975, and the army takeover. See ABBAS, *supra* note 39, at 44-47.

It is also important to note that this initial agreement established two principles that have been followed in all the subsequent agreements, including the Ganges Treaty. The first principle is that the quantum of water to be released by India to Bangladesh would be released at Farakka. The second principle is that water withdrawn by India, and water released to Bangladesh, would generally take place in ten-day increments, and in the case of thirty-one day months would take place in eleven-day increments.⁵¹

The second agreement was signed on November 5, 1977,⁵² and covered the five lean seasons of 1978 through 1982. The allocation of the available water between the two countries is shown in table 1 below.

Under the 1977 Agreement, it was established that during each dry season Bangladesh's allotment of water would be about 59 percent of the total availability of water in the Ganges River, and that India's share of water would be about 41 percent. The most notable feature of the 1977 Agreement was that it included a clause that guaranteed Bangladesh a minimum of 80 percent of its share of water during any ten-day period, irrespective of how low the flow of the Ganges River might be during such a period.⁵³

The third agreement was signed on October 7, 1982,⁵⁴ and was in effect for two years. This agreement covered the lean seasons of 1983 and 1984, but did not cover the lean season of 1985.

The fourth agreement was signed on November 22, 1985,⁵⁵ and lasted for three years. It covered the three dry seasons of 1986, 1987, and 1988, and expired on May 31, 1988. Both of these agreements reiterated the allocations agreed upon in the 1977 Agreement, and only made minor

51. See UPRETI, *supra* note 17; ABBAS, *supra* note 39.

52. Agreement Between the Government of the Republic of India and the Government of the People's Republic of Bangladesh on Sharing of the Ganga Waters at Farakka and on Augmenting its Flows, Nov. 5, 1977, 17 I.L.M. 103 [hereinafter 1977 Agreement]. For the full text of the Agreement, see, 17 I.L.M. 103 (1978). See generally, Khan *supra* note 37, at 464-465 (discussions on the agreement); Tariq Hassan, *International Agreements—Ganges Water Treaty, Bangladesh-India, Entered into Force Nov. 5, 1977*, 19 HARV. INT'L L.J. 708 (1978).

53. See 1977 Agreement, *supra* note 52, art. II, § ii, at 54.

54. Indo-Bangladesh Memorandum of Understanding, Oct. 7, 1982 [hereinafter 1982 MOU] (on file with the authors). The 1982 MOU documented the agreements reached during the meeting that was held in Delhi between Mr. H. M. Ershad, the then President of the Council of Ministers, Government of the People's Republic of Bangladesh, and Mrs. Indira Gandhi, Prime Minister of the Republic of India at that time. For a general discussion, see Khan, *supra* note 37, at 465-66.

55. Indo-Bangladesh Memorandum of Understanding, Nov. 22, 1985 [hereinafter 1985 MOU] (on file with the authors). The 1985 MOU set out the agreements reached between the then President of Bangladesh, Mr. H. M. Ershad, and the then Prime Minister of India, Mr. Rajiv Gandhi, during their meeting at Nassau, the Bahamas in 1985.

TABLE 1

**Sharing of Waters at Farakka Barrage between the Dry Season,
Which Lasts from January 1 to May 31 of Each Year**

Ten/Eleven Day Increments	Flows reaching Farakka (based on 75% avail- ability from observed data (1948-73)		
	Cusecs	Withdrawal by India at Farakka Cusecs	Release to Bangladesh Cusecs
January	1-10	98,500	40,000
	11-20	89,750	38,500
	21-31	82,500	35,000
February	1-10	79,250	33,000
	11-20	74,000	31,500
	21-28/29	70,000	30,750
March	1-10	65,250	26,750
	11-20	63,500	25,500
	21-31	61,000	25,000
April	1-10	59,000	24,000
	11-20	55,500	20,750
	21-30	55,000	20,500
May	1-10	56,500	21,500
	11-20	59,250	24,000
	21-31	65,500	26,750

Source: Schedule to the 1977 Agreement

adjustments to the allocations of water within some of the ten-day increments. The total amounts of water withdrawn by India and the total amount of water released to Bangladesh at Farakka, however, remained the same.⁵⁶

Interestingly indeed, the guarantee clause contained in the 1977 Agreement was not included in either of these agreements. Following the expiration of the 1985 agreement, therefore, another vacuum, similar to the one following the first agreement, was created that lasted for more than eight years until the Ganges Treaty was concluded in December 1996.

IV. THE NEW REGIME ESTABLISHED BY THE TREATIES

In this section, the present political regime regarding the waters of the Mahakali River and the Ganges River is discussed. It is important to point out at the outset of this section that, whilst the Mahakali Treaty emphasizes an integrated approach to the development of water resources, the Ganges Treaty, and other previous agreements pertaining to the Ganges River, have primarily been limited to the specific objective of water allocation between India and Bangladesh during the dry season. Thus, whereas the Mahakali Treaty attempts to validate past activities taken to develop water resources on the Mahakali River, the Ganges Treaty represents another attempt to equitably distribute the waters of the Ganges River between India and Bangladesh during low-flow months, and also represents the continued search for a long-term solution to the scarce flow of the Ganges River during the dry season.

It is noteworthy that the Mahakali Treaty was signed in February 1996 when the Indian Congress Party was still in power in India, while the Ganges Treaty was not concluded until after the Indian Congress Party was voted out of office in March 1996. The Ganges Treaty was entered into shortly after the United Front government was established in June 1996.⁵⁷ The March election results created an attitudinal shift in how foreign policy was conducted in India. This election, in conjunction with the fresh approach to foreign policy that focused on developing better relations with India's neighboring countries under the Gujral Doctrine, facilitated the

56. See 1982 MOU, *supra* note 54, Annexure A, at 3; 1985 MOU, *supra* note 55, Annexure A, at 4.

57. The United Front consisted of 13 regional parties and was initially led by Mr. Deve Gowda. See Sukumar Muralidharan, *A New Equilibrium: The Deve Gowda Government in Charge*, FRONTLINE, June 15-28, 1996, at 4.

conclusion of the Ganges Treaty.⁵⁸ These factors most likely helped facilitate ratification of the Mahakali Treaty in June 1997.

A. Integrated Approach to Water Resources Development under The Mahakali Treaty

Against the above-described political climate, the need to validate past activities carried out under the Tanakpur Agreement and the need to improve the Mahakali water sharing arrangements became pressing.⁵⁹ It is important for the purposes of this discussion to understand that the Mahakali water sharing arrangements were governed primarily by the Sarada Treaty, which was entered into when the political status of India and the needs of the two countries were different. Indeed, whilst India at the time was under British rule, the population of Nepal was small in size with a relatively low demand for water, and as such, water sharing issues were not afforded the same priority that they are currently given.

Considering the embedded views of both sides on the Tanakpur controversy, it took five years of negotiations after the Tanakpur agreement was concluded before the foreign ministers of India and Nepal, Mr. Pranab Mukherjee and Mr. Prakash C. Lohani, respectively, were able to initial, on the twenty-ninth of January 1996, a treaty between the two countries for the integrated development of water resources on the Mahakali River. Two weeks later, on the twelfth of February 1996, the Mahakali Treaty was signed by the Prime Minister of India, Mr. P.V. Narasimha Rao, and the Prime Minister of Nepal, Mr. Sher B. Deuba.⁶⁰

The Mahakali Treaty deals with three projects related to water resources: the Sarada Barrage, the Tanakpur Barrage, and the Pancheshwar Multipurpose Project. Of these, it should be noted, the work at the Sarada Barrage and the Tanakpur Barrage were completed in 1920 and 1992 respectively. The Mahakali Treaty absorbed the regime established by the

58. It was not just the change in government in Delhi that facilitated the conclusion of the Ganges Treaty. In Dhaka, the Awami League, which had close ties to India in the past, was returned to power for the first time since 1975. Both the Prime Ministers of India and Bangladesh met in Rome during the World Food Summit in November 1996. That meeting was preceded by an official visit by the Foreign Minister of each country to the capital of the other country. Mr. Gujral was the foreign minister of India at that time. See John Cherian, *Great Expectations. The India-Bangladesh Water Issue*, 13 FRONTLINE, Nov. 30-Dec. 13, 1996; *India and Bangladesh Reach Water Deal*, FIN. TIMES, Dec. 12, 1996.

59. See text *supra* § III(B).

60. The Mahakali Treaty, *supra* note 2, was signed in two originals each in Hindi, Nepali and English languages, all the texts being equally authentic, and the English text prevailing, in case of doubt. Similarly, the Ganges Treaty, *supra* note 3, was done in Hindi, Bangla, and English, with the English text prevailing in the event of any conflict.

Sarada Treaty, validated the controversial Tanakpur Agreement,⁶¹ and endorsed the idea of a new multipurpose project, the details of which, at the time of its conclusion, still needed to be resolved.⁶²

It is worth mentioning, however, that the Mahakali Treaty is a first in many ways. Along these lines, the treaty lays down the principle that as a boundary river on large stretches,⁶³ the Mahakali River will be developed in an integrated way to maximize the total net benefit from such development. Both parties will, in theory, be entitled to equal benefits, and will thus share the costs in proportion to the share of benefits they actually receive. These principles, self-evident though they may be, were not observed in earlier agreements between India and Nepal, including the two existing projects on the Mahakali River, the Sarada and Tanakpur barrages, which were located downstream from the site of the proposed Pancheshwar Dam.

The Mahakali Treaty, however, has also engendered a wide spectrum of debate within various segments of India's and Nepal's populations concerning the hullabaloo and hoopla over the conclusion of the treaty, the numerous hidden political agendas, environmental concerns, and strategic choices with respect to the location of the dam and the actual components of water sharing contained in the treaty. Addressing all the aspects of the debate is beyond the scope of this article. Instead of dwelling on controversial political issues, this article briefly analyzes the content of the Mahakali Treaty and, as appropriate, compares it with the Ganges Treaty.

1. *Declaratory Provisions*

The preamble of the Mahakali Treaty appears to be comprehensive. It stresses the determination of India and Nepal to promote and strengthen their relations of friendship and close neighborliness for cooperation in the development of water resources. Most importantly, the preamble recognizes that the Mahakali River is a boundary river on major stretches between the two countries, and focuses on the need of the two countries to

61. See Mahakali Treaty, *supra* note 2, art. 12, § 1, 36 I.L.M. 531, 543. The Mahakali Treaty incorporated the earlier understanding reached between India and Nepal, in the context of the Sarada Treaty, *supra* note 18, and the Tanakpur Agreement, *supra* note 24, concerning the utilization of the waters of the Mahakali river from the Sarada Barrage and the Tanakpur Barrage.

