River rivalry: water disputes, resource insecurity and diplomatic deadlock in South Asia

Robert G. Wirsing a and Christopher Jasparro b

"Corresponding author. Asia-Pacific Center for Security Studies, Honolulu, Hawaii, Fax: 808 971-8949
E-mail: wirsingr@apcss.org; jasparroc@apcss.org

bNational Security Studies, USMC Command and Staff College, Quantico, VA, USA

Received 14 November 2005; accepted in revised form 16 February 2007

Abstract

This article examines the reasons for the stalled river resource diplomacy that exists among the South Asian region’s four main co-riparian states (India–Pakistan in the west; India–Bangladesh–Nepal in the east). It maintains that the stalemate emerges from three stubborn realities characterizing these states—first, the existence among them of fundamental differences in natural river resource endowments; second, the pressure on all of their governments to give highest priority to their own country’s river resource requirements; and third, their resolute adherence to diplomatic strategies that are in large part irreconcilable. It maintains, further, that the stalemate is unlikely to be overcome, barring a dramatic change in the way the region’s river resources are conceptualized and managed. This means, concretely, that these states would have to abandon their current almost exclusively unilateralist inclinations in favor of bilateral or even multilateral approaches that were significantly more trans-boundary, integrated or “river basin” in focus. It warns that the continued festering of un-addressed river resource disputes between these states—between India and Pakistan, India and Nepal, and India and Bangladesh—is bound to retard rational river resource development in the region, stiffen the antagonism already apparent in their bilateral relationships and, inevitably, weigh heavily against hopes for expanded regional cooperation.

Keywords: Baglihar dam dispute; India–Bangladesh relations; India–Nepal relations; India–Pakistan relations; Indus Waters Treaty; Teesta river dispute; Trans-boundary river conflict; Water scarcity; Water security

doi: 10.2166/wp.2007.014

© IWA Publishing 2007
Introduction

Water wars, it has been claimed, have been exceedingly rare in the earth’s history (Wolf, 1998; Iyer, 2003: 197–207). In modern times, however, bitter rivalry over river resources has been a constant in international relations and in some regions, for over a half century in the case of South Asia, it has undeniably been a chronic source of severe interstate discord.

Much of South Asia currently faces rapidly escalating problems of acute river resource scarcity. Already, the region’s escalating water resource problems have triggered a rash of intrastate (inter-provincial) river resource battles, at times leading to bloodshed, especially in India and Pakistan. Inevitably, it has also intensified interstate disputes over the management and control of the region’s shared river resources. This has led, in turn, to a growing demand in the region for intensified government efforts to resolve these disputes through diplomacy. So far, however, government efforts in this regard have been fairly tepid and diplomatic gains, correspondingly, fairly meager. Any expectation, therefore, that cumulative river resource sharing agreements—whether bilateral or multilateral—might lay the foundation for more pacific interstate relations among the region’s habitually feuding co-riparian states appears at least premature if not entirely misplaced.

This article examines the reasons for the region’s stalemated river diplomacy. It maintains that the stalemate emerges from three stubborn and mutually reinforcing realities characterizing the region’s co-riparian states—first, the existence among them of fundamental differences in natural river resource endowments; second, the pressing need felt by all of their governments to secure the benefits of river resource development for their own country’s rapidly mounting national requirements; and third, their almost uniformly resolute adherence to diplomatic formulations, strategies and objectives that are in large part incommensurable and, therefore, irreconcilable. It maintains, further, that the stalemate is unlikely to be overcome barring a dramatic change in the way the region’s river resources are conceptualized and managed. This means, concretely, that these states would have to abandon their current almost exclusively unilateralist inclinations in favor of bilateral or even multilateral approaches that were significantly more trans-boundary, integrated or “river basin” in composition. It warns that the continued festering of un-addressed river resource disputes—between India and Pakistan, India and Nepal, and India and Bangladesh—is bound to retard rational river resource development in the region, stiffen the antagonism already apparent in these states’ bilateral relationships and, inevitably, weigh heavily against hopes for expanded regional cooperation.

---

1 Other analysts have lined up on the gloomier side of this issue, however, arguing that whatever may have been the past history of water conflict, the rapid proliferation of “water-stressed” areas and populations around the globe augurs a more violent future (Gleick, 1993).

2 The India–Bhutan water resource relationship, which has led to extensive joint development of Bhutan’s considerable hydropower potential, has developed in an essentially non-confictive, indeed overwhelmingly cooperative, manner over the past decade and it has thus been excluded from consideration in this rivalry-focused article. Given Bhutan’s treaty-based quasi-protectorate status vis-à-vis India, not too much should be made of this relationship’s “lessons” for India’s other regional neighbors in regard to mutually beneficial inter-country cooperation.
River resource insecurity

Water resources include, of course, both ground and surface (mainly river) water, fed in South Asia by both snowmelt and rainfall. In a tiny handful of countries, where desalinated water from the sea comprises a significant part of the nation’s water resource stockpile, it too should be included. For the purposes of this article, however, the focus of discussion is on river resources, for it this component of water resources that is most problematic in interstate relations: rivers visibly cross international boundaries, river basins frequently overlap nations and the uses river water is put to in an upper riparian state almost always affect the quality and/or quantity of water available to the lower riparian.

Six of the eight states presently on the rolls of the South Asian Association of Regional Cooperation (SAARC)—India, Pakistan, Bangladesh, Nepal, Afghanistan and Bhutan—are co-riparians: India, Afghanistan and Pakistan share the waters of the Indus river system; India, Nepal, Bhutan and Bangladesh share the Ganges–Brahmaputra–Meghna (GBM) system. With the possible exception of tiny Bhutan, water resource scarcity is a fact of life in all of them. This does not mean that scarcity is uniform in the region. On the contrary, enormous spatial variations exist from one sub-region to another in each of these countries—the northeast Indian states, for instance, generally having an abundance of water, India’s three western states of Punjab, Haryana and Rajasthan having far too little; and there are huge seasonal variations as well—the extraordinary discrepancy in water availability between the wet and dry seasons in Bangladesh being perhaps the most conspicuous example. Equally a fact of life in most parts of South Asia is the rapid decline in per capita availability of water resources, largely a product, of course, of the region’s relentless demographic growth. Responding to the imperatives of expanding populations, the region’s governments have promoted major changes in agricultural practice—in particular, a shift to high yield varieties of food grains requiring water-intensive cropping patterns that have led, in turn, to still more vociferous demands for enlarged water storage and irrigation capacity. Thus, the South Asian region is now host to a water resource demand–supply dynamic that shows increasing and increasingly worrying strain.

Precise measurement of national trends in water availability is currently well beyond the resources of South Asian governments. Enough data are available, however, to indicate quite clearly that there is a marked decline in renewable fresh water availability in the region as a whole and that the decline is currently more immediately threatening in some countries than in others. Keeping in mind that availability estimates given in annual and national figures grossly distort ground realities shaped by the temporal and spatial variations spoken of above, it is apparent that the region’s largest and most populous country, India, is clearly moving steadily closer to a danger zone in terms of water supply. Per capita availability of water in India has declined by roughly 60% over the last half-century or so and the next half-century may well witness an equally precipitous drop (Siddiqi & Tahir-Kheli, 2003: Table 4, p. 18).

---

3 In this discussion, river resources are defined broadly to include water for navigation, fisheries, irrigation, hydroelectric power generation, ecological balance and biodiversity, domestic and industrial uses. Hydropower qualifies also, of course, as an energy resource.

4 The “seeding” of clouds to induce rainfall, were it ever to become a major tool of national weather management, would undoubtedly stimulate the same sorts of distrust and hostility between neighboring states as are now witnessed in contest over the sharing of river waters.

