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THE INCONVENIENT TRUTH:
RESPONDING TO PAKISTAN'S
WATER CONCERNS & CHALLENGES

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IPCS Discussion Paper



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The Inconvenient Truth Responding to Pakistan's Water Concerns & Challenges¹

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Pakistan has for the past two or three years expressed increasing concern over discernable manifestations of national water stress turning into water scarcity. While population growth, attendant water demands and climate change pose challenges, the current focus of public and political discourse stems from a "trust deficit" revolving around allegations of willful manipulation of Pakistan's lifeline through serial violations of the Indus Water Treaty by India, the upper riparian. This has aroused deep fears and emotions about desertification and taken on an even more menacing character with its induction into extremist jihadi rhetoric voiced by supposedly proscribed terrorist elements.

The challenge of bilateral Indo-Pakistan and wider South Asian water relations even going beyond the IWT was the foremost item of discussion at a two day bilateral dialogue organised by the IPCS at the Bentota beach resort, south of Colombo in Sri Lanka on June 8-9, 2010. Three senior Pakistani experts attended and, with other delegates, made the case for Pakistan. The Indian side responded to these statements.

Pakistan's grievances, broadly stated, were as follows:

Partition gave 21 river basins to India and only one, the Indus, to Pakistan. Thereafter, whatever the water allocations under the 1960 Indus Water Treaty (IWT), India had somehow used its status as upper riparian to manipulate outcomes to the disadvantage of its lower riparian neighbour.

More specifically, Pakistan was not given timely information about the designs of Indian projects on the three Western rivers allocated to Pakistan, as mandated, but was left to "discover" them in due course. Parameters such as the spillway design, dam height, power intake levels and so on had a bearing on India's ability to "interfere" with or "control" stream flows to Pakistan in violation of the Treaty. Reference was made to such problems in relation to the still-disputed Wulur barrage, Baglihar, Kishenganga and other schemes. Requisite sediment and ecological data was not forthcoming. Baglihar's backwater effect had been understated while the flow data for the Kishenganga was found to have an inexplicable "break". Filling of the Baglihar pond in 2008 had overshot the permissible period ending August 31 by some days. Therefore, if misunderstandings and misperceptions were to be avoided and overcome, there must be transparency.

Overall, per capita water availability in Pakistan had gone down to 1100 cubic metres, with 1500 cu m being the marker for water stress, and would soon fall below the threshold of "water scarcity" at 1000 cu m per capita. The current population of 170 m was rising rapidly and unlikely to stabilize before touching 300 m.

In other words Pakistan had three levels of concern: an unfair partitioning of waters per se ab initio; manipulative use of the 1960 IWT by India as the upper riparian, leading to misappropriation of water; and future concerns arising out of population growth and climate change, going beyond the IWT to embrace South Asia.

The first is a matter of geography and is best left at that. The IWT concerns expressed for a knowledge of the Treaty and an understanding of its detailed and complex provisions. It was signed in 1960 and

¹ This essay was presented originally in an IPCS Track II Dialogue in Sri Lanka during June 2010

provided for a transitional period of 10 years within which a system of replacement works and storages would be completed in Pakistan to render it independent of headworks and flows from India. Since the political climate did not permit the great Indus canal network to continue to be managed and developed as a single integrated system, it was partitioned. The three Eastern Rivers (Sutlej, Beas and Ravi) were allocated in full to India, barring some tiny, traditional Ravi diversions for continued use by West Punjab. The latter, in turn was allocated the entire flows of the three Western rivers (Chenab, Jhelum and Indus) less certain limited consumptive uses by India in its part of J&K. These uses would permit India to expand irrigation in J&K to 1.34 million acres and to harness 3.60 MAF of water as conservation, flood and hydro storage, broken down by main rivers and tributaries.

Thus some 80 per cent of the roughly 169 million acre feet (MAF) average annual flow of the Indus was allocated to Pakistan and 20 per cent to India.

Without going into the minutiae of its grievances, the outstanding and unchallenged fact is that Pakistan has been regularly and consistently receiving its full entitlement of Indus waters. Indeed, it is also receiving an annual bonus of four to six MAF from India's entitlement. This is because India has not been able to irrigate more than about 800,000 acres in J&K while it has created no storage capacity as virtually all its hydel generation comes from run-of-river projects. At the same time, the Punjab-Haryana water dispute and the yet incomplete India Gandhi (Rajasthan) Canal command allows some part of the country's eastern rivers entitlement to flow to Pakistan. In fact, this is specifically acknowledged in Pakistan's 20-25 year long term national water perspective prepared in parallel by parliamentary and technical teams around 2003-04. The forecast was that some of this Indian cushion or "surplus" would continue to be available to Pakistan in the foreseeable future, until 2025-30.