62. See Mahakali Treaty, *supra* note 2, Preamble, art. 3, 36 I.L.M. at 533, 537.

63. Although often stressed to an extreme, international law does not draw any legal distinction between boundary rivers and other successive rivers. The same rules of international law apply to both types of rivers. This has been concluded by the Permanent Court of International Justice in the River Oder Case. For details, see The International Commission of the River Oder, P.C.I.J., ser. A, No. 23, at 5, 27 (1929).

enter into a treaty on the basis of equal partnership to define their obligations and corresponding rights and duties thereto with regards to the utilization of the waters of the Mahakali River.⁶⁴

Moreover, the preamble references several existing instruments. It refers to (1) the Exchange of Letters of 1920 through which both the parties had entered into an arrangement for the construction of the Sarada Barrage on the Mahakali River;⁶⁵ (2) the decision taken by the Indo-Nepal Joint Commission,⁶⁶ dated December 4-5, 1991, and the Joint Communiqué issued during the visit of the Prime Minister of India to Nepal on October 21, 1992, regarding the Tanakpur Barrage;⁶⁷ and finally (3) a detailed project report regarding the Pancheshwar Multipurpose Project (PMP) that India and Nepal intended to prepare and that was to be implemented on the Mahakali River.⁶⁸ In this context, it is worth noting that the Mahakali Treaty does not mention the controversial MOU of December 1991. The critical decision of the Nepalese Supreme Court on this MOU could have been the main reason why it was not specifically mentioned in the preamble to the treaty.⁶⁹

The Mahakali Treaty provides a false impression that the two governments have taken a "basin approach" to water resource management.⁷⁰ However, given the fact that the considerations used to negotiate the treaty were limited to the tributaries covered by the future Pancheshwar Multipurpose Project (PMP), and that the initial investigation was limited in its examination of other water resource management options, it is clear that the treaty only seeks to develop water resources at the Pancheshwar Barrage.⁷¹ From a structural viewpoint, the Mahakali Treaty, in fact, combines three distinct treaties, the Sarada Treaty, the Tanakpur Treaty, and the PMP, insofar as the principle for sharing water and electricity between India and Nepal is concerned.

The preamble of the Ganges Treaty is less exhaustive but equally optimistic. It reiterates the desire of the parties that waters from international rivers flowing in the territories of India and Bangladesh be shared between them by mutual agreement, and that water resources of the region

64. See Mahakali Treaty, *supra* note 2, Preamble, 36 I.L.M. at 533.

65. See *id.*

66. See *id.* The reference concerns the Joint Commission established by both the governments to deal with all water-related issues.

67. See text *supra* § III(B).

68. See Mahakali Treaty, *supra* note 2, Preamble, 36 I.L.M. 531, 533.

69. See AHMED, *supra* note 32, at 361, and accompanying text.

70. An approach where the basin is looked upon as having no international boundaries and planning concepts are applied to the basin as a whole.

71. See Deepak Gyewali, *Ke Ke Chan Dosh Mahakali Sandhi Ma*, in 41 MULYANKAN 39 (1997).

be put to the most beneficial use regarding flood management, irrigation use, river basin development, and the development of hydro-power. The preamble goes on to stress the need for a solution to the long-term problem of augmenting the flow of the Ganges River during the dry season. In fact, water sharing and augmentation are the only two concerns addressed by the 1977 Agreement, each of the 1982 and 1985 MOUs, and the Ganges Treaty. However, as we shall discuss later, India and Bangladesh have not been able to agree on any scheme for augmentation.⁷²

2. *Status of Sarada and Tanakpur Barrages*

a. *Sarada Barrage*

The first part of the Mahakali Treaty deals with the Sarada Barrage. Accordingly, Nepal shall have the right to a supply of 1,000 cusecs of water from the Sarada Barrage in the wet season, that is from May 15 to October 15, and 150 cusecs in the dry season, that is from October 16 to May 14.⁷³ Moreover, India is required to maintain a flow of not less than 350 cusecs downstream of the Sarada Barrage in the Mahakali River to maintain and preserve the river ecosystem.⁷⁴

Section 1.03 of the Mahakali Treaty provides assurances to Nepal that in case the Sarada Barrage becomes nonfunctional for any reason, Nepal shall continue to have the right to a supply of 1,000 cusecs of water by using the head regulator(s) constructed by India near the left undersluice (an artificial passage of water fitted with a gate for stopping or regulating flow) of the Tanakpur Barrage. This supply of water shall be over and above the amount of water agreed upon by the treaty to be supplied to Nepal. Moreover, in this case, India is also required to maintain the river flow from the tailrace (the narrow channel for conveying water away from the turbine after use) of the Tanakpur Power Station downstream of the Sarada Barrage.⁷⁵

b. *Tanakpur Barrage*

The second part of the Mahakali Treaty deals with the Tanakpur Barrage. According to Article 2, in continuation of the decisions taken in the Joint Commission dated December 4–5, 1991, and the Joint Communiqué issued during the visit of the Prime Minister of India to Nepal on October 21, 1992, India and Nepal agreed to carry out some work in the area. This work includes the construction of the eastern afflux bund of the

72. See text *infra* § IV(B)(3).

73. See Mahakali Treaty, *supra* note 2, art. 1, § 2, 36 I.L.M. 531, 534.

74. See *id.*

75. See *id.*, art. 1, § 3, 36 I.L.M. at 535.

Tanakpur Barrage at Jimuwa and tying it up to the high ground in the Nepalese territory at an elevation level of 250 meters. For this purpose, Nepal agreed to let India use a portion of its land consisting of about 577 meters in length (an area of about 2.9 hectares) in its territory at the Jimuwa Village in Mahendranagar Municipal Area and a certain portion of the "no-man's land" on either side of the border. The Mahakali Treaty explicitly states that this land, and a tract of about 9 hectares of land to the West up to the Indo-Nepalese border, continue to remain under the sovereignty and control of Nepal, and that Nepal would continue to be free to exercise all attendant rights thereto.⁷⁶

In lieu of construction of the eastern afflux bund of the Tanakpur Barrage at Jimuwa, Nepal obtained the right to a supply of 1,000 cusecs of water during the wet season,⁷⁷ and 300 cusecs of water during the dry season.⁷⁸ For this purpose, as well as for the purpose of supplying water from the Sarada Barrage, India agreed to construct the head regulator(s) near the left undersluice of the Tanakpur Barrage and build waterways with appropriate water capacity all the way to the Indo-Nepalese border. Such head regulator(s) and waterways are to be operated jointly by India and Nepal.⁷⁹

In this context, it is worth adding that, pursuant to the Letter of Exchange (the Letter) between the prime ministers of India and Nepal on the day the Treaty was signed, India also agreed to complete an all-weather road connecting the Tanakpur Barrage to the east-west highway at Mahendranagar in Nepal within one year of the effective date of the Mahakali Treaty.⁸⁰

Regarding electricity, Nepal is entitled to an annual supply of 70 million kilowatt-hours on a continuous basis free of cost, from the effective date of the Mahakali Treaty. For this purpose, India agreed to construct a 132 Kv transmission line all the way to the Indo-Nepalese border from the Tanakpur Power Station.⁸¹ This letter further clarified that the annual

76. See *id.*, art. 2, § 1, 36 I.L.M. at 535.

77. The wet season is the period starting May 15 and ending October 15.

78. The dry season is the period starting October 16 and ending May 14. It is noteworthy that the dry season under the Ganges Treaty and previous agreements is from January 1 to May 31.

79. See Mahakali Treaty, *supra* note 2, art. 2, § 2(a), 36 I.L.M. 531, 536.

80. Letter of Exchange between the Prime Minister of Nepal and the Prime Minister of India (Feb. 12, 1996), 36 I.L.M. 544 (1997) [hereinafter the Letter]. The Letter was originally sent by the Prime Minister of Nepal, and on the same date the Prime Minister of India acknowledged and confirmed that the Letter correctly set out the agreement made between the two Governments.

81. See Mahakali Treaty, *supra* note 2, art. 2, § 2(b), 36 I.L.M. at 536. Tanakpur Barrage has, at the time of its completion, an installed capacity of 120,000 kilowatts, and could generate 448.4 million kilowatt-hours annually.

supply of 20 million kilowatt-hours of electricity, free of cost, to Nepal from the Tanakpur Power Station, as provided for in the Mahakali Treaty, shall be reconciled with the energy procured or to be procured by Nepal from India under the existing power exchange arrangement. This supply of electricity was previously authorized by the Joint Communiqué beginning when the Tanakpur Power Station was commissioned July 7, 1992, and was to remain in effect until the power station was able to meet its expected annual supply of 70 million kilowatt-hours of electricity.⁸²

The Mahakali Treaty also described the arrangements that would be made at the Tanakpur Barrage at the time of development of any storage project(s), including the Pancheshwar Multipurpose Project upstream of the Tanakpur Barrage.⁸³ Accordingly, additional head regulators and necessary waterways, as required by the treaty, were to be constructed up to the Indo-Nepalese border to supply additional water to Nepal. Such head regulators and waterways would be operated jointly by both Nepal and India.⁸⁴ Moreover, Nepal would have additional energy equal to half of the incremental energy generated from the Tanakpur Power Station on a continuous basis from the date of augmentation of the flow of the Mahakali River. Under this agreement, Nepal was obligated to bear half of the additional operation costs and, if required, half of the additional capital costs of the Tanakpur Power Station for the generation of this incremental energy.⁸⁵

The notion of augmentation of the flow of the Mahakali River is mentioned both in the treaty and the letter. Since there are no details as to how such augmentation is to take place, one can only assume that the augmentation will be part of the Detailed Project Report.

3. *Pancheshwar Multipurpose Project*

Although it is a very important part of the treaty, the newly introduced Pancheshwar Multipurpose Project (PMP) remains a controversial aspect of the Mahakali Treaty. The PMP⁸⁶ is to be constructed on a stretch of the Mahakali River that forms the boundary between the two countries. The Mahakali Treaty specifies that both India and Nepal have equal entitlement to utilize the waters of the Mahakali River without prejudice to their respective existing consumptive uses.⁸⁷ The Mahakali

82. See the Letter, *supra* note 80, ¶ 2, 36 I.L.M. at 536.

83. See Mahakali Treaty, *supra* note 2, art. 2, § 3, 36 I.L.M. at 536.

84. See *id.* art. 2, § 3(a), 36 I.L.M. at 537.

85. See *id.* § 3(b).

86. The treaty includes, *inter alia*, the construction of a 315-meter high dam (Pancheshwar Dam) with a capacity for generating 3,480 MW of electricity. See Rishikesh Shah, *Whither Mahakali Treaty?*, KATHMANDU POST, Sept. 4, 1997, at 1.

