

INTRODUCTION

Water is the essence of life, sustaining every being on this planet. Water is an inherent component of human security thereby linking it to national security. It is intrinsically linked to the growth and development of a country. Unfortunately, water distribution around the globe is unequal. The water/river basins cut across political boundaries making some countries water abundant and some water scarce. Even within the country availability of water is uneven leading to intra-state political and armed conflicts.

Water is a finite resource. Rapid population growth, industrialization and increased agricultural use have intensified the stress on the water management. Climate change is worsening the situation significantly. Progressive urbanization has affected natural water harvesting and political will is required to rejuvenate and maximize the nature's way of storing the water for humanity. Water demand in many countries will exceed supply by 40 per cent within next 20 years. The scarcity of water will lead to a set of consequences such as reduction in food production, loss of livelihood, large scale migration within and across the boundaries, increased economic and geopolitical tensions. Over time, these effects will have profound impact on humanity. Water is becoming a prime factor in determining the course of international relations. After oil, water may be the next strategic commodity leading to strategic outcomes.

In most of the countries, the agriculture sector is the predominant consumer of water. In developing countries over 80 percent of the water is used for agricultural needs. Large and small scale dams have played crucial role in poverty alleviation, providing food security and as a source of employment. Water is also extensively used for domestic, industrial and recreational purposes. Any depletion in the water resources can cripple the economic and development growth of a nation.

Water is not a surplus resource that can be traded. However it is used in agricultural production to produce commodities which can be exported. The

international trade in water intensive imported commodities is so effective that the impact of the substantial water deficit is not registered by the millions people living in water scarce regions. In other ways, many nations while they import food are also importing water.

Water is also associated with clean energy. Hydro power is a cheap and clean source of energy. With rapidly increasing demand for energy, hydro power will play a major role in energy production. Countries sitting on major water sources will be at a greater advantage. The management of rivers takes place in a complex political and economic framework. Part of the problem stems from the fact that riparian countries have different priorities and plans and also because of their differences on other issues. The upstream countries may want to dam water to generate electricity, or divert for agricultural purposes. Some may be confronted with rapid population growth or urbanization that demands more water than they have used in the past.

While regional impacts may vary, global climate change will potentially alter agricultural productivity, quality and quantity of freshwater availability, coastal and island flooding and more. The consequences will be challenges to political relationships, realignment of energy markets and regional economies and threats to security.

India shares rivers with Pakistan, Nepal, Bangladesh, Bhutan and China. Relations with India's neighbours are punctuated by strain and tension over many issues including water. Differences over the use of the rivers have the potential to derail the efforts in maintaining peace and stability in the region.

Water will continue to be a catalyst for war and peace. Scholars like Thomas Homer-Dixon believe that there is no direct link between water scarcity and violence. Instead inequality, social exclusion and other factors determine the nature and ferocity of strife. Unequal power relations within states and conflicts between ethnic groups and social classes will be the greatest source of social tensions rising from deprivation. Water often treated

as a commodity might be used as an instrument with which one population group can suppress another.¹

There are societal (politics, economics and culture) and natural (water quantity, water quality and ecosystems) forces which have to be managed concurrently. This makes water resource management an important aspect of bilateral as well as multilateral relations to maintain peace.

In this context, the Centre for Security Analysis organized a lecture by R Ramaswamy Iyer, former Secretary, Water Resources, Government of India on “India's Water Relations with her Neighbours” on 30 August 2011 in Chennai to create greater awareness of water related issues and its place in India's relation with her neighbours. He is an expert and architect of the progressive and scientific water policy for India. Mr Iyer has worked on water related issues in particular on cooperation on river waters by India, Nepal and Bangladesh. He was a member of High level Expert Panel on Water, an adjunct to the UN Secretary General's Advisory Board on Water and Sanitation. He is widely known for his scientific and futuristic thinking in internal water management within India. The CSA is pleased to publish Mr Iyer's presentation

Lt Gen V R Raghavan
President
Centre for Security Analysis

¹ Thomas F Homer Dixon, *Environment, Scarcity an Violence*, (Princeton, New Jersey: Princeton University Press, 1999)

INDIA'S WATER RELATIONS WITH HER NEIGHBOURS

Ramaswamy R Iyer

I am very grateful to General Raghavan and Brigadier Srinivasan for inviting me here and asking me to address this distinguished gathering.

I spoke first on this subject at the United Services Institution at New Delhi in 2007 and lectured at universities and research institutions in the USA on it in 2008, but those lectures are out of date. Later developments call for fresh writing, and that is what I have done for the present occasion. Incidentally, if you happen to see in the bookshops a book with the same title by a person called Rockin Th Singh, please note that I have nothing to do with it. The author has borrowed my title and has also borrowed some chapter headings and text from my books, but that is another story.

The expression 'water relations' in my title may have struck some of you as odd. I thought of that term on the analogy of the terms 'political relations', 'economic relations', 'cultural relations', etc. When I say 'neighbours', I am referring only to the countries in the sub-continental mainland. The water systems of island countries such as Sri Lanka and Maldives are not connected to those of the mainland. I shall therefore be mainly concerned with India's water relations with Pakistan, Nepal, Bhutan and Bangladesh. Further, I shall be concerned largely with the northern part of the subcontinent where the different countries are linked together by the Himalayan rivers.