5 The most thorough and systematic discussion of water scarcity in South Asia is by Siddiqi & Tahir-Kheli (2003).
This inescapable fact inevitably affects the thinking of India’s water planners and those entrusted with negotiating river water agreements with India’s co-riparian neighbors.

Top honors for looming water scarcity in the region probably go to Pakistan, which, at least in some estimates of per capita water availability, may be nearing the internationally set upper limit of the “water stress zone”—1000 m³ per person per year (Siddiqi & Tahir-Kheli, 2003: Fig. 1, p. 10). Anything less than this threatens to bring on ecologically, socially and politically hazardous conditions of chronic water scarcity. Indeed, Pakistan’s water resource predicament may already foreshadow a wide range of alarming, neo-Malthusian, possibilities—huge shortages of major food crops, widespread famine, desperation-driven mass migrations, worsening pollution of freshwater drinking supplies, increasing frequency of waterborne diseases and, as a byproduct of all these developments, intensifying internal strife and political instability. Pakistan’s water scarcity has prompted at least one analyst to appeal for Pakistan’s fundamental “reinvention”—based on a blueprint of changes targeted at creating “a modern, industrialized Pakistan, with less than 30% of the population working in agriculture by 2015”.

According to this writer:

To avoid the realistic prospect of large-scale famine and massive political instability, Pakistan must go through cultural and paradigm shifts—dramatically lowering its population growth rate, significantly increasing literacy and using substantially less water in agriculture. This means that the country must evolve from a feudal society mainly concerned with being food self-sufficient, to an industrial one that recovers grain shortfalls through trade and co-operation with India. (Faruqui, 2004)

Implicit in the foregoing analysis and in many other commentaries on the region’s water resource crisis is the belief that the crisis is overwhelmingly homegrown and that the remedy must be sought largely through domestic reform—in Pakistan’s case, for instance, of its feudal social structure or of its water policies that give so little attention to water conservation. Upon closer examination, however, the international river resource context of the regional crisis also looms large, not only because water problems (scarcity, flooding, embankment erosion, silting, pollution and so on) often have trans-boundary roots but also because of the potential importance of interstate cooperation in the effective management of water resources. It is in this international context, of course, that river resource diplomacy comes into play in South Asia. Indeed, there is already a substantial record of bilateral river resource diplomacy in existence between India and Bangladesh, India and Pakistan, and India and Nepal. This record contains some notable diplomatic accomplishments. In recent years, however, it is diplomacy’s failure to resolve outstanding river resource issues that is most noticeable. In the face of undeniable and mounting water resource scarcity in the region, what accounts for the diplomatic deadlock?

River resource diplomacy-I. India and Bangladesh

On 12 December 1996, representatives of India and Bangladesh signed the Ganges Treaty, a water-sharing agreement formally designated the Treaty Between the Government of the Republic of India and

---

6 For global assessments of some of the frightening trends in water resource scarcity, see Rosegrant et al. (2002), and Insights from the Comprehensive Assessment of Water Management in Agriculture (2006).
the Government of the People’s Republic of Bangladesh on Sharing of the Ganga/Ganges Waters at Farakka. The agreement ended decades of sporadic and inconclusive bilateral talks triggered by the start-up in 1961 of India’s construction of a barrage on the Ganges river at Farakka, about 11 miles west of what became, once Bangladesh achieved independence of Pakistan in 1972, the India–Bangladesh border. Designed to divert waters from the Ganges River to the Hooghly River primarily to aid desilting of Calcutta port, the Farakka barrage was commissioned in 1975. It became almost immediately a heated political issue between Dhaka and New Delhi and from then until the 1996 treaty was signed, it stood out as a major liability in their relationship. Even now, mention of the Farakka barrage in elite circles in Bangladesh is likely to prompt passionate indictments of the “Indian bully” and the treaty itself, though defended by its Bangladeshi authors as the best obtainable under the circumstances, still has plenty of fierce critics.

The 1996 treaty registered the two sides’ agreement on a water-sharing formula that would govern distribution of the waters reaching the Farakka barrage. It mentioned but did not settle the matter of augmenting the waters of the Ganges before they reached the barrage, an issue of major future importance to downstream consumers given the long-term decline in the quantity of water carried by the Ganges. The treaty was stipulated to remain in effect for only 30 years, potentially a grave weakness since it branded the agreement from the outset as an interim accord subject to eventual renegotiation. It did not apply to the other dozens of dams and barrages built upstream on the main stem or tributaries of the Ganges and neither did it apply to any of the other 53 international rivers—seven of them major streams, all of them having at least local importance—shared by India and Bangladesh. In short, it was far from comprehensive. Its merit, from the lower riparian’s perspective, could only be decided once the treaty’s utility as an initial foundation for a much larger and mutually beneficial bilateral water-sharing partnership had been put to the test. To date, the test has not been passed.

December 2005 marked the ninth anniversary of the Ganges treaty. In this nearly decade-long interval, no further water sharing agreements have been reached between India and Bangladesh. Negotiations have been held in regard to only one other shared river, the Teesta, without any apparent progress towards an agreement. On the subject of diplomatic stalemate, the Teesta river’s record deserves examination.

Teesta River diplomacy

The Teesta River flows southward from its Himalayan headwaters through the Indian states of Sikkim and West Bengal, crosses into northwestern Bangladesh, eventually joining the Brahmaputra River in its onward journey to the Bay of Bengal. In terms of volume of water, it is Bangladesh’s fourth most important river (after the Brahmaputra, Ganges and Meghna). India was the first to construct a major diversion dam on the Teesta—the Gazoldoba barrage, located about 60 km north of the Bangladesh border. Commissioned in the late 1980s, it feeds huge irrigation projects in northern West Bengal, both to the east and west of the river. Bangladesh finished phase I of its own, considerably smaller, diversion dam/irrigation project on the Teesta—the Teesta Barrage Project (TBP)—in 1998. Beginning about

---

20 km south of the border with India, the TBP is by far the largest of Bangladesh’s irrigation projects and its only major gravity irrigation project. Its irrigation command area embraces 111,406 hectares of land.

It is readily visible to anyone visiting the TBP that the project’s impact on agriculture—and consequently on the lives of the millions of rural Bangladeshis who live within its command area—has been simply enormous. What was drought-afflicted, sandy and partially barren land in pre-TBP days now has all the signs of enhanced productivity and prosperity that adequate water can bring. At harvest time, grain-heavy rice plants make a stunning display in mile after mile of green and fertile fields. Project engineers boast of a tripling of per acre rice production and of a tenfold decrease in the cost to the farmers of TBP (river-supplied) compared with tube-well (ground water-supplied) irrigation. With surface water irrigation, the TBP area now boasts two full rice harvests per annum, plus another for pulses and vegetables.

Project engineers also speak, however, of persistent water shortages at the height of the dry planting season (February–March) and of the looming threat to the TBP “miracle” posed by what Bangladeshi water experts insist is India’s increased diversion for its own use of the Teesta’s flow at Gazoldoba barrage. Since an ambitious phase II of the TBP, upon which construction began in 2005, envisions roughly a quintupling of the project’s command area and a definite increase in water demand, these fears are not easily swept away.

On the positive side, there already exists between India and Bangladesh a fairly elaborate bilateral institutional framework in which to conduct serious examination of the Teesta and other river resource issues. The governments of India and Bangladesh constituted the Joint River Commission (JRC) in 1972, one of the first bilateral steps they took in the immediate wake of the 1972 Indo-Pakistan war that established the independence of Bangladesh. As a statutory body that is mandated to schedule routine (at least twice yearly) ministerial-level meetings of the heads of the two countries’ water resources ministries, the JRC was intended primarily as a political forum for working out a host of river resource issues, with small, permanent, expert-staffed secretariats in each country to assist. To date, it has met a total of 36 times, most recently in Dhaka in mid-September 2005. This last meeting was its first in two years, the last having been in September 2003. In 1997, the JRC constituted a Joint Experts Committee (JEC), whose task was to work out sharing arrangements on all the common rivers between India and Bangladesh—an objective referred to in Article IX of the 1996 Ganges Treaty. The secretaries of water resources of each country head the JEC. Convened seven times since its founding, most recently in January 2005, the JEC has identified seven major rivers where sharing was crucial—the Teesta, Dharla, Dudhkumar, Monu, Khowai, Gumti and Muhuri. A third and still lower institutional subgroup—the Joint Technical Group (JTG)—was formed in January 2004. It has met four times since then.