87. See Mahakali Treaty, *supra* note 2, art. 3, 36 I.L.M. at 537.

Treaty further specifies that both countries agree to implement the PMP on the Mahakali River in accordance with the Detailed Project Report (DPR) being jointly prepared by the countries.⁸⁸

The Mahakali Treaty also added, in this context, that India would supply 350 cusecs of water for the irrigation of the Dodhara-Chandani area in Nepal. The technical and other details regarding this supply still need to be worked out and mutually agreed upon.⁸⁹

a. *General Principles*

Along with the issues of water distribution, power generation, and energy sharing, the Mahakali Treaty established some other general principles. While the water requirements of Nepal are to be given prime consideration,⁹⁰ both India and Nepal are entitled to draw their share of waters from the Mahakali River at the Tanakpur Barrage and/or other mutually agreed upon points as provided for by the Mahakali Treaty or any subsequent agreement between the two countries.⁹¹ Moreover, any project, other than the Sarada, the Tanakpur, and the PMP, to be developed on the international boundary area of the Mahakali River in the future will need to be designed and implemented by agreement between the two countries using the principles established by the Mahakali Treaty.⁹²

Maintaining the flow and level of water in the Mahakali River is another general principle established by the Mahakali Treaty. According to Article 7, India and Nepal each agreed, subject to future agreements to the contrary, not to use, obstruct, or divert the waters of the Mahakali River, so as to adversely affect the natural flow and level of the river. This requirement does not preclude the use of the waters of the Mahakali River by the local communities living along both sides of the Mahakali River as long as such use does not exceed five percent of the average annual flow at Pancheshwar.⁹³ Furthermore, the Mahakali Treaty does not preclude either country from planning, surveying, developing, and using any of the tributaries originating from the Mahakali River, as long as such activities take place in each country's own territory and do not adversely affect the flow of the Mahakali River.⁹⁴

88. *See id.*

89. *See id.* art. 4, 36 I.L.M. at 538.

90. *See id.* art. 5, 36 I.L.M. at 539.

91. *See id.*

92. *See id.* art. 6, 36 I.L.M. at 539.

93. *See id.* arts. 6, 7, 36 I.L.M. at 539-40. The Ganges Treaty includes a similar provision, stating that the waters released to Bangladesh shall not be reduced below Farakka except for reasonable uses of waters, not exceeding 200 cusecs, by India between Farakka and where the Ganges enters Bangladesh. *See Ganges Treaty, supra* note 3, art. III, 36 I.L.M. 519.

94. *See Mahakali Treaty, supra* note 2, art. 8, 36 I.L.M. 531, 539-40.

b. Specific Principles Regarding the PMP

The Mahakali Treaty establishes four main principles for the design and implementation of the PMP. Accordingly, the first principle is that the PMP will be designed to produce the maximum total net benefit for both countries in the forms of power generation, irrigation use, and flood control.⁹⁵ These benefits will be assessed on a continual basis to insure maximum performance. The second principle regarding the construction of the PMP is that both countries are working together in an integrated manner to develop and share their water resources. Indeed, the PMP will be implemented as a joint effort that includes the erection of power stations of equal capacity on each side of the Mahakali River. The two power stations will be operated together and the total energy generated will be shared equally between India and Nepal.⁹⁶

The third principle is that both countries will share the cost of the project. As specified in the Mahakali Treaty, India and Nepal will share the cost of the PMP in proportion to the benefits accruing to each, and will jointly endeavor to mobilize the financing required to implement the PMP.⁹⁷

The fourth principle is that a portion of Nepal's share of energy will be sold to India. The quantum of such energy and its price shall be mutually agreed upon between the parties.⁹⁸

In addition, the Letter of Exchange (the Letter) between the Prime Ministers of Nepal and India regarding the Mahakali Treaty also establishes principles to be applied and arrangements to be made in finalizing the Detailed Project Report (DPR), completing negotiations, and implementing the PMP. Accordingly, this Letter mandates that the DPR must be finalized by both countries within six months from the effective date of the Mahakali Treaty,⁹⁹ and provides that the exchange of necessary data and

95. See *id.* art. 3, § 1, 36 I.L.M. at 537.

96. See *id.* art. 3 § 1.

97. See *id.* art. 3, § 3, 36 I.L.M. at 538.

98. See *id.* art. 3, § 4, 36 I.L.M. at 538. In order to maximize its revenues from the project, Nepal has been keen to maximize the power component, and to design the project as a peaking station to run for about four and a half hours a day. India's own preference initially was for a project with a lower capacity of about 2000 MW operating over a longer number of hours. However, India has agreed to go along with Nepal, given an expected deficit in peaking power of about 20,000 MW in the northern grid by the time the project comes on line in about 2010. See *Pancheshwar: Challenges Ahead*, ECON. TIMES, July 2, 1997, at 144.

99. The Mahakali Treaty was ratified on June 5, 1997. As of the writing of this article, the DPR has not yet been finalized. The technical team, composed of water resources officials from India and Nepal met to finalize the DPR and requested that their respective governments give them another two years to prepare it. See *Two Years Extension Sought to Prepare Pancheshwar DPR*, KATHMANDU POST, Dec. 11, 1997, at 1.

reports be done expeditiously. The Letter clarifies further that during the preparation of the DPR and the accompanying assessment of the benefits to each country as a result of the construction of the PMP an assessment of irrigation benefits would also be conducted. The Letter directed that the assessment of irrigation benefits for both countries should focus on incremental and additional benefits due to augmentation of river flow, and on the value of works saved and damages avoided due to increased flood control resulting from construction of the PMP. Likewise, the Letter instructs that the net power benefits will be assessed on the basis of savings in costs to the two countries as compared with the relevant alternatives available.¹⁰⁰ This comparison of cost with available alternatives is likely to emerge and remain as another contentious issue.¹⁰¹

The Letter further precludes claims, in any form, by either country on the unutilized portion of its share of the waters of the Mahakali River.¹⁰² The Letter also specifies that an agreement for the financing and implementation of the PMP, including the proposal for the establishment of the Pancheshwar Development Authority, must be negotiated and finalized by both countries within one year from the finalization of the DPR.¹⁰³ It should also be noted that pursuant to the Mahakali Treaty, a Mahakali River Commission would be appointed to oversee the Pancheshwar Development Authority. The Commission would be comprised of an equal number of members from both countries, and, in the event of disputes, both countries must submit to resolution of the dispute by independent arbitration.¹⁰⁴ This is indeed a breakthrough. Rarely are such projects between countries financed, implemented, and operated jointly by a binational authority.

The target date for completion of construction of the PMP is eight years from the date of the agreement, subject to the completion of the DPR. To expedite the implementation of the PMP, the Letter further provides

100. See the Letter, *supra* note 80, ¶ 3(a).

101. Indeed, a unanimous resolution of the Nepalese Parliament stated that the principle of "avoided cost" should be the only criterion. Even if it is decided that the price should be somewhere between avoided cost and the actual cost of generation, the question remains, what is the relevant alternative, especially for peaking power? *Pancheshwar: Challenges Ahead*, *supra* note 98. It should also be added that the absence of a clear principle for pricing of power is even more serious because of the situation of a *de facto* single-buyer monopoly. See Gyewali, *supra* note 71, at 39.

102. See the Letter, *supra* note 80, ¶ 3(b).

103. See *id.* ¶ 3(b).

104. See Mahakali Treaty, *supra* note 2, arts. 1, 11, 36 I.L.M. 531, 534-35, 541-42. While there are binational hydro projects in other parts of the world, the largest being the 12,600 MW Itaipu Dam between Brazil and Paraguay, Pancheshwar will be the first truly binational project in the Ganges Basin, and could serve as a model for cooperative development of its vast hydropower resources. See *Pancheshwar: Challenges Ahead*, *supra* note 98.

that field investigation and detailed design, including tender document preparation, should start immediately after the finalization of the DPR and should parallel the negotiations necessary to implement the PMP. For this purpose, the Letter also specifies that both countries need to agree on a separate financing agreement to carry out these activities.¹⁰⁵

Thus, in spite of the detailed stipulations that the Treaty and the Letter have established, the implementation of the PMP, which is the *raison d'être* of the Mahakali Treaty, relies heavily on a financing package that the two governments will have to obtain.

4. Water Sharing Issues

The provisions regarding Nepal's share of the waters of the Mahakali River under the Mahakali Treaty are scattered throughout the treaty. Read together, Nepal's share of water stipulated by the treaty can be consolidated as reflected in table 2 below:

TABLE 2

Source	Wet season	Dry season
Sarada Barrage	1000 cusecs	150 cusecs
Tanakpur	1000 cusecs	300 cusecs
Dodhara-Chandani	350 cusecs	350 cusecs
	2350 cusecs	800 cusecs

Source: Articles 1, 2 and 3 of the Mahakali Treaty

The Mahakali Treaty appears to have attempted to follow a model based on the principles of "equitable utilization"¹⁰⁶ and "no harm."¹⁰⁷

105. See the Letter, *supra* note 80, ¶ 3(d). As such, this appears to be an agreement to agree.

106. Equitable utilization has been defined as "the division of the waters of an international river among the co-riparian states in accordance with the legitimate economic and social needs of each, in such a manner as to achieve the maximum benefits for all with a minimum of detriment to each." Lipper, *supra* note 1, at 63. The International Law Association Helsinki Rules, art. 5, 52 I.L.A. 484 (1967), on the use of the waters of international rivers, lay down a number of factors for determining what is a reasonable and equitable share. Such factors:

include, but are not limited to the following:

(a) the geography of the basin, including in particular the extent of the drainage area in the territory of each basin State;

However, in spite of the attempt to follow these models, the treatment of these two notions is not completely clear. The provisions regarding the sharing of water of the Mahakali River thus raise some issues. Articles 3 and 5.1 of the Mahakali Treaty, as well as paragraph 3(b) of the Letter, when read together, result in some ambiguity. For instance, according to

-
- (b) the hydrology of the basin, including in particular the contribution of water by each basin State;
 - (c) the climate affecting the basin;
 - (d) the past utilization of the waters of the basin, including in particular existing utilization;
 - (e) the economic and social needs of each basin State;
 - (f) the population dependent on the waters of the basin in each basin State;
 - (g) the comparative costs of alternative means of satisfying the economic and social needs of each basin State;
 - (h) the availability of other resources;
 - (i) the avoidance of unnecessary waste in the utilization of waters of the basin;
 - (j) the practicability of compensation to one or more of the co-basin States as a means of adjusting conflicts among uses; and
 - (k) the degree to which the needs of a basin State may be satisfied, without causing substantial injury to a co-basin State.