This is the inconvenient truth and tallies with the jointly compiled and recorded figures of the two Indus Commissioners. Confirming this, the Pakistan Foreign Minister, Shah Mehmood Quereshi, told the Express-24 TV Channel (Islamabad) in an interview on April 2, 2010 that "The total average canal supplies of Pakistan are 104 million acre feet. And the water available at the farm gate is about 70 MAF. Where does the (remaining) 34 MAF go? It's not being stolen in India. It's been wasted in Pakistan".

Pakistan, like India, is a wasteful water user though the productivity per unit of Indus water used in the Bhakra command is almost double that across the border. Both sides are weak on integrated water management and Pakistan suffers from high water losses, drainage problems, water-logging, salinity and mineralization of groundwater. It lacks adequate storage to husband "surplus" monsoon flows, partly as a result of inter-provincial disputes, so familiar to India, and because of a dearth of storage sites on the three main Western rivers. There is a problem here; but it is unrelated to the Indus Treaty or Indian machinations.

Islamabad's complaint of delays by India in furnishing designs of its proposed projects on the Western rivers appears plausible if not seen in perspective. Projects once mooted, take time to conceptualise and get all the clearances and closures required before construction can commence. This could take years. The IWT stipulates in Paragraph 9 of Annexure D, Part 3, relating to "New Run-of-River Plants", that "to enable Pakistan to satisfy itself that the design of a Plant conforms to the criteria mentioned in Paragraph 8, India shall at least six months in advance of the beginning of the construction of river works, communicate to Pakistan in writing information specified in Appendix II to this Annexure". (Emphasis added). The datum line is therefore, six months before "construction of river works", not necessarily earlier. The mere mention or even announcement of a proposal does not constitute a datum line. Proposals are routinely amended, refined or even dropped and premature communication of preliminary "design concepts" could lead to endless argument on something that falls far short of a ready-to-construct project whose parameters have been frozen.

It would appear that the datum line is being confused in popular and political imagination. The Kishenganga project is a case in point. An older proposal to construct a storage dam with 900 MW installed capacity was converted into a run-of-river project with a smaller hydel capacity of around 330 MW in view of local objections to displacement and submergence. Pakistan's proposed Neelum-Jhelum project has undergone a similar metamorphosis. But even if there is no timely disclosure of design information by India, Pakistan has recourse to the IWT's dispute resolution mechanisms to preclude any potential mischief, including reference to a neutral expert, as happened over Baglihar, or to a Court of Arbitration, as Pakistan has sought in the case of Kishenganga. There is no question of India presenting Pakistan with a *fait accompli* and this has never happened.

The positioning and level of under-sluices (to flush out silt), gated spillways and turbine intakes have all to be located at the highest level "consistent with sound and economical design and satisfactory construction and operation of the works". These safeguards are provided to prevent India "controlling" or "interfering" with natural river flows over and beyond the strict design parameters mutually determined. Likewise, the extent of freeboard provided as a defence against storm surges, common to Himalayan valleys which can generate their own micro-weather, aberrant rainfall and landslides, must be reasonable in the context of location and valley geometry.

In the case of Baglihar, the Neutral Expert agreed to a slight lowering of the freeboard and some raising of the level of the outlets as sought by Pakistan though not to anything like the extent demanded. In coming to this decision, he ruled that design parameters such as for sediment exclusion and control could not be frozen at the levels of technology prevailing in 1960 and that it was both prudent and proper that advances in technology and construction be taken into account. The Neutral Expert travelled and consulted widely to establish current construction and design parameters around the world and took note of the new technologies employed in Pakistan itself in giving his Baglihar award. Earlier, an impulsive "concession" to accommodate similar Pakistani demands relating to raising the silt exclusion outlets in the Sallal project in the 1970s resulted in that dam silting within two seasons. That remains a cautionary tale.