From the Bangladeshi point of view, the proliferation of bilateral subgroups has done more to thwart progress on water sharing than anything else. India’s tactic, according to a senior Bangladeshi member of the JRC in Dhaka, is simply to “kill time”—deliberately to delay negotiations by devolving discussion to increasingly lower levels of decision making, where neither policy guidance nor political clout is to be found. In his judgment, since there have already been 33 years of “study” of the Teesta

---

8 Both the authors of this article visited the Teesta Barrage Project in northern Bangladesh for four days in May 2005. Technical data on this project was provided to the authors at that time by Mohammad Abul Kalam, Superintending Engineer, Bangladesh Water Development Board (BWDB), Rangpur Division.
river, there is simply no point in arranging for yet more studies of it. What is minimally needed, he insists, is an interim sharing agreement\(^9\).

Coming to any such agreement is, however, far from simple. In 1983, at the 25th meeting of the JRC, India and Bangladesh did reach an *ad hoc* agreement on the Teesta. The agreement gave India 39% of the water, Bangladesh 36%, leaving the remaining 25% unallocated or “for the river”. Valid up to 31 December 1985, it was further extended to 31 December 1987. It was entirely a paper agreement, however, never implemented. Moreover, of precisely what—or how, when, or where—these percentages were to be taken was never specified. Bangladesh, according to officials in Dhaka, currently claims 20% of the dry season flow for the river, the balance (80%) to be split evenly (40/40%) by India and Bangladesh. This has been resisted by the Indian side, which maintains that 85% of the Teesta’s command area, the agricultural land served by the river, is in India and only 15% in Bangladesh (Kumar, 2005). The water, say the Indians, should be shared on this basis. The Indian formula, promoted in meetings of the JEC, has been to leave 10% of the dry season flow to the river, with the remaining 90% split 17% to Bangladesh, 83% to India. This converts to a dry season formula of 10% for the river, 75% for India, 15% for Bangladesh—a formula that Bangladesh water experts, taking into account not only the precedent-setting implications of any such formula, but also the country’s future needs for sustaining fisheries, navigation, biodiversity, domestic fresh water supply and future industrial uses, consider unacceptable. Not to be found wanting in resourcefulness, Bangladesh water officials have responded to the Indian formula with an imaginative one of their own. It proposes that a new concept—that of the Teesta Dependent Area (TDA)—be factored into the water-sharing formula. According to this reconceptualization of water entitlements based on space satellite imaging of earth contours and other physical aspects of the Teesta catchment area, Bangladesh emerges with a TDA of 1,800,000 hectares and India with only 1,100,000 hectares. Needless to say, this novel approach has not won any followers on the Indian side of the border.

At the JRC’s 36th meeting in September 2005, the Teesta water-sharing issue was only one of a number of contentious issues that came up for discussion. The Bangladesh delegation, led by its minister of water resources Hafizuddin Ahmed, reportedly tabled concerns about flood forecasting data exchange, India’s compliance with the 1996 Ganges treaty’s provisions promising Bangladesh its due share of Ganges water in the dry season, India’s construction of the Tipaimukh Hydropower Dam (THD) on the Barak river that feeds into eastern Bangladesh, the erosion of river banks and loss of Bangladeshi land allegedly caused by Indian revetment work on some common rivers, and India’s extremely controversial River Linking Project (RLP). The Indian delegation, led by water resources minister Priyaranjan Dasmunshi, made a transparent effort to display a renewed commitment to open mindedness and consensus building. By the end of the two-day meeting, the Indians appeared to have agreed to a major extension of lead time in regard to flood-forecasting on both the Ganges and Brahmaputra rivers and Dasmunshi went to considerable lengths in public comments to reassure Bangladeshi that the Himalayan (northern) portion of the RLP had been shelved and that India was concentrating its efforts in the foreseeable future on the peninsular (southern) portion of the project, which would have no effects on Bangladesh’s water supply. Little substantive progress, if any, was made, however, on the other issues—in particular, not in regard to sharing of the Teesta waters. Dasmunshi reportedly did express optimism in regard to the Teesta and, interestingly, suggested that the share formula ultimately adopted, given the

The stark fact that there simply is not enough water in the Teesta to meet both sides’ current needs, would have to be one of mutual sacrifice—a point Bangladeshis have been making for some time. This would seem to imply willingness to consider scaling down of claims, an unavoidable first step if the goal is an acceptable water-sharing accord.\textsuperscript{10}

The long-festering dispute over sharing of the Teesta waters takes place against the region’s forbidding backdrop, discussed above, of massive population growth, coupled with corresponding requirements for equally massive increases in production of food grains. According to a US Census Bureau’s estimate, the population of Bangladesh—a country about the size of Arkansas—is expected to exceed 204 million by 2025; by then, India is expected to reach over 1,361 million.\textsuperscript{11} Clearly, neither country can afford to take a casual view of its onrushing food grain requirements. These may be met to a limited extent with improved seeds, increased application of fertilizers and the addition of more tube wells. However, the odds are great that the governments of both India and Bangladesh will continue to depend for remedy mainly on surface water resources. It is precisely the alleged abundance of surface waters in India’s northeast, of course, that has generated a major diplomatic dispute between India and Bangladesh over the RLP.

\textit{India’s river linking project}

India’s great size—and the inescapable greatness of its water resource planning for the future—is not the least of the hurdles India and its co-riparian neighbors have to cross on the way towards mutually acceptable bilateral water accords. In India’s relations with Bangladesh, in particular, the existence of profoundly different natural river resource endowments has been a nearly insuperable obstacle to rational discussion. Nothing better illustrates this truth than the notorious RLP.

Long talked about but only converted into a major governmental commitment at the start of the present decade, the RLP had, from the Bangladesh point of view, an especially menacing character. Its scale—including unprecedented construction of river-linking and irrigation canals, with anticipated costs well over US$100 billion dollars—was massive. As described by its proponents, its Himalayan (northern) component was expected to draw upon what Indians were inclined to consider the “surplus” waters of the Brahmaputra river in order to relieve the water scarcity of India’s drought-afflicted western states. Since the Brahmaputra supplies about two-thirds of Bangladesh’s water requirements and, moreover, is considered by Bangladeshis to be already dangerously low in the dry season, this spectacular and loudly publicized plan for interbasin transfer of water resources inevitably rung alarm bells all over the lower riparian’s land.

A relatively small, mainly flat, lower riparian state, Bangladesh is in the unenviable position of being a delta for the trans-boundary GBM (Ganges, Brahmaputra, Meghna) river system without enjoying command of these rivers’ catchment areas. An estimated 93\% of the international basin of the GBM system is located outside Bangladesh. Thus, what India and the other co-riparians (China, Nepal, Bhutan, Myanmar) decide to do with the water resources found in their shares of the international basin inevitably

\textsuperscript{10} For commentary on the 36th meeting of the JRC, see Kumar (2005), Reddy (2005), Reuters (2005) and Rahman (2005).

\textsuperscript{11} Regularly updated demographic projections for all countries in the world are available from the US Census Bureau’s online International Data Base (www.census.gov).
holds consequences, potentially life-threatening consequences, for Bangladesh. Bangladeshis had already discovered this fact in the context of the dispute with India over the waters of the Ganges.