On the other hand, the United Nations Convention on the Law of the Non-Navigational Uses of International Watercourses, May 21, 1997, art. 6 (1), 36 I.L.M. 700, states:

Utilization of an international watercourse in an equitable and reasonable manner within the meaning of article 5 requires taking into account all relevant factors and circumstances, including the following:

- (a) Geographic, hydrographic, hydrological, climatic, ecological and other factors of a natural character;
- (b) The social and economic needs of the watercourse States concerned;
- (c) The population dependent on the watercourses in the watercourses State;
- (d) The effects of the use or uses of the watercourses in one watercourse State on other watercourses States;
- (e) Existing and potential uses of the watercourses;
- (f) Conservation, protection, development and economy of the water resources of the watercourse and the cost of measures taken to that effect;
- (g) The availability of alternatives, of comparable value, to a particular planned or existing use.

The Convention was adopted by a vote of 103 in favor, 3 against (Burundi, China, and Turkey), and 27 abstentions. It should be added that, while Bangladesh and Nepal voted in favor of the Convention, India abstained. For the full text of the Convention, see 36 I.L.M. 700 (1997).

107. The "no harm" rule *grosso modo* means that riparian states cannot act as they please. They are not allowed to use or tolerate the use of their water for causing harm to the other states. The no harm rule covers a whole range of neighborly relations, including issues pertaining to the protection of environment. This rule is also reflected in the 1997 Convention on the Law of the Non-Navigational Uses of International Watercourses, *supra* note 106. Indeed, in accordance with the Convention, watercourse states are required, in utilizing an international watercourse in their territories, to take all appropriate measures to prevent the causing of significant harm to other watercourse states. *See id.* art. 7.1.

Article 3 of the Mahakali Treaty, both India and Nepal agreed that they have equal entitlement to use the waters of the Mahakali River without prejudice to their respective existing consumptive uses of the waters of the Mahakali River. Thus the Mahakali Treaty protects the "respective consumptive use of the waters of the Mahakali River" without actually specifying the nature of the use.¹⁰⁸

The Letter, moreover, in paragraph 3(b) contains some restrictions as to the notion of equal entitlement. It states,

it is understood that Section 3 of Article 3 of the Mahakali Treaty precludes the claim, in any form, by either party on the unutilized portion of the shares of the waters of the Mahakali River of that Party without affecting the provision of the withdrawal of the respective shares of the water of the Mahakali River by each Party under this treaty.

These provisions do not guarantee that equal entitlement of water, from a Nepalese standpoint, should be half of the total use for each country.¹⁰⁹ The term "existing consumptive use" is a key phrase adding to the confusion. Its full and meaningful implementation requires that the countries first identify the "existing consumptive use" of both India and Nepal.¹¹⁰ Only then can the phrase "without prejudice to their respective existing consumptive uses" be objectively applied. Unfortunately, the Mahakali Treaty defines Nepal's existing consumptive use,¹¹¹ but does not do so for India and, therefore, leaves open an opportunity for India to unilaterally define the scope of its consumptive use.

The resulting ambiguity caused by this provision contradicts the spirit of Article 5.1 of the Mahakali Treaty, which states that the water requirements of Nepal are to be given prime consideration. Furthermore, although Nepal's prospective water requirements are to be given priority, its existing and prospective water requirements are small in proportion to India's water requirements, and may impact Nepal's plans to forgo part of

108. See K.L. SHRESTHA, MAHAKALI SANDHI RA RASTRIYA HITKO SAWAL 32-33 (1997) (Kathmandu, Nepal).

109. In order to avoid any confusion, it should be mentioned that equality of right, in international law, does not give a co-riparian the right to an equal division of the waters. Rather, equality of right is the equal right of each co-riparian state to a division of the waters on the basis of its economic and social needs, consistent with the corresponding rights of its co-riparian states, and excluding from consideration factors unrelated to such needs. This formula will, of course, often result in a compromise that will permit each co-riparian state to satisfy its needs to the greatest extent possible, with a minimum of detriment to each. See THE LAW OF INTERNATIONAL DRAINAGE BASINS, *supra* note 1, at 63.

110. See Ajay Dixit, *Mahakali Nadi Sajha Ho, Paani Adha Ko Adha Ho*, 42 MULYANKAN 8-9 (1997).

111. See *id.*; Gyewali, *supra* note 71, at 39; SHRESTHA, *supra* note 108, at 23, 32-33.

its water entitlement for a proportionately lower share of the costs of the non-hydro component.¹¹²

The negotiators, however, have had difficulty ascertaining what share of costs each country must pay. Even if the power component is assumed to cost about 80 percent of the total cost of the project,¹¹³ small differences in the apportionment of the remaining 20 percent can translate into hundreds of crores.¹¹⁴ Nepal believes that India is overstating its existing utilization of water flows in order to minimize its share of incremental irrigation and flood control benefits from the project,¹¹⁵ especially since India in the past has claimed that it uses up to three times the amount of water that it is now claiming.¹¹⁶

Additionally, these claims by India are higher in some months than either the amount of water observed in the river at specified times, or the water capacity of the Sarada Canal into which the bulk of the flows are diverted by the Sarada Barrage in India. This has partly to do with the link canal India has built between the Ghaghra and the Sarada canal system to supplement the Sarada River.¹¹⁷ India, however, argues that the canal is used only for part of the year because the Ghaghra River carries a heavy load of silt during and after the rains, which would build up in the canal and cause blockage. For the rest of the year, India claims that the flows it utilizes come from the Mahakali River itself.¹¹⁸

India estimates that augmentation of flows by the PMP, unassisted by the waters of the Ghaghra River, will enable it to raise the intensity of spring irrigation from 26 to 50 percent in a command area of about two million hectares in the State of Uttar Pradesh.¹¹⁹ This would correspond to utilization of only half the augmented waters, and a cost share of eight percent. Although its share of flows would remain largely unutilized, Nepal's cost share would also remain at eight percent. The remaining four percent would be apportioned to flood control benefits.¹²⁰

112. See *Pancheshwar: Challenges Ahead*, *supra* note 98. Non-hydro component in this context includes all components related to the water use except hydropower.

113. The total cost of the project may be as much as Rs. 15,000 crore, or Rs 2.5 crore per megawatt. A crore is a unit of account used in most South Asian countries and is equivalent to ten million.

114. See *Pancheshwar: Challenges Ahead*, *supra* note 98.

115. See Gyewali, *supra* note 71, at 74; SHRESTHA, *supra* note 108.

116. See Gyewali, *supra* note 71.

117. See *Pancheshwar: Challenges Ahead*, *supra* note 98.

118. See *id.*

119. See *id.*

120. See *id.*

B. Sharing the Ganges

1. *Water Sharing Under the Ganges Treaty*

Compared with the Indo-Nepal Mahakali Treaty, the Indo-Bangladesh Ganges Treaty, insofar as water sharing is concerned, seems clearer. Whilst the Mahakali Treaty fails to establish any clear formula for water sharing between the two countries, the Ganges Treaty actually sets out the techniques and mechanisms for water sharing between India and Bangladesh.

Regarding the sharing of waters from the Ganges River, the attempts in the previous agreements as well as the Ganges Treaty itself centered on the notion of equitable utilization.¹²¹ Annexure 1 to the Ganges Treaty (Table 3 below) establishes the following formula, which includes the threshold amounts of water available at Farakka, along with each country's share of water stated either as a percentage, or as an amount, of that threshold.

TABLE 3

Availability At Farrakka	India's Share	Bangladesh's Share
70,000 cusecs or less	50%	50%
70,000 - 75,000 cusecs	Balance of flow	35,000 cusecs
75,000 cusecs or more	40,000 cusecs	Balance of flow

Source: Annexure 1 of the Ganges Treaty¹²²

121. For the definition of "equitable utilization", see text *supra* note 106.

122. It should be noted that the figure "70,000" has been repeated in both the first and second lines of Annexure 1 above, and the figure "75,000" is also repeated in both the second and third lines above. As such, if availability at Farakka is exactly 70,000 cusecs, the formula in the first or second line could apply. Similarly, if the availability is exactly 75,000 cusecs, the formula in the second or third line could apply. Perhaps a better way of drafting Annexure 1 to the Treaty could have been for the first line to read "less than 70,000 cusecs" and for the third line to read "more than 75,000."

In spite of the above, according to Annexure 1 of the Treaty, India and Bangladesh are guaranteed each to receive 35,000 cusecs of water in alternate three ten-day periods between March 1 to May 10.¹²³ In addition to the above formula, Annexure II to the treaty includes an indicative schedule (Table 4 below) depicting each country's share of water between January 1 to May 31 of each year.

The Treaty states further that "[e]very effort would be made by the upper riparian to protect flows of water at Farakka as in the 40 year average availability mentioned above."¹²⁴ Moreover, in case the flow of the Ganges River at Farakka falls below 50,000 cusecs in any ten-day period the treaty provides for "...immediate consultation to make adjustments on an emergency basis, in accordance with the principles of equity, fair play and no harm to either party."¹²⁵

In accordance with the schedule, as displayed in Table 4, India's total share of water during the lean season amounts to about 48 percent of the total available water, whereas Bangladesh's share represents about 52 percent. The schedule also specifies the three ten-day periods during which 35,000 cusecs shall be provided, alternately, to each of the two countries. For Bangladesh these periods are between March 11 to 20, April 1 to 10, and April 21 to 30, whereas for India they are between March 21 to 31, April 11 to 20, and May 1 to 10. The period from March 11 to May 10 is considered the most critical period of the lean season because the flow of the Ganges River during this period is usually the lowest of the lean season.¹²⁶

Reading Annexures 1 and II together (see tables 3 and 4), the following can be noted:

1. Of the fifteen ten-day periods of the dry season, there are six ten-day periods that are governed by the first part of the sharing formula in Annexure 1. This formula allocates 50 percent of the available water (70,000 cusecs or less) to each of the two countries. These six ten-day periods, however, also correspond to the period in which each country is guaranteed a share of 35,000 cusecs of water in alternate three ten-day periods.

2. The indicative schedule shows that there are two ten-day periods in which the availability of water at Farakka is between 70,000 and 75,000 cusecs. During those two periods, the second part of the sharing

123. See Ganges Treaty, *supra* note 3, Annexure 1, tbl. 1, 36 I.L.M. 519, 527.

124. See *id.* art. II, ¶ ii, 36 I.L.M. at 524. This Article does not seem to oblige India to protect the flow of the Ganges as in the 40 years average, but rather asks India to make every effort for this purpose. It is interesting that in this Article the Treaty uses the term "upper riparian" as opposed to actually naming India in the rest of the Treaty.