Another tale hangs on the Baglihar award. The raising of the outlets and spillway gates was to create a problem at the time of the Baglihar filling in 2008, which coincided with a poor hydrological season that resulted in that operation only being completed two days beyond the stipulated date. Raising the outlet level meant that there was no way to release water through the dam until the pond filled to a pointy where the outlets could be activated. Pakistan has complained bitterly that the Chenab ran dry, desertification followed and a whole agricultural season was ruined. This is a poetic exaggeration. India was technically at fault and has expressed regret. The matter was formally closed at the last meeting of Indus Commissioners in June 2010.

Secondary power projects (to tap the full flows of the river during the flush season) are permitted under the Treaty and hence it was something of a surprise that Pakistan should object to Uri-II on the Jhelum. Fortunately, the last meeting of the Indus Commissioners in Lahore not only gave closure to the Baglihar filling controversy but also to the 240 MW Uri-II and the 44 MW Chutak project on the Suru river near Kargil. Differences on the 45 MW Nimoo Bazgo hydel project on the Indus near Leh await resolution. What this shows is that the IWT dispute resolution mechanism of the IWT is not ineffective.

More the disappointment then that Pakistan has been in a hurry to refer the Kishenganga issue to arbitration. This could be an expensive and time-consuming proposition and could entail a standstill on both the Kishenganga and Neelum-Jhelum projects until the matter is settled. This would do neither party any good with cost escalation and the opportunity cost of delay.

The conflict here revolves around Pakistan's claim that the Kishenganga Project not merely violates the IWT but also preempts or does injury to its own Neelum-Jhelum irrigation-cum-hydel (NJ)

project lower down the same river which becomes the Neelum in PAK before falling into the Jhelum near Muzaffarabad. The Indian project entails tunneling Kishenganga flows eastwards into the Vale of Kashmir via a nullah that empties into the Wulur lake through which the Jhelum passes as it flows west and then south to PAK and Pakistan. None of this conflicts with the IWT which permits diversion of waters from tributary to parent river provided the water is returned to the main river within seven days. Further the Wulur is defined as a “connecting lake” through which the Jhelum flows as a single continuum.

It is Pakistan’s contention that the Kishenganga diversion will reduce the flows on the basis of which the NJ project has been designed, affecting both the irrigation and hydel potential. Moreover, the river will run dry for some distance below the Indian dam and thereby cause ecological harm. The Indian response is that the Kishenganga will not run dry below its dam as some ecological flows will be permitted and the river is joined by other mountain streams above the NJ site. Furthermore, there is no restraint on India diverting flows from a tributary stream to the extent that “the then existing” agricultural or hydel uses by Pakistan “shall not be adversely affected”. (Annexure D, Section 15.3). So what is expressly protected is not any new use but “then existing uses” which Pakistan in this case has been unable to explain or defend satisfactorily. Here too, the India and Pakistan datum lines matter with reference to the “then” in “then existing uses”. When does history begin?

In all the 60 years of the IWT it has been for Pakistan to query and tease India. Now for the first time, Pakistan has with respect to the NJ project been required to explain and justify its propositions and finds itself floundering.

India’s Tulbul project to build a flood retention barrage at the point where the Jhelum exits the Wulur lake, in order to revive traditional timber-floating and navigation along this stretch of the river up to Baramula, has been stalled for 18 years. Pakistan describes the proposed barrage as impermissible under the Treaty. India says the project will only regulate the seasonal flood filling of the Wulur lake within its banks and release these waters gradually through the lean season, generating some power and maintaining a reasonable draft. It will also act as a silt trap for all projects downstream, including Uri Pakistan’s Mangla dam, and, incidentally, improve the power output of these projects.

Pakistani critics and others too have sometimes argued that run-of-river pondages and associated dead storages are Treaty violations. This is not so and these are specifically provided for. “Dead storage” refers to a standard, permissible silt trap below the operating level of a pondage or reservoir. “Pondage” in turn relates to a relatively modest and temporary water holding required to generate peaking power morning and evening and then left to fill twice a day during the intervening hours. Several “pondages” do not a storage make. Pondage essentially represents a temporarily interrupted non-consumptive flow that is returned to the river diurnally. “Dead storages” also do not store water other than hold an initially filling. Yet critics have seen increasing pondages as capacity creation to do harm to Pakistan by suddenly drying up the river or causing floods downstream.

These are fanciful theories though urged by responsible people like the late Zulfikar Ali Bhutto who saw Sallal as a weapon of war or a potent means of jeopardizing civil or food security by manipulating releases. Manipulating Baglihar in order to dry up or flood the Chenab in Pakistan would mean first devastating the populace, habitation and infrastructure in the intervening 150 km portion of J&K before the river enters Pakistan. The idea is bizarre and violative of the Geneva Convention and would put India in the wrong worldwide for absolute no gain whatsoever. The so-called military danger to Pakistan from this kind of “water war” is still doing the rounds. It constitutes a form of hate speech which merely sows distrust.