India’s diversion of Ganges waters to the Hooghly river at the Farakka barrage has unquestionably had a number of unfortunate downstream effects. These include reduced navigability of the Ganges (called the Padma once it crosses the Bangladesh border), decline in fisheries and reduced availability of fresh water supply for dry season agricultural irrigation in Bangladesh’s southwestern districts. Though very difficult to measure, the barrage at Farakka additionally bears some portion of responsibility for the steady deterioration of Bangladesh’s vast coastal mangrove forest—the Sundarbans12. Sober studies of the Sundarbans have made it abundantly clear that any substantial reduction in freshwater inflows into Bangladesh in the dry season would place in great jeopardy the delicate balance of fresh and salt water, as well as blends of nutrients, that maintain the Sundarbans’ unique, commercially valuable and wildlife rich forest ecosystem.

The Farakka barrage was constructed without any apparent regard for its probable downstream consequences, least of all as these might affect the Sundarbans. Even if the barrage builders had any serious reservations of their own, the chances that these would have an impact on the design and operation of the barrage were practically non-existent. There simply did not exist then and there does not exist now, as a geographer pointed out a few years ago, an international GBM river basin organization, or a basin-wide water management plan, or any established forum where such a plan could be developed. There simply has never been, he says, “a comprehensive perspective on the river system”. It would be useful, he advises, to think of the Sundarbans “as part of an elaborate network of hydrologic, institutional, cultural and bureaucratic systems. This ‘hydraulic’ perspective reminds us that Sundarbans resources cannot be managed or conserved independently of larger realms of water resource management” (Westcoat, 1990).

The gap that exists between an “hydraulic” perspective of this kind and the river resource perspective that seems to have been guiding thinking about the RLP is enormous. This was made apparent in May 2005 at a standing-room-only seminar in Dhaka on the “Strategic Significance of Water Resources in the Ganges–Brahmaputra–Meghna Basins” attended by both the authors of this article. Also in attendance at this seminar was the Indian high commissioner Ms Veena Sikri.

Following formal presentations at the seminar, most of which highlighted Bangladeshi fears of its neighbor’s river resource intentions, the high commissioner read a four-page prepared statement reiterating Indian positions on a number of river resource issues. Her remarks amounted to a blunt complaint about what she judged to be the exclusive, misleading and hypercritical emphasis on India in the day’s discussions. Citing Asian Development Bank statistics, she maintained that Bangladesh had a quantum of annual water resources (AWR) availability vastly greatly than India’s. “Even more significantly”, she said, “water resources utilization in Bangladesh, measured in terms of the total annual water withdrawal as a share of annual water resources, is just 1.2%, while in India this figure of total annual water resources withdrawal is 26.2% of its AWR”. Her sole reason for quoting these figures, she maintained, was:

*to emphasize that the problem in Bangladesh is not one of shortage of water resources, whether in absolute or comparative terms. The problem is really one of water resources management, of measures to augment lean season flows, of prudent ground water management, of using dredging and desiltation*

12 Ainun Nishat, Bangladesh Country Director of The World Conservation Union (IUCN), reportedly observed recently that over 60% of Sundari trees in the Sundarbans mangrove forest are dying due to rising levels of salinity. Part of the blame, he said, fell to the Farakka barrage (*New Nation*, 2005).
techniques as well as creating the water reservoir capacity necessary to overcome lean season problems while strengthening flood control measures to minimize devastation and loss of life during the monsoons.

She concluded her comments by reassuring her audience, as would Indian water resources minister Dasmunshi some months later, that the RLP was “still at a conceptual stage only” and that the government’s “primary focus with regard to inter-linking of rivers will be on the southern, peninsular rivers of India and not the Himalayan ones” (Sikri, 2005).

The responses to the Indian high commissioner’s comments by Bangladeshi attendees at the seminar combined disbelief mixed with irritation stemming, very likely, from her rejection of what has become virtual dogma among Bangladeshis—namely, that parts of Bangladesh are suffering badly from dry season water shortages brought on, in large measure, by the upper riparian’s relentless and self-serving extractions of dwindling water resources. In so far as the seminar was an accurate mirror of the two countries’ diplomatic postures, the disconnection between the high commissioner’s and the Bangladeshis’ perspectives—she placing the blame for water scarcity entirely on Dhaka’s mismanagement, they placing it all on India’s rapacious appetite for water—appeared to be nearly complete. This “dialogue of the deaf” spoke volumes about the two countries’ customary diplomatic rigidity when dealing with one another, as well as about their habit of ritually invoking irreconcilable river resource orthodoxies. Unfortunately, serious questioning by either side of the RLP’s actual motivations and real prospects was neglected, careful examination of which might have reduced the tension and resulted in a more productive exchange of views. For if a former secretary of India’s Ministry of Water Resources, Ramaswamy R. Iyer, is even half right, the interrelated ideas of “augmentation” and “interlinking” of rivers are both highly dubious and largely devoid of promise. This invariably provocative and informed commentator on water resource issues observes in “Linking of rivers: vision or mirage?”, that the RLP is more mirage than vision and more politically than scientifically driven (Iyer, 2003: 309–318) and any project contingent upon bringing the waters of the Brahmaputra to the Gangetic plain, he claims in “The fallacy of augmentation”, is highly unlikely ever to see the light of day (Iyer, 2003: 250–254).

**River resource diplomacy-II. India and Pakistan**

A stunning difference between the Indo–Bangladesh and Indo–Pakistan river resource relationships is that while in the former case there is an apparent shortage of formal agreements and persistent political pressure to produce them, in the latter case there is a comprehensive treaty—the 1960 Indus Waters Treaty (IWT)—which was deliberately designed to settle with one stroke and permanently, the matter of water sharing. The IWT accomplished this by getting India and Pakistan to consent to the permanent partitioning of the Indus river system—India winning unfettered ownership of the waters of the three eastern rivers (Ravi, Beas, Sutlej), Pakistan acquiring nearly unfettered ownership of the waters of the three western rivers (Chenab, Jhelum, Indus). Often cited as the only major bilateral agreement between India and Pakistan to have stood the test of time, the IWT is today coming under extraordinarily close, in some cases highly critical, scrutiny. There are observers on both sides of the border, of contrasting political persuasions, who complain that the treaty is out of date, that it obstructs rational exploitation of the Indus river’s resources and that it ought at least to be amended, if not entirely scrapped.

---

One reason for dissatisfaction with the IWT is that, as presently constructed, it offers very thin support to the integrated or joint development of the Indus river basin. After all, the treaty’s success, in the face of huge distrust and animosity between the two signatories, had largely to do with its abandonment of customary international norms governing internationally shared rivers. In particular, it discarded the norms protecting the downstream country’s traditional uses of the river waters, in place of which it offered geo-physical partition of the river system itself. This formula was conceivable only in the unique geographic and political circumstances of the Indus basin. The division of the waters, in its own way, represented the “unfinished business” of the subcontinent’s 1947 territorial division. In the judgment of B. G. Verghese, one of India’s most frequent commentators on river resource issues and an advocate of “joint investment, construction, management and control” of the three western rivers “allocated to Pakistan but . . . under Indian control”, Article VII (on future cooperation) and Article XII (a provision allowing for agreed modification of the treaty) provide ample license for constructing what he calls an Indus-II “on the foundations of Indus-I”. Indus-II, he says, should “be fed into the current peace process as a means both of defusing current political strains over Indus-I and insuring against climate change. It could reinforce the basis for a lasting solution to the J&K (Jammu & Kashmir) question by helping transform relationships across the LoC (line of control) and reinventing it as a bridge rather than merely as a boundary-in-the-making” (Verghese, 2005a).