125. See *id.* art. II.

126. See *id.* Annexure 2, 36 I.L.M. at 528.

TABLE 4

The opening paragraph of the schedule states that if actual availability corresponds to average flows of the period from 1949 to 1988, the implications of the formula in Annexure I for the share of each side are the following:

Period	Average of total flow 1949-88 (Cusecs)	India's Share (Cusecs)	Bangladesh's Share (Cusecs)
Jan			
1-10	107,516	40,000	67,516
11-20	97,673	40,000	57,673
21-31	90,154	40,000	50,154
Feb.			
1-10	86,323	40,000	46,323
11-20	82,859	40,000	42,859
21-28	79,106	40,000	39,106
March			
1-10	74,419	39,419	35,000
11-20	68,931	33,931	35,000*
21-31	64,688	35,000*	29,688
April			
1-10	63,180	28,180	35,000*
11-20	62,633	35,000*	27,633
21-30	60,992	25,992	35,000*
May			
1-10	67,351	35,000*	32,351
11-20	73,590	38,590	35,000
21-31	81,854	40,000	41,854

*Three ten-day periods during which 35,000 cusecs shall be provided.

Source: Annexure 2 "schedule" to the Ganges Treaty

formula (second line of Annexure 1) is to be applied, and Bangladesh's share will be 35,000 cusecs, with the remaining balance going to India.

3. The third part of the sharing formula, (third line of the Annexure) has been applied to the remaining seven ten-day periods, and India's share is 40,000 cusecs, with the remaining balance of the flow going to Bangladesh.

In comparing the share of each country under the earlier agreements and the Treaty, it is important to note that Bangladesh's share of water has decreased from about 59 percent under the 1977 Agreement, and each of the 1985 and 1982 MOUs, to about 52 percent under the present treaty. Correspondingly, India's share increased from about 41 percent under the 1977 Agreement, and the 1985 and 1982 MOUs, to about 48 percent under the present treaty.

2. *The Working of the Ganges Treaty During the First Year 1997*

An important feature distinguishing the previous agreements and the present treaty is the basis used to calculate the flows of the Ganges River reaching Farakka during the lean season. Under the previous agreements, the average flows of the Ganges River that reached Farakka were based on 75 percent water availability from observed data for the 25-year period between 1948 and 1973. Under the present Treaty, the figures under the indicative schedule are based on the average total flow, and not on 75 percent availability of the Ganges during the 40 year period between 1949 and 1988.¹²⁷ As a result, the average total flows of the Ganges River under the Treaty for each ten-day period exceeds the average flow under the previous agreements for the same period by a margin of almost 10 percent for each period. This means that the Treaty assumes that a higher level of water is available in the Ganges River at Farakka during the dry season than under the previous agreements.¹²⁸

However, a few months after the Treaty was concluded, it was determined that the actual availability of water during the first lean season of the Treaty of 1997 was far less than the average flows of the Ganges River for the period 1949–1988, as indicated in Annexure II to the Treaty. The first reports of a decline in the flow of the Ganges River at Farakka started circulating during the last ten days of February 1997 when the flow was supposed to favor Bangladesh. During that period, Bangladesh stated that it had received only 24,559 cusecs of water, instead of 39,106 cusecs as

127. See *id.* Apparently the year 1988 was chosen because it was the last year in which daily flows of the Ganges at Farakka were observed and recorded by the India/Bangladesh Joint Committee under the 1985 MOU.

128. Compare the 1977 Agreement, *supra* note 52, col. 2, the 1982 MOU, *supra* note 54, and the 1985 MOU, *supra* note 55, with the Ganges Treaty, *supra* note 3.

stipulated by the treaty.¹²⁹ The situation became quite serious in late March, and especially on March 27, when the reported water flow in the Ganges River in Bangladesh was recorded at only 6,500 cusecs, the lowest ever.¹³⁰ By early April, the flow kept fluctuating between 10,000 and 25,000 cusecs,¹³¹ and by early May, water availability at Farakka was only about 40,000 cusecs, instead of the 67,351 cusecs specified by the Treaty.¹³² It is ironic to note that this substantially low flow occurred during the period in which India and Bangladesh are, in accordance with the Treaty, guaranteed to receive 35,000 cusecs of water in alternate three 10-day periods. The indicative schedule under the Treaty shows the average availability of more than 60,000 cusecs.¹³³ Since the flow of the Ganges River continued to be below 50,000 cusecs, Bangladesh, lacking a guarantee clause similar to that of the 1977 Agreement,¹³⁴ asked India for "immediate consultation to make adjustments on an emergency basis" as stipulated under Article II (iii) of the Treaty. India agreed to hold immediate consultation with Bangladesh, and a series of meetings were held at Dhaka and New Delhi.¹³⁵ During the meetings, Bangladesh demanded that India

129. See Ibne Mahfuz, *Water Treaty Remains as Elusive as Ever?*, DIALOGUE, Apr. 14, 1997, at 1 (Dhaka); Asadullah Khan, *Implementation of the Ganges Treaty, a View from Dhaka*, PEOPLE'S REVIEW, May 8, 1997, at Opinion Page ("In the last ten days of February, 39,106 cusecs of water should have been available at the Hardinge Bridge point. But Bangladesh got 27,906 cusecs on 22nd of February, 23,094 cusecs on the 23rd Feb., 22,295 cusecs on 24 Feb., 25,654 cusecs on the 25th Feb., 23,006 cusecs on 26th Feb., and 24,559 cusecs on 27th Feb., and on March 27, the flow was lowest in recent times, recording 6,457 cusecs.").

130. See John F. Burns, *Sharing Ganges Waters, India and Bangladesh Test the Depth of Cooperation*, N.Y. TIMES, May 25, 1997, at 6. The figure of 6,500 cusecs for March 27th appeared in a number of newspapers.

131. See *Bangladesh Asks India to Review Water Accord*, REUTERS, Apr. 4, 1997.

132. See *supra* tbl. 4.

133. See *Ganges Treaty*, *supra* note 3, Annexure 1, 36 I.L.M. at 527. The proviso is unusual in that it does not specify who is to guarantee that such amounts will actually be delivered. Once the availability came down to such a low level, the inoperativeness of the guarantee became discernible.

134. Article II of the 1977 Agreement, *supra* note 52, 17 I.L.M. at 104, stated that if during a particular 10-day period, the Ganga flows at Farakka come down to such a level that the share of Bangladesh is lower than 80 percent of the value shown in column 4, the release of waters to Bangladesh during that 10-day period shall not fall below 80 percent of that value.

135. On March 27, 1997, a senior Bangladesh government official arrived in Delhi to discuss the situation with the Indian counterpart who took the position that the low flow was due to natural circumstances. This visit was followed by another visit to Dhaka by an Indian Team to discuss the same issues. The foreign ministers of the two countries met in New Delhi on April 9; denied that the treaty was in jeopardy, even though the availability of water at Farakka was abnormally low; and reiterated their commitment to the treaty. On May 13, Prime Minister Sheikh Hasina met the newly elected Indian Prime Minister, Inder Kumar Gujral, during the summit meeting of the South Asian Association for Regional Cooperation (SAARC) in Male, the capital of the Maldives. Both Prime Ministers confirmed that the issues

ensure that Bangladesh would receive the 35,000 cusecs guaranteed under Annexure 1 of the Treaty, and also that India communicate the steps it was taking to protect the flow of water at Farakka, as per Article II (ii) of the Treaty. India confirmed that the flow at Farakka had slowed down and attributed this situation to the normal hydrological cycle that occurs every four to five years,¹³⁶ and stated that it was complying with its obligations under the Treaty by agreeing to immediate consultation. However, aside from affirming that the two countries are committed to complying with the provisions of the Treaty, the meetings did not result in any adjustments to the share of water of either country, nor were any actions agreed upon to remedy the situation.¹³⁷

Meanwhile, by mid-May, "unseasonal spring rains [had] eased the crisis, with the river at Hardinge Bridge back to levels that normally develop later in the spring, when rising summer heat on the north Indian Plains melts snow in the Himalayas."¹³⁸ In mid-June, an expert-level meeting of the Indo-Bangladesh Joint Rivers Commission was held in Dhaka. After three days of discussions that centered on the Treaty, the Commission recommended that a scientific committee be formed to study the causes of the low water flow of the Ganges River during the critical period of the dry season. The thirty-second meeting of the Joint Rivers Commission was held at Dhaka on July 18 to 20, 1997.¹³⁹ The Joint Communiqué stated

The two sides appreciated the need to remove the bottlenecks in implementation of the Ganga/Ganges Treaty with further

needing resolution regarding the Ganges Treaty had been worked out.

136. See Mahfuz, *supra* note 129. The Minister of Water Resources in Bangladesh told Reuters on April 1, 1997, that India informed him that "ice in the Himalayas where the Ganges originates is not melting enough to raise the level." *Bangladesh Asks India to Review Water Accord*, *supra* note 131.

137. On April 11, 1997, the ten-month-old government headed by Mr. Deve Gowda was voted out of office, and it was not until April 21 that Mr. Inder Kumar Gujral was selected as a Prime Minister. The political vacuum, and later, the transition, might have hindered Bangladesh's efforts to resolve the problem through political means. This was manifested by the cancellation of the meeting of the Indo-Bangladesh Joint Rivers Commission that was supposed to take place in April 1997. Sukumar Muralidharan, *Crisis and Resolution. The Ascendence of Inder Kumar Gujral*, *FRONTLINE*, May 16, 1997, at 4.

138. See Burns, *supra* note 130.

139. Joint Communiqué of the 32nd Meeting of the India-Bangladesh Joint Rivers Commission, Dhaka (July 18-20, 1997) [hereinafter Joint Communiqué]. The Indo-Bangladesh Joint Rivers Commission was established by the two governments in 1972. The main functions of the Commission include maintaining a liaison between the two countries in order to ensure the most effective joint efforts in order to maximize the benefits of managing the common river systems for both countries. For the Statute of the Joint Rivers Commission, see ABBAS, *supra* note 39, at 138. There are 51 minor rivers in addition to the Ganges, Brahmaputra and Meghna shared between India and Bangladesh. See CROW ET AL., *supra* note 10, at 185-86.

negotiations. It was decided to undertake joint scientific studies in accordance with the terms of reference, which have been jointly finalized by the technical teams of the two countries.¹⁴⁰

The unusual seasonal variations of water, one of the main characteristics of the Ganges River, continued, and by early August 1997, the Bangladesh Flood Information Center started issuing warnings that the Ganges River flow was above the danger mark, and that certain areas could soon be flooded. Thus, the 1997 dry season ended with mixed results, a reasonable flow of the Ganges during the beginning and the end of the dry season, and unusually low flow during the critical period of the dry season.¹⁴¹ Yet, unlike the previous dry seasons, when similar problems of low flow of the Ganges persisted, this time the parties were actively engaged in discussions on how to handle the situation within the framework of the Treaty. It is perhaps too early to tell whether this unusually low flow of the Ganges River during the dry season of 1997 was an isolated phenomenon that could be attributed to natural causes, or will continue to be the trend.