What is astonishing is that Pakistan has thus far failed to articulate its real problem with regard to the IWT. The Treaty allocates the three Western rivers to Pakistan barring some Indian uses in J&K. But the fact is that Pakistan has no access to the upper Indus catchment which lies in Indian-controlled J&K. Mangla and Neelum-Jhelum constitute its sole storage sites on the Jhelum. The upper Chenab,

with a far larger water and power potential, is exclusively under Indian control. Pakistan has some storage sites on the Indus (Kalabagh, Bhasa-Di Amer and Katzara remain) but these are problematic. India, in turn, is entitled to store a meagre 3.60 MAF on the three Western rivers but has been able to store nothing in 60 years in the face of Pakistani obduracy. This is obviously an unsatisfactory state of affairs for both sides.

Article VII of the IWT, "Future Cooperation" holds the key. The Treaty notes that the partitioning of the Indus basin was a sub-optimal solution. The Article states that "the two Parties recognize that they have a common interest in the optimum development of the rivers and, to that end, they declare their intention to cooperate by mutual agreement to the fullest possible extent" Such cooperation could extend to hydrological, meteorological and other observations and exchange of data, drainage works, and to "undertaking engineering works in the Rivers" by mutual consent.

If India cannot use its 3.60 MAF entitlement in the Western rivers and Pakistan lacks access to these headwaters, then surely a marriage should be arranged as provided for in Article VII. The requisite surveys and studies have not been done, but the three Western rivers, and the Chenab in particular, have a power potential of possibly 20,000 MW and a storage potential of maybe anything up to 10-15 MAF or more which could augment lean season flows. The terms of cost-benefit sharing would of course have to be negotiated but should not present an insuperable problem.

The Manmohan-Musharraf package on J&K envisages making boundaries irrelevant and the creation of joint, overarching structures to manage a growingly cooperative relationship. Dr Manmohan Singh has gone further and spoken of joint cooperation in the management of the land, water and other natural resources of J&K. Nothing would give more credible meaning to this concept than a new water relationship based on Article VII, or Indus-II. Whatever strengthening of the framework and structure of the Indus Commission may be required to under take such Future Cooperation and basin management can be incorporated by mutual agreement. Indeed such a development could be a powerful lever for promoting reconciliation and progress on both sides of the LOC in J&K to the lasting benefit of all its people and giving impetus to the larger Indo-Pakistan peace process.

Such a solution, valuable in itself, becomes imperative in the context of climate change which respects neither borders nor treaties. Glacier melt in the Himalaya, Karakoram, Hindu Kush region may offer a temporary sense of water plenty in the near future but could soon be manifested in reduced flows. This trend could be aggravated by the melting of the Tibetan permafrost and corresponding changes in the land-moisture-temperature regime in the northern Tibetan rangelands that, with the HKH mountains, constitutes a global weather-maker influencing the timing and pattern of the South Asian monsoon. All this calls for holistic research between India, Pakistan, Afghanistan and China through the aegis of ICIMOD in Kathmandu, of which all these nations are members, SAARC and other bilateral and basin arrangements.

Climate change need not necessarily mean less rainfall but aberrant weather with huge, episodic events that could cause torrential storm surges, sediment wash and the formation of glacial or debris dams, causing enormous damage unless monitored and managed. Debris dams and glacial lake outbursts are already on the increase and current danger threatens in the possible topping and breaking of a huge debris dam in Hunza where a landslide created a huge artificial lake that has submerged part of the Karakoram Highway. Several villages have been evacuated and a "spillway" sought to be constructed on the "dam" face. But should the dam burst, the effects could be felt far downstream and a massive deposition of silt could occur in the Tarbela reservoir, reducing its life by many years.

The Indus Treaty ranks among the most successful international treaties and has, despite hiccups, worked well. It is itself fruit of an earlier long-drawn peace process and should not be thoughtlessly by-passed or needlessly politicized for collateral reasons or reduced to fodder for jihadi rhetoric. That

would be a most dangerous twist to the tale. Chapter VII offers the key to new hope and mutual progress. Should not we too take the road less travelled? That surely could make all the difference.