Verghese’s colleague and longtime collaborator at New Delhi’s Centre for Policy Research, Ramaswamy Iyer, disagrees. According to him, the existing IWT is poorly designed for the kind of Indus II that Verghese proposes. The IWT, he argues, “was a negative, partitioning treaty, a coda to the partitioning of the land. How can we build cooperation on that basis?” If a new relationship between the two countries on the Indus is desired and Iyer indicates he is in complete agreement with Verghese on that, then “a totally new treaty will have to be negotiated; it cannot grow out of the existing treaty . . .” That undertaking, he suggests, would face enormous complications. “Perhaps,” he concludes, “it would be better to leave things as they are and hope that with improving political relations, a more reasonable and constructive spirit will prevail in the future than in the past” (Iyer, 2005a).

A second reason for dissatisfaction with the IWT is that, in practice, the treaty favors one side over the other. Pakistanis hold that they gave up more water than they gained, that the diversion of Indus river waters required to compensate for the loss to India of the three eastern rivers has inflicted heavy ecological penalties upon Pakistan and that—worst of all—India’s retention of the right to “non-consumptive” uses of the three western rivers presents Pakistan with the endlessly frustrating and ultimately futile task of guarding its water resources against Indian poaching14. Indians, in turn, hold that it is their side that gave up too much water in the 1960 treaty and, moreover, that Pakistan has made it virtually impossible for India to exploit effectively the non-consumptive uses, the production of hydropower in particular, allowed to them on the western rivers15.

Nothing better illustrates this dimension of the debate over the IWT than the current diplomatic wrangling between the two countries over the Baglihar dam.

15 According to Verghese (2005b), on virtually every one of the 27 occasions since signing of the IWT when India has passed information to Pakistan, in accord with treaty provisions, on planned withdrawals or construction on the western rivers, Pakistan has raised objections. In his view, “the objective has been political and the motivation to delay, if not deny, progress that primarily benefits J&K”.

Diplomacy of the Baglihar Dam

The Baglihar hydropower dam is located on the Chenab river in the Doda district about 110 km east of the Pakistan border in the Jammu division of the Indian state of Jammu and Kashmir. Currently, construction is said to be somewhere between one-third and one-half complete. The dam, when finished, will rise to 144.5 m and have an installed capacity of 450 MW (900 MW when a second phase power station is built). The Baglihar is one of eleven reported major hydroelectric projects that India has identified in Jammu and Kashmir, nine of them on the Chenab (Waslekar, 2005: 58). Along with two others, the Wullar dam (officially labeled by Indians the Tulbul navigation project) and Kishenganga hydropower project, the Baglihar dam project is presently the focus of intense diplomacy between India and Pakistan. Two rounds of formal bilateral talks on the Baglihar, first in June 2004 and then in early January 2005, failed to reconcile their positions on the question of the dam’s conformity to the restrictions set forth in the treaty’s extraordinarily detailed annexes and appendices. In mid-January 2005, Islamabad invoked the arbitration provisions of the IWT, the first time this had happened in the treaty’s history, and requested the World Bank, the formal “guarantor” of the treaty, to appoint a neutral expert. A Swiss hydrologist, Raymond Lafitte, was appointed in May 2005, visited the site of the dam in early October 2005, and submitted to the Indian and Pakistani governments his long-awaited final report—the findings of which, in accord with the treaty, are final and binding on both sides—on 12 February 2007.

16 This section relies in part on interviews with Indian and Pakistani government officials, including key participants in the Baglihar talks, conducted by one of this article’s authors in Islamabad and New Delhi in April and September 2005. The interviews were generally conducted on the basis of non-attribution.
17 The IWT provides for multiple levels of conflict resolution. At the start-up of any project it plans to construct on the western rivers, India is required to provide Pakistan with advance notice, including detailed plans and design. Pakistan has the right to raise questions about any aspect of the project. The “question” may be settled at either the level of the Indus River Commission, a treaty-authorized body consisting of two commissioners, one appointed by each side, or at a higher-level inter-governmental meeting. Failing agreement at that level, a “difference” is said to exist (the situation that now obtains in regard to the Baglihar), a condition warranting the World Bank’s appointment of a neutral expert. The neutral expert’s task is strictly to determine whether or not the project design conforms to the treaty provisions. The next level, at which a “dispute” is acknowledged to exist, would require appointment by the World Bank of a Court of Arbitration. As the treaty’s guarantor, the World Bank’s role is that of go-between: it does not have any enforcement powers.
18 Lafitte’s report, as of this writing, has not been made public. Informed but speculative commentary about it, including private assessments by government officials given to one of the authors during a recent visit to the region, indicate that his final determination in regard to the dam’s conformity with the IWT, though it conceded some ground to the Pakistani side on some of the objections it had raised to the dam’s design, clearly upset knowledgeable Pakistanis far more than it did the Indians. Though some observers held that Lafitte’s decision, since it represented the successful implementation of the arbitration provisions of the IWT, stood as a rare and hopeful marker of India-Pakistan cooperation, others, including the present authors, interpreted it in less sanguine terms. The conspicuously modest alterations to the dam’s design called for by Lafitte, and his insistence on attaching more weight to the dam’s efficient and cost-effective operation (the heart of the Indian side’s argument) than to its strict adherence to the IWT’s detailed provisions aimed at restricting New Delhi’s ability to control the river’s flow (of uppermost concern to Pakistanis), seemed more likely than not to add fuel to existing tensions over the future of Indus river waters. For a mix of the South Asian region’s pre-decision newspaper commentary on the Baglihar dam dispute, see Iyer (2005b), India Daily (2005), Ali (2005), Akhlaque (2005), Parsai (2005), Institute of Peace & Conflict Studies (2005) and J&K Insights (2005) at www.jammu-kashmir.com/insights/insight20050101a.html.
The dispute over the Baglihar is technically complex. To simplify a bit, the Pakistanis have raised three key sets of technical objections to the design of the Baglihar dam. One set of objections relates to the dam’s storage capacity, a second to the power intake tunnels and a third to the spillways. As for the dam’s storage capacity, Pakistani officials call attention to the treaty’s allowance of only “run of the river” dams. Such dams are by definition non-storage dams—in other words, power is generated from normal river flow, the tapping of running not dammed water. In practice, Pakistanis concede, some storage is essential (and is explicitly authorized by the treaty): there is, after all, considerable (especially seasonal) variation in the flow of rivers, a fact that necessitates installation of sufficient storage to enable stable, efficient operation of the hydroelectric plant on a regular, year round basis. What Pakistanis object to, on the one hand, is the 144.5-m height of the Baglihar dam, which they say exceeds by nearly 100 m what they are prepared to accept as a run of the river project and, on the other hand, the size of the live storage, or pondage, that a dam of this height allows. According to the Pakistanis, the pondage area at Baglihar is not consistent with the treaty, which was concerned above all, as they see it, with preventing India from exerting control over the western rivers’ flow.

As for the power intake tunnels, the Pakistani objection is both to the fact that there are two of them, which they say is not permitted by the treaty, and to their position—not high enough according to the Pakistanis, who once again are concerned to minimize Indian discretion when it comes to the discharge of waters. The higher are the power intake tunnels, the less is the opportunity for them to be used to release large quantities of stored water.

Much the same reasoning accounts for Pakistani objections to the design of the spillways. Baglihar’s spillways are gated, which Pakistanis have argued was unnecessary, and the gates, say the Pakistanis, reach lower (32 m below the effective top of the dam) than they should. Once again, the issue is one of Indian control of the stored waters: ungated spillways or shorter spillways, as Pakistanis see it, are more in conformity with the treaty.