3. *Augmentation of the Flow of the Ganges*

The major objective of the Ganges Treaty, as stated above, is to develop a framework in which India and Bangladesh can work together to share the waters of the Ganges River during the dry season. A secondary, but related objective, referred to in the Treaty but not detailed, is the issue of developing methods to augment the flow of the Ganges River during the dry season. The 1977 Agreement identified and recorded the problem of low flow of the Ganges during the dry season, and recognized the need for both countries to cooperate with each other to find a method for augmenting the flow during the dry season. The 1977 Agreement further entrusted the Joint Rivers Commission with the responsibility of carrying out investigations and studying schemes in order to develop solutions to increase the flow of the Ganges River during the dry season. The Commission was directed to present its recommendations to the governments of Bangladesh and India within a period of three years.¹⁴² Unfortunately, no

140. See Joint Communiqué, *supra* note 139; Haroon Habib, *Pact on Teesta Waters on Anvil*, HINDU, July 21, 1997, at 1 (India).

141. The DAILY STAR (Bangladesh) reported in mid-May that the Minister of Water Resources admitted in parliament that the country had received less than the agreed quantum of the Ganges water in some of the ten-day cycles during the last four months, but quoted him as saying "we got more water than mentioned in the agreement in some cycles, while less in others." World Bank Group, *News from the Triangle Region* (visited May 15, 1997) <<http://staffesse@worldbank.org>>.

142. See 1977 Agreement, *supra* note 52, arts. VIII, IX., 17 I.L.M. at 104-05.

such recommendations were agreed upon during the life of the 1977 Agreement.

The 1982 MOU dwelt on the same issue. It stated that "...the basic problem of inadequate flow of waters in the Ganga available at Farakka imposed sacrifices on both countries," and that "the long term solution lay in augmenting the flow available at Farakka."¹⁴³ This MOU gave the Joint Rivers Commission 18 months from the date of the MOU for completing a pre-feasibility study and deciding upon the optimum solution. At the end of this period, it was specified that the two governments would immediately implement the augmentation proposal agreed upon by the Joint Rivers Commission.¹⁴⁴ However, again, no agreement on the augmentation scheme was completed.

In addition to reiterating the schedule for sharing the waters of the Ganges River during the dry season, as agreed upon under the 1982 MOU, the 1985 MOU established a Joint Committee of Experts from both countries and entrusted it with carrying out a joint study on the available water resources common to both countries, including schemes for increasing the flow of the Ganges River.¹⁴⁵

The 1985 MOU expired on May 31, 1988. The joint study was not carried out because the representatives of the two governments in the Joint Committee of Experts could not agree on a common proposal. Regarding the scheme for augmenting the flow of the Ganges River at Farakka, each country had a different proposal. India's proposal consisted of a plan to construct a link canal to connect the Brahmaputra River with the Ganges River at a point above the Farakka Barrage. The link canal, according to the plan proposed by India, would help increase the flow of the Ganges River during the dry season by diverting water to the Ganges River from the Brahmaputra River.

Bangladesh, who feared the environmental, social, political, and economic consequences of the proposal, rejected India's solution. Bangladesh was also concerned that the link canal might further exacerbate the flood situation in the country during the monsoon season. Instead, Bangladesh proposed building storage reservoirs at the upper reaches of the Ganges in both India and Nepal to store water during the monsoon season for release during the dry season.

143. See 1982 MOU, *supra* note 54, at 1. The MOU criticized the 1977 Agreement, and stated in the preamble that the two leaders "agreed that it had not proved suitable for finding a satisfactory and durable solution, and that with its termination fresh efforts were necessary to arrive at such a solution." *Id.*

144. See *id.* at 2.

145. See 1982 MOU, *supra* note 54, ¶ 3.

India, however, rejected this proposal because it wanted to reserve the upstream waters of the Ganges River for its future needs. Moreover, India preferred a bilateral approach and did not want to regionalize the issue by involving another riparian, in this case Nepal.¹⁴⁶ It is important to note that India's proposal centered on using the Brahmaputra River to solve the problems of the Ganges, whereas Bangladesh's proposal aimed at using the Ganges River itself to solve the erratic water flows of the Ganges River. "Bangladesh argued that water is best transferred over time; India that it is best transferred over space."¹⁴⁷ It is also noteworthy that each proposal involved the use of the territory of the other country. Part of the link canal proposed by India would be constructed in Bangladesh, and part of the storage reservoirs proposed by Bangladesh would be built in India.

The augmentation proposals introduced by India and Bangladesh represented the position each country had adopted from the beginning of the search for a solution. The 1977 Agreement stated that

The Indo-Bangladesh Joint Rivers Commission established by the two governments in 1972 shall carry out investigations and study of schemes relating to the augmentation of the dry season flows, proposed or to be proposed by either Government with a view to finding a solution which is economical and feasible. It shall submit its recommendations to the two governments within a period of three years.¹⁴⁸

The Side Letters annexed to the 1977 Agreement included an understanding by Bangladesh, and confirmed by India, that the words "proposed or to be proposed by either Government" under Article IX of the 1977 Agreement "relate to any schemes which may have been proposed by Bangladesh or India and do not exclude any scheme or schemes for building storages in the upper reaches of the Ganges in Nepal."¹⁴⁹ Both Side

146. For a discussion of the proposal of each country for augmentation of the dry season flow, see CROW ET AL., *supra* note 10; ABBAS, *supra* note 39; LYNDON JOHNSON SCHOOL OF PUBLIC AFFAIRS, UNIVERSITY OF TEX. AT AUSTIN, POLICY RESEARCH PROJECT REPORT NO. 101, WATER RESOURCES COOPERATION IN THE GANGES - BRAHMAPUTRA RIVER BASIN (1993).

147. CROW ET AL., *supra* note 10, at 163.

148. 1977 Agreement, *supra* note 52, art. IX, 17 I.L.M. at 104-05.

149. Side Letter to the Agreement: 1, Nov. 5, 1977, and confirmed by Side Letter to the Agreement: 2, Nov. 5, 1997, in B.M. ABBAS A.T., THE GANGES WATER DISPUTE 100-01 (2d ed. 1984) [hereinafter Side Letters]. The reference to Nepal in the Side Letter is unusual because, as a matter of international law, the contracting parties do not have the right to obligate a third party without its consent. The Vienna Convention on the Law of Treaties, *supra* note 31, art. 34, 8 I.L.M. at 693, reads, "A treaty does not create either obligations or rights for a third State without its consent." The Convention also states that, "An obligation arises for a third State from a provision of a treaty if the parties intend the provision to be the means of establishing the obligation and the third State expressly accepts that obligation in writing." *Id.* art. 35, 8 I.L.M. at 693.

Letters clarified further that all the proposals designed to find a solution to the long-term problem should be treated on an equal footing and accorded equal priority.¹⁵⁰

Although India and Bangladesh have clearly and consistently agreed since 1977 on the need for augmentation of the dry season flow of the Ganges, they could not agree on how such augmentation can be achieved. As such, the issue of augmentation of the flows of the Ganges during the dry season remains unresolved, and the expansion of the scope of the joint study, and the change from the Joint Rivers Commission to the Joint Committee of Experts as the entity entrusted with the study, did not make any difference.¹⁵¹

Moreover, although the treaty recognizes the need for cooperation by the two governments "in finding a solution to the long-term problem of augmenting the flows of the Ganga/Ganges during the dry season,"¹⁵² it has not laid down any terms of reference or time frame for a joint study, nor has it created or entrusted any committee with the responsibility of carrying out this study.

4. *The Ganges Barrage*

One outstanding issue between India and Bangladesh related to the Ganges River concerns the Ganges Barrage. Since 1963, Bangladesh (then East Pakistan) has sought to build a barrage on the Ganges River to store the wet season flow of the Ganges for use during the dry season. India had, in the past, opposed its construction and had seen it as a retaliatory measure against the Farakka Barrage. Along these lines, India claimed that large areas of Indian territory would be submerged as a result of backwater effect. Following the conclusion of the Treaty and further discussion on the barrage, especially its location,¹⁵³ India has agreed to the construction of the barrage by Bangladesh. Bangladesh now plans to build this barrage at Pangsha, 90 miles west of Dhaka,¹⁵⁴ and presents the barrage as the best way for guaranteeing the success of the Treaty because the barrage would enable Bangladesh to utilize its stipulated share of water.¹⁵⁵

150. See Side Letters, *supra* note 149.

151. SEE CROW ET AL., *supra* note 10, at 161-84.

152. See Ganges Treaty, *supra* note 3, Preamble & art. VIII, 36 I.L.M. at 523, 525.

153. Bangladesh had initially sought to build the Ganges Barrage at the location of the Hardinge Bridge, close to the Indian border. However, the current proposed location is at Pangsha, about 40 miles downstream from the Hardinge Bridge, and further downstream from the Indian border.

154. See *Bangladesh Asks ADB to Finance Huge Ganges Dam*, REUTERS, Aug. 24, 1997.

155. See DIRECTORATE OF PLANNING (GENERAL), GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH, TECHNICAL ASSISTANCE PROJECT PROFORMA (TAPP) FOR THE FEASIBILITY STUDY AND DETAILED ENGINEERING DESIGN OF THE GANGES BARRAGE PROJECT, May 1997,

According to the feasibility study carried out in 1997, in the context of this new plan, the Barrage would allow Bangladesh to make optimum use of the water that would be available under the Ganges Water Treaty and would permit the irrigation of most of the areas in the southwest, the south central, and the north western regions in Bangladesh. Similarly, the Study also suggests that water supplies through the Gorai River, which will be fed by waters from the barrage, will reduce saline intrusion around Khulna, thus helping to solve the existing socio-economic and environmental impacts of the areas. Moreover, the study suggests that the flows in all tributaries and other rivers in the southwest region will be augmented so that the natural environment, like fisheries, ground water, forestry, human health, and navigation can be restored through the supply of upland water flow and a reduction in salinity.¹⁵⁶

Additionally, the barrage is expected "to irrigate an area of about 1.35 million hectare of land, and to protect another 1.44 million from floods."¹⁵⁷ Bangladesh also hopes that the barrage will assist in reducing salinity caused by intrusion of the waters from the Bay of Bengal. Bangladesh has officially sought financial assistance for building the barrage from a number of bilateral and multilateral donors. The Joint Communiqué of the Joint Rivers Commission in its thirty-second meeting stated that

The Commission welcomed the proposal of Bangladesh to implement the Ganges Barrage project. India indicated its intention to consider providing technical assistance through Water and Power Consultancy Limited (WAPCOS), a Government of India Undertaking, which has the requisite expertise in this regard.¹⁵⁸

It is too early to ascertain whether construction of the Ganges Barrage will help alleviate the water problems in the Ganges Basin in Bangladesh during the dry season, or whether the barrage will have any bearing on the proposals for augmenting the dry season flow of the Ganges River.¹⁵⁹ It is also too early to speculate whether Bangladesh will be able to raise the necessary funds to construct the barrage.