Pakistani officials maintain that the Baglihar’s design supplies India with the means, on the one hand, economically to squeeze, starve or strangle Pakistan, or, on the other hand, to flood Pakistan, perhaps for military purposes. They argue, moreover, that the Baglihar dam has huge precedent-setting importance: for Pakistan to compromise on Baglihar, they say, would set a precedent that India could invoke whenever it liked elsewhere on the Chenab or Jhelum rivers. A trickle of Pakistani deviations from the treaty today, said one senior Foreign Ministry official, could become a flood of them tomorrow.

Pakistani officials also cite the Baglihar’s political importance. It is, they concede, an extremely sensitive domestic political issue. The government’s political foes demand to know why it took so long to protest about the matter to the World Bank. “Baglihar is a politically painful matter for Islamabad”, admitted one Pakistani official. Baglihar and other Indian hydroelectric projects, say the Pakistanis, are also extremely useful tools that New Delhi uses to win the political support of energy-deficit Kashmiris, and to drive a wedge between Kashmiris and Pakistanis. Additionally, Pakistanis point out, the Baglihar case effectively tests the thus far untested arbitration mechanism in the treaty’s Article IX. The treaty is Pakistan’s lifeline to the waters of the western rivers. The likelihood exists that its arbitration provisions will be invoked much more often in the future.

Asked to characterize Indian negotiating strategy, Pakistani officials asserted that it was: (1) one of delay, of foot-dragging, of “tiring you out”, (2) of “creating facts”, of proceeding with construction plans, even when aware that the plans might well violate the treaty, so that Pakistan, confronted eventually with a fait accompli, would have no choice but to cut its losses and accept an unfavorable
compromise settlement\(^{19}\) and (3) to insist on a bilateral framework of talks, without intending ever to settle on any but India’s terms.

Indian officials naturally have a rather different “take” on the Baglihar. Its design, they contend, is fully in compliance with the treaty. Notwithstanding Pakistani objections, Baglihar, according to them, is a run of the river dam. India has built nearly 20 such dams, they point out and neither the Baglihar’s height nor storage capacity disqualify it for designation in this category. The Pakistanis, say Indian officials, are deliberately obstructionist and willfully interpret the treaty in an excessively restrictive manner. Their raising of objections to Indian projects, they say, is compulsive and ritualistic and not based on impartial assessment of the facts. In truth, they say, the treaty’s language is quite flexible, allowing adjustments that take advantage of modern dam engineering technologies.

Pakistani objection to the positioning of the power intake tunnels, for instance, ignores the treaty provision specifying that they should be constructed at the highest level consistent with sound engineering. Sound engineering, they say, requires construction of intake tunnels to maximize the “water seal”—the elimination of air from the tunnel, which was an important element that went into the design decision. Likewise, Pakistani objection to the gated spillway was “absurd”. Himalayan rivers, a senior Indian official pointed out, carry enormous quantities of silt, far more than one generally finds in rivers in the West. Gated spillways, lower positioned gated spillways in particular, are essential to flush the silt-laden waters through the dam. Otherwise, the silt bombards the wall of the dam, falls to the bottom and swiftly builds up sediment on the river floor—a development that modern dam builders seek to thwart in order to prolong the useful life of the dam. In the view of Indian officials, the treaty authors could not possibly have intended that hydropower projects built in 2005 should be designed to conform to technologies in use in the 1950s.

Indians also argue that Pakistani anxieties about India’s acquiring the ability to shut off the flow of water downstream, posing a threat to the economically vital farmlands of Punjab, have no basis in reality. Whereas Pakistanis claim that it would take a full 26 days to refill the Baglihar in the dry season, once its live storage had been drained off, giving Indians ample time to disable the Punjab’s largely river-fed irrigation system. The Indians contend that the process of refilling would take no more than 19 days—not enough time, as they see it, to throttle their neighbor’s agricultural economy\(^{20}\)!

Two reasons for dissatisfaction with the IWT have been considered here—first, that, as a postscript to the region’s territorial partition, it offers very thin support to the integrated or joint development of the Indus river basin and second, that the treaty, in practice, favors either one side or the other. In the case of the Baglihar dam, for instance, Indians have ineluctably been led to view the treaty mainly as an impediment to be artfully bypassed in the drive for increased hydroelectric power. These two reasons are brought together with a third, still more disturbing, reason in an unusually provocative book, *The Final Settlement: Restructuring India-Pakistan Relations*, brought out by the Mumbai-based Strategic Foresight Group in 2005.

This third reason for dissatisfaction is that the treaty, though highly unlikely to be abrogated by India, offers only a very frail defense against heightened conflict over river resources between India and

\(^{19}\) This notion, that time and circumstance are generally on the side of the upper riparian and that the lower riparian can be strategically maneuvered into cutting its losses (and accepting an unfavorable outcome), is a central argument in Mirza (2005), Chapter 1: “Theoretical framework”, pp.6–47.

\(^{20}\) One consequence of the devastating earthquake that struck Pakistan and India on 8 October 2005 was the generation of second thoughts about the quake-resistance of the Baglihar dam. On this see AsiaInt Economic Intelligence Review (2005a).
Pakistan and that it is only a matter of time before a water war becomes a virtually unavoidable feature of the region’s political environment. In a chapter entitled “Water” and with the subtitle “The secret”, The Final Settlement holds that water has been central to the Kashmir dispute from the beginning, that the public debate over Kashmir—focused on lofty goals of self-determination and human rights (and not on Islamabad’s self-interest in water security)—has always been discreetly steered away from this fundamental fact21 and that Pakistan’s mounting water insecurity virtually ensures a still deeper and volatile nexus between water and Kashmir in the coming years. The book cites as evidence frequent unofficial Pakistani expressions of interest in recent years in a so-called Chenab formula of conflict resolution, according to which Jammu and Kashmir would be further partitioned, with Pakistan being granted the Kashmir Valley and a substantial (and Muslim majority) portion of Jammu, enough to give it command of the Chenab river. The Chenab, in The Final Settlement’s view, is the ultimate prize, possession of which by Pakistan would virtually end its water woes: with the 1960 treaty effectively terminated, Pakistan would be able to develop the Chenab’s potential to the maximum, not only in terms of storage dams for irrigation but also for hydroelectric power and flood control. This, according to the book, has in recent years been the latent objective of Pakistani diplomatic and political activity relating to Kashmir (Waslekar, 2005: 47–53, 73–78).

Most disturbing, from The Final Settlement’s perspective, is that what Pakistanis feel they must have, Indians will never give up. The Chenab river is clearly not for sale. This could have dire consequences. “The treaty” according to The Final Settlement:

has engendered a vicious cycle. Lack of trust between India and Pakistan forced the bifurcation of the Indus River basin. As the gap between water availability and requirements widens in Pakistan, its desire to intensify jihadi operations will grow. Agricultural development will be affected, which in turn will produce a stratum of unemployed youth willing to service terrorist groups. This in turn would aggravate the mistrust and hostility between the two countries. This vicious cycle of depleting resources spawning unemployment and fueling terrorism is feared to intensify in the near future (Waslekar, 2005: 68).

The perhaps oversimplified correspondence between water availability and terrorism in The Final Settlement’s analysis should trigger some skepticism about its arguments. It is not alone, however, in calling attention to the potentially severe security implications of the region’s water resource rivalry. Echoing some of the gloom implicit in the above quotation, a senior Pakistani diplomat told one of the authors of this article: “Water has become the core issue between India and Pakistan . . . [As a result,] India–Pakistan relations will retain [in future] the same level of tension [as they now have]”22.

Using words reminiscent of the appeals by Verghese and others for greater India–Pakistan collaboration in the development of the Indus basin’s water resources, The Final Settlement does finally end on a positive note. “An alternative approach to the Indus treaty issue” it says:

21 “To the outside world,” the book observes, “it is projected that Pakistan is supporting a struggle for self-determination for the people of Kashmir. Within the closed-door precincts of General Headquarters in Rawalpindi, Kashmir has a different meaning” (Waslekar, 2005: 59).
22 Interview, Islamabad, 7 April 2005. Identity withheld on request.
could be an integrated development plan for the conservation of the Indus Basin. The plan, to be jointly developed by India and Pakistan, would involve a creative solution to the political dimension of the conflict in Jammu and Kashmir.

It is imperative for both India and Pakistan to envisage comprehensive development and planning in the [Indus] River Basin. A holistic approach to water resources—recognizing the interaction and economic linkages between water, land, the users, the environment and infrastructure—is necessary to evade the impending water crisis in the subcontinent . . . .

The integrated development approach is Utopian. It is only possible with a paradigm shift in mindset and complete end to hostilities, both physical and psychological (Waslekar, 2005: 79).

To say the least, the recommended “integrated development approach” offers very little encouragement. One must wonder if it is, in fact, a viable alternative. We will return to this issue in the concluding section of this article.

**River resource diplomacy-III. India and Nepal**

For four readily apparent reasons—Nepal’s standing as upper riparian to India, its great wealth of river resources, its seemingly enormous but largely untapped hydro-power potential and the absence from the diplomatic agenda with India of water-sharing issues—the India–Nepal river resource relationship is fundamentally distinct from both the India–Pakistan and India–Bangladesh relationships. In the latter two instances, the lower riparians, especially Bangladesh, have been bound by circumstances—India’s ability to “create facts” on upstream waters is one of them—often to find themselves in the role of unwilling supplicants at the bilateral bargaining table. River resource diplomacy between India and Nepal, in contrast, has focused over the years primarily on hydroelectric power projects, and only secondarily on irrigation and flood control. Nevertheless, these two states have also assembled a fairly dismal diplomatic record, justifying this relationship’s inclusion in an examination of the reasons for diplomatic deadlock 23.

This deadlock, in the face of Nepal’s impressive hydropower potential, India’s no less impressive hydropower requirements and Nepal’s ranking among the bottom 10% of the world’s poorest countries in terms of per capita income, appears baffling, at least on the surface. As for hydropower resources, Nepal’s theoretical hydropower potential (83,290 MW of installed capacity) places it well below India’s identified potential installed capacity of 148,700 MW24. More or less confirmed or realizable potential in Nepal is much less (about 48,000 MW), but still impressive. In sharp contrast, Nepal’s current installed hydropower capacity is only 600 MW and there are no major hydropower projects, public or private, currently being implemented that have realistic prospects of boosting that figure by much.

At the same time, India’s electric power requirements are rising astronomically. The gap between these requirements and India’s installed capacity of all kinds (thermal, nuclear, hydro and so on) grows steadily larger. To close the gap and also to achieve an overall more desirable power mix—shifting away


24 For a useful review of India’s current hydropower resources, see Hydropower Development (2005), Indian National Hydropower Association (INHA) online, at: http://www.indiahydro.org.
from coal-based power generation, in other words—an enormous expansion in hydropower generation is envisaged. As of the end of January 2005, India’s total installed power generating capacity stood at 115,544 MW. Thermal resources (coal, oil, gas) accounted for 80,201 MW, hydro for 30,135 MW, nuclear for 2,720 MW, and wind for 2,488 MW (Raina, 2005). Plans call for raising hydropower’s share of the total to 40%. Scores of new hydropower projects will have to be built to achieve this objective.

In spite of a situation that appears ideal for mutually beneficial India–Nepal collaboration in the energy sector, very little progress has been made on the several hydropower projects that have been under discussion between New Delhi and Kathmandu for decades. The Mahakali Treaty, for instance, was signed in 1996. Hailed as a milestone in India–Nepal relations and a flagship agreement that would give a quantum boost to India–Nepal water resource relations, this treaty incorporates agreements on three projects—two of them old (the Sarada Barrage dating from 1920 and the Tanakpur Barrage dating from 1992) and one of them new (the Pancheswar Multipurpose Project/PMP). The PMP, which includes plans for a high dam with installed capacity greater than 6,000 MW, codifies principles that some authors consider “extremely valuable”—in particular: “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)” (Salman & Uprety, 2002: 116). Nearly a decade following signing of the treaty, the two governments have still not finalized a detailed project report (DPR) on the PMP, without which the project remains grounded.

A senior official in Nepal’s Ministry of Water Resources told the authors of this article that he was somewhat encouraged by a visible “attitude change” on the part of the Indian representatives at a formal meeting he attended in New Delhi in October 2004, a consequence, he thought, of the Indians’ recognition that India would fairly soon be joining the ranks of water deficit states—indeed, that by 2030 the latest India would be classed as a “water stress country”. He conceded, however, that these were the first talks held by the two sides in four years (though the two parties are committed by formal agreement to meet every six months) and that there had not been implementation either of the Mahakali Treaty nor of planned India-led projects on the Kosi, Gandaki and other rivers.

What accounts for the protracted delay? Ramaswamy Iyer has identified four main reasons for this:

1. the mistrust and suspicion that have governed their relations for many years;
2. Nepali apprehension about committing so much of the country’s scarce resources to such gigantic projects;
3. mounting environmental and humanitarian concerns associated with big dams; and
4. the existence of doubts in the minds of some Nepalis about the wisdom of pursuing prosperity via “large-scale centralized generation of hydro-electric power for export” (Iyer, 2005c: 19–20).

To these four should be added others—the inertia and indifference of both the Indian and Nepali bureaucracies, for instance, and the large investment risk factor arising from a decade of Maoist

---

25 There are about 230 hydroelectric power projects presently operating in India with installed capacity more than 3 MW. About 400 additional projects, with an aggregate installed capacity of around 100,000 MW, are yet to be developed.

insurgency in Nepal. Undoubtedly also among the reasons for inaction is a curious difference in the way Indian and at least some Nepali officials calculate the price India would pay for a kilowatt hour of electric power supplied by a hypothetical Nepali dam. In round table discussions and meetings with government officials in Kathmandu, the authors of this article heard over and over again the Nepali contention that Indians should compensate Nepal, not just for the electricity delivered, but also for the additional “downstream benefits” of the water itself. “Regulated” water, they said, as opposed to un-dammed water, brings a host of uncompensated benefits to India, including irrigation, flood control, improved navigation and fisheries and even increased tourism. These things, say some Nepalis, should be factored into the compensation calculus along with the electricity.

Important, too, in an assessment of diplomatic inaction between Nepal and India with regard to hydropower, is the fact that development of Nepal’s river resources is by no means the only option open to India. For one thing, India has vast, as yet largely untapped, hydropower potential of its own, especially in the northeastern part of the country. Developing its own hydropower resources will, of course, require huge capital outlays—a fact that could lessen enthusiasm for trans-border investment in Nepal. For another, New Delhi appears poised to realize a substantial portion of its energy aspirations through nuclear power output, which it aims to triple to 20,000 MW by 2020. The Bush administration’s decision to lift restrictions on India’s nuclear program, announced in July 2005, could be just the “energy multiplier” India has been looking for. Reportedly, the nuclear deal will permit India to build 40 new reactors in the next 15 years (Larkin, 2005).27

Inevitably, Indian water resource officials come to negotiations with Nepalis at best with mixed feelings. This fact has blocked cooperative development of all but relatively small-scale hydropower projects. Since India is at the present time Nepal’s only significant potential customer for hydropower sales, whose agreement to the terms governing any major project would thus inevitably be a sine qua non for interested foreign investors, this is a troublesome finding.

Beyond diplomatic deadlock?