Recast, June 1997, at 6 [hereinafter TAPP].

156. See *id.* at 6-7.

157. See REUTERS, *supra* note 154, quoting the Minister of Water Resources of Bangladesh, following a meeting with the President of the Asian Development Bank in Dhaka. The figure of "1.35 million hectare" is close to the figure of "1.31 million hectare" specified in TAPP, *supra* note 155, at 7.

158. Joint Communiqué, *supra* note 140.

159. It is interesting to note that TAPP included as one objective of the Barrage "augmentation of the flows of all distributories and other rivers in the South-West region". TAPP, *supra* note 155, at 6-7.

C. Bilateral Agencies under the Mahakali and the Ganges Waters Treaties

1. General Provisions

An interesting feature of the Mahakali Treaty is the establishment of a joint Indo-Nepalese commission,¹⁶⁰ called the Mahakali River Commission (the Commission). This Commission is guided by the principles of equality, mutual benefit, and no harm to either of the countries.¹⁶¹ The joint nature, both from an organizational as well as financial standpoint, is well represented because the Commission will be composed of an equal number of representatives from both countries,¹⁶² and its expenses also are to be borne equally by both India and Nepal.¹⁶³

The Mahakali River Commission has been given a relatively broad mandate. It has been directed, among other things, to carry out the following:

1. to seek information on and, if necessary, inspect all structures included in the Mahakali Treaty and make recommendations to both India and Nepal to take necessary steps to implement its provisions;
2. to make recommendations to both India and Nepal for the conservation and utilization of the Mahakali River as envisioned by and provided for in the Mahakali Treaty;
3. to provide expert evaluation of projects and make recommendations thereto;
4. to coordinate and monitor plans of action arising out of the implementation of the Mahakali Treaty; and
5. to examine any differences arising between the two countries concerning the treaty's interpretation and application.¹⁶⁴

Nevertheless, both India and Nepal continue to reserve their rights to deal directly with each other on matters, notwithstanding the competence of the Mahakali River Commission.¹⁶⁵ In addition, both the parties can form, if they wish, specific joint entities for the development, execution, and operation of new projects including the PMP in the Mahakali River for

160. See Mahakali Treaty, *supra* note 2, art. 9, § 1, 36 I.L.M. 531, 540-41.

161. See *id.* The Ganges Treaty states in Article 9 that the sharing arrangements under the treaty can be adjusted "based on the principles of equity, fairness and no harm to either party..." Ganges Treaty, *supra* note 3, 36 I.L.M. at 536.

162. See Mahakali Treaty, *supra* note 2, art. 9, § 2, 36 I.L.M. at 540-41.

163. See *id.* § 4.

164. See *id.* § 3.

165. See *id.* § 6.

their mutual benefit.¹⁶⁶ The Commission is also directed to draft its rules of procedure, which shall be submitted to both India and Nepal for their concurrence.¹⁶⁷

Under the Ganges Treaty, just as was the case under the previous agreements, a committee consisting of equal numbers of representatives nominated by the two governments, called the Joint Committee, was established. It is authorized to set up suitable teams at both Farakka in West Bengal and Hardinge Bridge in Bangladesh, to observe and record at Farakka the daily flows below Farakka Barrage, in the feeder canal and the Hardinge Bridge. The Committee is also authorized to develop its own procedures and method of functioning, and is required to submit all the data it collects, as well as an annual report to both countries. The Treaty requires the two governments to meet at appropriate levels, following submission of these reports, to decide upon any further action that may be required.

The main responsibility of the Committee is to examine "any difficulty arising out of the implementation of those arrangements, and of the operation of the Farakka Barrage."¹⁶⁸ As such, the mandate of the Committee under the Ganges Treaty is limited in comparison to the mandate of the Commission under the Mahakali Treaty.

2. *Dispute Resolution under the Mahakali and the Ganges Treaties*

The dispute resolution mechanism envisaged by the Mahakali Treaty is relatively elaborate and advanced. If the Mahakali River Commission should fail to come up with a recommendation after examining any disparities between the countries within three months, or if either party disagrees with the Commission's recommendation, a dispute shall be deemed to have arisen and shall then be submitted for arbitration. In so doing, either country is required to give three months prior notice to the other country.¹⁶⁹

A tribunal composed of three arbitrators conducts all arbitrations. One arbitrator must be nominated by Nepal, one by India, and neither country is allowed to nominate its own national representative. The third arbitrator is to be appointed jointly by the two arbitrators, and shall preside over the tribunal. In the event that the two countries are unable to agree upon the third arbitrator within ninety days after receipt of a proposal, either country may request the Secretary General of the Permanent Court

166. See *id.* art. 10, 36 I.L.M. at 541.

167. See *id.* art. 9, § 5.

168. See Ganges Treaty, *supra* note 3, art. VII, 36 I.L.M. at 524.

169. See Mahakali Treaty, *supra* note 2, art. 11, § 1, 36 I.L.M. 531, 541-42.

of Arbitration at the Hague to appoint an arbitrator. The arbitrator so chosen, however, cannot be a national of either country.¹⁷⁰

Regarding the *modus operandi* of arbitration, the Mahakali Treaty states that it shall be determined by the arbitration tribunal and that the decision of a majority of the arbitrators shall be considered to be the decision of the tribunal. The proceedings of the tribunal shall be conducted in English and the decision of the tribunal shall be in writing. Both countries are obligated to accept the decision as final, definitive, and binding.¹⁷¹ The Mahakali Treaty, however, is silent regarding the venue of arbitration, the administrative support of the arbitration tribunal, and the remuneration and expenses of its arbitrators. The Treaty simply states that these aspects would be dealt with by an exchange of notes between the parties. Moreover, through an exchange of notes, the parties can also agree on alternative procedures for settling differences arising under the Mahakali Treaty.¹⁷²

Under the Ganges Treaty, the Joint Committee is entrusted with "examining any difficulty arising out of the implementation of [the above] arrangements and of the operation of the Farakka Barrage."¹⁷³ If the Committee fails to resolve any difference or dispute, then such difference or dispute would be referred to the Indo-Bangladesh Joint Rivers Commission for resolution. If the Joint Rivers Commission fails to resolve such a difference or dispute, then the Treaty directs that the matter "be referred to the two Governments which shall meet urgently at the appropriate level to resolve it by mutual discussion."¹⁷⁴ As such, the Treaty establishes political means, not arbitration, as the method for resolving any difference or dispute arising out of the implementation of the Treaty.¹⁷⁵ Actual water sharing for the Ganges River during the first year of the Treaty indicated that the absence of arbitration has clearly hindered resolution of the dispute that arose during that year.

Interestingly, as inferred above, when the Ganges flow was below the thresholds specified in the Ganges Treaty, each of the countries, Bangladesh and India, insisted on an interpretation of its relevant provisions in ways that suited them most. This obviously led to non-resolution and increased tension between the countries. An arbitration panel, in this kind of situation, it is submitted, would have been a better

170. See *id.* § 2.

171. See *id.* art. 11, § 3, 36 I.L.M. at 542.

172. See *id.* art. 11, § 4.

173. See *supra* note 3, at 525.

174. See Ganges Treaty, *supra* note 3, art. VII, 36 I.L.M. at 525.

175. Similarly, none of the previous agreements specified arbitration as a method of dispute settlement over the Ganges. This is in contrast also to the Indus Waters Treaty, *supra* note 42, which included detailed provisions on arbitration.

tool to diffuse the tension by providing more objective interpretation. In this regard, no doubt, the comprehensive provisions on arbitration in the Mahakali Treaty makes it a more effective legal instrument than the Ganges Treaty.

D. Ratification and Termination of the Mahakali and the Ganges Treaties

The Mahakali Treaty went into effect on June 5, 1997, the date of exchange of instruments of ratification by both the parties, pursuant to Article 12 of the Treaty.¹⁷⁶ The Treaty is to remain valid for a period of seventy-five years.¹⁷⁷ The provisions of this treaty must be reviewed by both countries at ten-year intervals or earlier if requested by either country and amendments thereto will be made, if necessary.¹⁷⁸ In order to give effect to its provisions, the two countries, as required, shall enter into additional agreements.¹⁷⁹

The Ganges Treaty became valid upon signature, and did not require ratification by either party.¹⁸⁰ The Treaty is to remain in force for

176. See Mahakali Treaty, *supra* note 2, art. 12, 36 I.L.M. 531, 543. The Nepalese Parliament ratified the Mahakali Treaty with a two-thirds majority. See *DPR to be Done within Six Months*, RISING NEPAL NATIONAL DAILY, June 6, 1997, at 1, 8 (Kathmandu); *India Nepal Sign 5 Pacts, Ratify Mahakali Treaty*, HINDUSTAN TIMES, June 5, 1997. Prior to ratification, the Joint Session of the Nepalese Parliament had raised certain issues and recommended that such issues be addressed during the preparation of the Detailed Project Report (DPR). The Prime Minister of India, while exchanging the instruments of ratification, agreed that the issues would receive attention. See *Nepal India Joint Statement*, PEOPLE'S REVIEW, June 19, 1997, at ¶ 14 (visited June 19, 1997) <<http://www.info-nepal.com/p-review/june97/june-19/nepal.html>>; *Time Frame Fixed To Resolve Bilateral Issues: Chand, Gujral Hold Talks*, RISING NEPAL NATIONAL DAILY, June 6, 1997, at 8.