In all three cases considered in this article, there are enormous impediments to getting beyond diplomatic deadlock. One such impediment is that the river resource circumstances of these countries are vastly different, giving rise to differences in overall perspective and in the choice of negotiating strategies, as well as in the kinds of remedies for undoing the deadlock that they will support. These circumstances include the obvious fact that some of these states enjoy upper riparian status, others do not. They also include the fact that some of these countries possess far superior river resources, affecting both the sense of urgency they bring to the bargaining table and the kinds of leverage they can apply to the other party. While India, for instance, occupies the less favored position of lower riparian when it comes to Nepal, its vastly greater size and wealth, together with possession of abundant river resources of its own, enable it nevertheless to entertain options for meeting its hydropower needs other than collaboration with Nepal. So far, in any event, India has been able to drag its heels in regard to river

27 Still, India’s energy needs are legendary, and no single source seems set to meet the demand. In the year ending 31 March 2005, peak power demand in India exceeded supply by 12%. India may have to add 90,000 MW of power by 2012 (only a few years down the road) merely to maintain economic growth at the current rate of about 7% per year (AsiaInt Economic Intelligence Review, 2005b).
resource collaboration with Nepal without inflicting visible irreparable damage on itself. Nepal, of course, has only one viable option for collaboration—India, and if India fails to collaborate, Nepal is very likely to suffer damaging consequences.

A second impediment noted in the above discussion is the pressing need felt by all four governments to nail down the benefits of river resource development for their own country’s rapidly mounting national requirements. In light of demography’s alarming potential for outrunning river resource development, this behavior is not surprising. It is, nevertheless, a major hurdle for diplomacy to cross. Only Nepal, of the four countries studied, appears to be shielded by its abundant river resources from the inexorable tides of water scarcity. However, its government has arguably been even less successful than the others in developing its river resources extensively enough to keep pace with the country’s rapidly rising development requirements. Its miniscule installed hydropower capacity and routine power outages stand as eloquent testimony of that. As for the other three countries, Pakistan seems to be taking the lead on the road to water-stressed status, although India and Bangladesh cannot be too far behind. Reticence about sharing water resources inevitably lurks in the shadows.

As for the third impediment to getting beyond diplomatic deadlock—these countries’ almost uniformly resolute adherence to essentially incommensurable and, therefore, irreconcilable diplomatic formulations, strategies and objectives—there is very little encouraging news in the foregoing discussion about diplomacy’s prospects for triggering greater river resource cooperation in the region. Unilateralism is everywhere in the saddle and bilateral water resource initiatives, even when, as in the case of the Indus treaty, they have been functioning for decades, seem almost invariably overwhelmed by competing diplomatic agendas—by rival political and strategic objectives, in other words, that are ill-suited to accommodation and compromise. In the west of the subcontinent, New Delhi, with one eye trained on India’s mushrooming energy requirements and the imperative for the country to shift some of its needs to hydroelectric power, stretches the meaning of run of the river dams almost to the breaking point at Baglihar. Islamabad, in turn, keen to maintain both its ownership of the western rivers and the integrity of the Indus treaty, strives to repeat at Baglihar its earlier success in stopping in its tracks India’s Wullar barrage scheme. Construction on that project, defended by India as a flood control scheme and attacked by Pakistan as a storage dam, was stopped in 1987 and remains still suspended today in spite of repeated efforts by India to overcome Pakistan’s objections (Soofi, 2005). In the north, New Delhi, being inclined to invest heavily in hydropower development abroad only when it authors the terms and the investment is secure, as in Bhutan, dangles the prospect of bilateral cooperation before Nepalis but obdurately drags its heels when it comes to implementation. Kathmandu, dogged by extreme poverty, unchecked population growth and, until recently, a dangerous insurgency, in its turn strives to convert its hydropower resources—at India’s expense—into an engine of national development. And in the northeast, New Delhi, driven politically to cater first to the bottomless needs of its own West Bengali and Assamese citizens and, at the same time, to keep open its options in regard to tapping the water resource riches of its northeast, plays for time, while Dhaka, painfully conscious that Bangladesh may have little time remaining in which to resolve its water problems, presses hard for river resource agreements.

In the face of these sobering conditions, the advice of many observers that the region should move swiftly toward an integrated and comprehensive plan for the joint management and development of its international river basins seems utterly devoid of realism. That was, of course, the recommendation of the Strategic Foresight Group with regard to the Indus basin in its small book, The Final Settlement, namely that India and Pakistan must set aside their differences and agree to cooperative management and development of their shared river resources. That recommendation, as the book explicitly acknowledged, is flatly utopian and highly unlikely to be adopted in the foreseeable future.
It is tempting, then, to settle for much less—to side, instead, with Iyer, who argues that doctrinaire or uniform prescription of a “regional”, “integrated” or a “basin-wide” approach to river resource management, while attractive in principle, must contend with the fact that not even the countries in the region advocating this approach subscribe unreservedly to it. In its place, Iyer advocates:

relatively smaller, less conflict-prone and more easily manageable projects; the protection of water sources (rivers, lakes, mountains, forests, aquifers) from pollution, degradation or denudation; the preservation and regeneration of deteriorating wetlands (e.g. the Sunderbans); improving and maintaining water quality; dealing with common problems such as drainage in the Indus basin in both India and Pakistan, or the occurrence of arsenic in aquifers in both India and Bangladesh; coping with floods and minimizing damage; sharing experiences in local water-harvesting and watershed development and in the related social mobilization and transformation: these are among the areas in which inter-country cooperation will be very fruitful and in some instances very necessary. Such cooperation can be at the level of governments, NGOs, academic institutions, ‘think tanks’ or ‘people-to-people’. Such possibilities have not received the attention they should have (Iyer, 2003: 248–249).

The prospects of even this “small steps” approach do not seem to the authors of this article to be especially bright. In some ways, it is as if the South Asian region were caught in a geopolitical time warp—floundering, in other words, in a dizzying whirlpool formed of competing national imperatives profoundly ill-suited to the region’s material needs—that precludes even modest measures of interstate cooperation. This is maddeningly disheartening because such measures, by themselves, clearly do not offer much promise of coping adequately with the region’s raw statistics of demographic growth, water resource scarcity and ecological degradation. While these statistics do not provide irrefutable evidence that the region is on the cusp of political chaos, much less of “water wars”, they do seem to point firmly in the direction of grave, in some instances catastrophic, problems that loom in the region’s not too distant future. These problems, hurtling towards the region like a driverless locomotive, are virtually bound to dilute prospects—possibly massively to dilute them—for improving the lives of the region’s peoples. They would seem to require correspondingly massive remedial strategies to relieve them.

We conclude, unfortunately, on an uncertain note, dogged by doubt that the region’s political leaders will be able to summon the courage, the imagination and the resources to go beyond diplomatic deadlock—indeed, to go beyond small steps and to tackle the region’s mounting river resource problems with a level of commitment more equal to the challenge.

Acknowledgements

Comments received from James Rolfe and funding support from the Asia-Pacific Center for Security Studies (APCSS) and the USAF Institute for National Security Studies (INSS) are gratefully acknowledged. Judgments expressed in this article are those of the authors and should not be attributed to the APCSS, the US Pacific Command, the US Department of Defense or any other agency of the US government.

References

AsiaInt Economic Intelligence Review (2005a). Region: dam plans shaken by quake claims. Asia Intelligence Service online, 19 October (http://www.AsiaInt.com).
AsiaInt Economic Intelligence Review (2005b). India powers up. Asia Intelligence Service online, 19 October (http://www.AsiaInt.com).
Sikri, V. (2005). Summary of Comments by Mrs. Veena Sikri, High Commissioner of India at Bangladesh Institute of International and Strategic Studies Seminar on May 9th 2005 (copy supplied courtesy of the seminar organizers).
Vergheese, B. G. (2005b). Fuss over Indus-I. India’s rights are set out in the treaty. The Tribune (Chandigarh), 25 May.