177. See Mahakali Treaty, *supra* note 2, art. 12, § 2, 36 I.L.M. at 543.

178. See *id.* § 3.

179. See *id.* § 4.

180. See Ganges Treaty, *supra* note 3, art. XII, 36 I.L.M. at 526, which states: "This Treaty shall enter into force upon signature...", thus indicating that the treaty does not require ratification by either of the two countries. The Constitution of India, as a general rule, does not require ratification of treaties by parliament. The Seventh Schedule of the Constitution of India divides responsibilities over matters into three lists: the Union List, the State List and the Concurrent List. See INDIA CONST. 7th schedule, list I. The Union List includes, as per Entry 14, "entering into treaties and agreements with foreign countries and implementing of treaties, agreements and conventions with foreign countries." *Id.* at § 14. On the other hand, the Constitution of Bangladesh states in Article 145A that "All treaties with foreign countries shall be submitted to the President, who shall cause them to be laid before Parliament," which again does not specify the need for ratification of treaties. BANGLADESH CONST. art. 145A. It is, however, noteworthy that Bangladesh, like India, is currently governed by a parliamentary system under which the executive is elected by, and answerable to parliament. At the time of the conclusion of the treaty, the United Front government in India, with the backing of the

thirty years; almost three times the length of time for the entire previous agreements on the Ganges between India and Bangladesh. The Treaty is renewable on the basis of mutual consent. It shall be reviewed by the two governments at five-year intervals or earlier as required by either party. Either country, however, can request that the first review take place after two years in order to assess the impact and success of the sharing arrangements.¹⁸¹

V. CONCLUSION

In spite of some unclear provisions and incomplete arrangements, the Mahakali Treaty, no doubt from a legal standpoint, has provided a mechanism for a reinforced collaboration between India and Nepal on the Mahakali River. Undeniably, there are problems on both sides of the border. However, if both countries cooperate diligently to carry out the provisions of the Treaty, many economic, political, and social advantages will materialize. In order to reap these benefits, however, each country may need to temper its nationalist ego, which has remained a predominant feature in the water resource relations between the two countries.

With regard to the Pancheshwar Multipurpose Project, the flagship project under the Mahakali Integrated Development scheme, there is currently a great deal of concern over the growing wave of public indifference towards it. This is especially troublesome since differences over the interpretation of certain provisions of the Mahakali Treaty relating to how the waters of the Mahakali River should be shared have erupted between Nepal and India. Notwithstanding these differences, the Mahakali Treaty, as noted by some, "remains a milestone because it is more than a project."¹⁸² The Treaty "has informed the world of a conducive environment in the region for development of water resources. Projects as big as Pancheshwar take time to materialize."¹⁸³ "What is necessary for the

Congress Party, had a majority in the Indian Parliament, while the Awami League also had a comfortable majority in the Bangladeshi Parliament. It should be added, however, that all treaties that result in financial obligations are presented to the Indian Parliament for ratification. This explains why the Indus Waters Treaty between India and Pakistan (1960), and the Mahakali Treaty, both of which obliged India to make certain financial contributions towards implementation of works related to the respective treaty, required ratification by the Indian Parliament. Under the constitution of Nepal, all treaties require ratification, regardless of whether the treaty results in financial obligations or not.

181. See Ganges Treaty, *supra* note 3, art. X, 36 I.L.M. at 526.

182. Statement of Krishna V. Rajan, Indian Ambassador. See *Sub-Regional Water Conference Begins*, KATHMANDU POST, Feb. 10, 1998.

183. *Id.*

success of the PMP and other projects of equal magnitude is durable consensus and consistency in the working of the parties."¹⁸⁴

The first two parts of the Treaty, dealing with Sarada and Tanakpur, only codify in one text the improved version of the existing regime. The part of the treaty dealing with the PMP from a theoretical standpoint, on the other hand, definitely asserts some positive attributes. For instance, the following principles established by the treaty are extremely valuable: utilizing the water of the Mahakali River so that each country enjoys equal entitlement to the water (Article 3); designing the project so that the total net benefit to each country is maximized (Article 3.1); basing the price of the energy produced on a cost avoided principle (paragraph 3[a] of the letter); requiring each country to invest in the project in proportion to the benefits they each receive (Article 3.3); and accounting for incremental and additional irrigation benefits and flood control benefits (paragraph 3[a] of the letter).

However, a great deal remains to be done. The progress made in establishing the DPR has been relatively slow.¹⁸⁵ Still, the very fact that the Mahakali Treaty has done so much advertisement for hydro-development is something we all must take note of.¹⁸⁶ The mode of financing mega-projects in the days to come will be very different from the practices in vogue until now. The vast quantum of capital required for these projects and the fact that such funds are only available in the private sector of most developed countries implies that these big projects will have to be developed through foreign direct investments.

So far, talks between Nepal and India on the DPR have not been conclusive, and the DPR has not been completed within the six months mandated by the treaty. The technical teams working on the DPR asked for two more years.¹⁸⁷ This did not come as a surprise to many. Most concerns raised earlier by the two sides have resurfaced, including the conditions attached to the ratification by the Nepalese Parliament.¹⁸⁸ For example, the provision in the Mahakali Treaty regarding the equal sharing of water is applicable only to that water which is not already in use by India. This was established by the "prior use" clause in the Mahakali Treaty. India has recently requested, under the "prior use" clause, not only water from the Sarada Barrage but also water from the lower Sarada Canal.¹⁸⁹ This would

184. *Id.*

185. The technical teams from both governments have requested an extension. See *supra* text accompanying note 99.

186. Statement of the Nepalese Minister of Water Resources. See *Sub-Regional Water Conference Begins*, *supra* note 182.

187. See *Two Years Extension Sought to Prepare Pancheshwar DPR*, *supra* note 99.

188. See *id.*; text accompanying note 99.

189. See *Not Surprising*, KATHMANDU POST, Nov. 12, 1997.

mean that India would have to be assured 449 cusecs of water. It is only after India receives its quota of "prior use" of Mahakali waters that the remaining flow could be divided equally between the two countries.

The technical-level talks, however, have not been entirely unfruitful. India has agreed to construct a larger 6,000-plus megawatt power station at Pancheshwar. The final DPR, however, is yet to be prepared. Moreover, because of the political strictures of the Nepalese Parliament, the technicians by themselves will hardly be in a position to resolve all the issues involved.¹⁹⁰ Hence, political-level talks between leaders of the two countries are of prime importance if the DPR talks are to bear any fruit. Already, skeptics are predicting that nothing will come of the Mahakali Treaty for the next two decades or so.¹⁹¹

In spite of its shortcomings, the Mahakali Treaty has made attempts to reconcile the conflicting interests between the two countries as much as possible. When compared with the previous agreements relating to the Mahakali River, that is the Sarada Treaty and the Tanakpur Agreement, the Mahakali Treaty has made significantly noticeable progress both in terms of broadening the scope of water resource development as well as defining the rights and obligations of the two countries. The possibilities for improvement exist. The Mahakali Treaty envisions extensive bilateral cooperation. Regular reviews by designated governmental entities may take place. The Joint Commission will also provide a continuing point of contact and an appropriate exchange of information that will help the two governments in their decision making. If the finalization of the DPR does not materialize, then the Mahakali Treaty would still continue to exist, but would be reduced in scope and would be limited to the governance of the Sarada and Tanakpur barrages.

Regarding the Ganges Treaty, our conclusion is equally positive. In spite of the considerable low flow of the Ganges recorded during the critical period of the dry season of 1997, the signing of the Ganges Treaty in 1999 can still be considered a major breakthrough. India and Bangladesh have succeeded in concluding a long-term treaty on the sharing of the waters of the Ganges during the dry season. This treaty also fills the vacuum that has prevailed since the expiration of the 1985 MOU on May 31, 1988. The dynamics of the flow of the Ganges during the dry season of 1997 confirmed that an agreement on the augmentation of the Ganges, rather than the sharing arrangements, is the central theme to any attempt towards a sustainable resolution of the conflict. However, the most important outcome of the treaty is that it has created a conducive atmosphere for discussing a number of water-related issues between the two

190. *See id.*

191. *See id.*

countries and for reaching agreement on a number of these issues. This includes the issue of developing a method to augment the dry season flow of the Ganges River. The resolution of the long-standing issue of the Ganges Barrage should also be attributed to the success of concluding the Ganges Treaty, and to the conducive atmosphere emanating therefrom.

It may be argued, however, that the Treaty centers on the issue of sharing water from the Ganges River during the dry season, without laying the foundation for resolving the larger and more critical problem of augmentation of its flow during the dry season. This contention is certainly true. Aside from recognizing the need for cooperation for finding a solution to the long-term problem of increasing the flow of the Ganges River during the dry season, no other details on how to handle this issue are spelled out in the Treaty. However, it should be remembered that the detailed provisions set out in the references and schedules for the augmentation study in the 1977 Agreement, and in each of the 1982 and 1985 MOUs, have not yielded any results as far as the augmentation study is concerned. As such, the issue is not how many details are spelled out in the treaty, but rather, whether the momentum created by the conclusion of the treaty can result in an agreement on augmentation schemes. Such a momentum, along with the revival of the Joint Rivers Commission and the agreement of India to the construction of the Ganges Barrage, seems more likely to lead to an agreement by both countries on a proposal for augmentation of the flow of the Ganges during the dry season, and implementation of such a proposal.

The Ganges Treaty also makes oblique references to some of the other related issues, such as flood management during the monsoon season (when water sharing is not an issue), irrigation, river basin development, and the generation of hydroelectric power for the mutual benefit of the peoples of the two countries.¹⁹² Although no details on any of those areas have been spelled out in the Treaty, the momentum created by the Treaty, and the fact that those issues have been brought to the forefront, could signal the start of serious deliberations on those issues. This could also result in an overall Ganges Basin development plan. The positive atmosphere created by the treaty could also assist in resolving the other outstanding issues such as the transit facility through Bangladesh of Indian goods going to, or coming from its northeastern states,¹⁹³ and the free trade between the two countries.

192. See Ganges Treaty, *supra* note 3, Preamble, 36 I.L.M. at 523.

193. Except for a small stretch of land about 20 to 30 miles wide falling between Nepal and Bangladesh and forming part of India, the northeastern states are separated from the rest of India by Bangladesh. For discussions on the transit facility, see John Cherian, *A Historic Accord: Sharing Ganga Water with Bangladesh*, FRONTLINE, Jan. 10, 1997, at 47 (India); Jyoti Malhotra, *Transit Facilities for Goods Likely*, BUSINESS STANDARD, Dec. 13, 1996 (India).

In conclusion, the signing of the Mahakali and the Ganges treaties has indeed provided the signatory countries with an opportunity for meaningful cooperation for the benefit of the millions of people in the three countries whose livelihood depend on the waters of these two rivers.