The area that I have specified has a monsoonal climate; and the Himalaya is its principal water tower. Rainfall is seasonal and is received in three months in the year, within which again, the intensity is concentrated in a few weeks. Precipitation varies from very low (100 mm or less) in the extreme west to very heavy (more than 11000 mm) in the extreme east. Correspondingly, conditions change from arid in the west to very wet in the east. However, a large part of the west is watered by the Indus system. Periodical floods and droughts are experiences common to all the countries in the subcontinent; the pressure of a growing population is another feature common to these countries; and all of them have embarked on paths of 'development' as that term is currently understood.

The area in question is straddled by very large river-systems the Indus in the west and the Ganga-Brahmaputra-Meghna in the east. They link the countries together, but they also divide them. Differences arise over the use of and control over the waters, particularly through (present or planned) structures such as dams or barrages; those differences become conflicts; and often get resolved through Treaties and Agreements. These are important elements in inter-country politics and loom large in the public consciousness. I shall talk about these first, and refer to certain other perspectives at the end.

Pakistan

Let me begin with Pakistan. Without going into the developments and processes that led to the signing of the Indus Treaty in 1960, let us note that the Treaty is internationally regarded as a successful instance of conflict-resolution between two countries that have otherwise been locked in conflict. That favourable view of the Treaty was by and large shared until recently in India and Pakistan as well, but there has also been a measure of dissatisfaction with the water-allocation in the Treaty in both countries, and the operation of the Treaty has been characterized by a series of differences. Should we regard the Treaty as a success or a failure?

The Treaty certainly settled the water-sharing dispute, and it has managed to survive four wars. In that sense it must be regarded as a success. However, many in India feel that the allocation of 80 per cent of the Indus waters to Pakistan and 20 per cent to India was a very unfair settlement; and many in Pakistan argue that the territories that went to India under Partition were historically using less than 10 per cent of the Indus waters, and that the Treaty was generous to India in giving it 20 per cent of the waters. The arguments on both sides are fallacious, but there is no need to go into them. When prolonged inter-country negotiations by teams acting under governmental briefings leads to a Treaty, and the Treaty is approved and signed at the highest levels, it must be presumed that it was the best outcome that could have been negotiated under the given circumstances; either side is then precluded from saying that it was unfair, unequal, poorly negotiated, etc.

A more important criticism of the Treaty is that it carried out a surgery on the river-system, dividing it into two segments, one for Pakistan and one for

India. It can be argued that dividing the river-system into two segments was not the best thing to do, and that the better course would have been for the two countries jointly to manage the entire system in an integrated and holistic manner. However, given the circumstances of Partition and the difficult relationship between the two newly formed countries, it would have been naïve to expect that such a joint integrated cooperative approach would work. If the best course is unavailable, then we have to settle for the second best; that is what the Treaty represents.

We now come to the crucial question: if the water-sharing has been settled, how do differences arise? The answer is that the differences are not about water-sharing, but about certain design and engineering features of Indian projects on the western rivers. The Treaty allocates the eastern rivers (Ravi, Beas and Sutlej) to India and the western rivers (the Jhelum, the Chenab and the Indus itself) to Pakistan, but it allows India a limited use of the waters of the western rivers, including the generation of hydro-electric power, subject to certain fairly stringent technical conditions and stipulations. Whether or not those conditions have been complied with in a given case is a question on which differences can and do arise. The technical divergences between the two sides were doubtless rendered more intractable by the bad political relationship between the two countries over a long period, but the likelihood of differences was inherent in the nature of the Treaty. The density of technical detail in the Annexures and Appendices to the Treaty provides ample opportunities for differences among engineers. Further, the Treaty is both *permissive* and *restrictive* towards Indian projects - particularly big projects - on the western rivers. India tries to use the *permissive* provisions to the full whereas Pakistan tries to apply the *restrictive* provisions stringently. The two countries are thus pulling in two opposite directions. This leads to a permanent tug of war in the Indus Commission. The argument about each project goes on endlessly. Thus, though the Treaty did resolve the water-sharing issue, it created a potentially adversarial situation in relation to the Indian use of the western rivers.

Under the engineering differences lies a deeper factor. As the lower riparian on the Indus system, Pakistan tends to look with anxious eyes at any attempts by India to build structures on the western rivers. Structures give

control, and Pakistan is reluctant to agree to India acquiring a measure of control over rivers that stand allocated to Pakistan. It is apprehensive of the structures in question enabling India either to reduce water-flows or to release stored waters and cause floods. Its objections are thus partly water-related and partly security-related. A military view of Indian structures on the rivers, of which General Musharraf was a strong exponent, complicates the water relations. The Indian position is that the security fears are misconceived as India cannot flood Pakistan without flooding itself first; that its capacity to reduce flows to Pakistan is very limited; and that the record of the last half-century gives no basis for any such apprehensions.

Besides, the only circumstance in which Pakistan can be completely free from anxiety would be the total absence of any structures in India on the western rivers; but that is not what the Treaty says. It permits such structures, subject to conditions that would take care of Pakistani concerns. Pakistan did accept the permissive provisions and signed the Treaty, and India of course accepted the restrictive provisions. It follows that what Pakistan can ask for is conformity to the Treaty: that would give Pakistan the protection that it seeks. The fact of the matter is that Pakistan is fundamentally unreconciled to the very idea of Indian projects on the western rivers.

An important political dimension to these differences is that the projects are located in Jammu and Kashmir. Pakistan can hardly be enthusiastic about facilitating projects which are in what it regards as disputed territory, and for the benefits of which the credit would go to India. Hence the stalemate. Pakistan did at one stage let one project, namely Salal, proceed under certain conditions; that has not happened in the case of other projects, for whatever reason.

The crux of the matter is that under the Treaty the western rivers are for Pakistan. India has only limited rights on those rivers and cannot undertake projects on them without providing all the details to Pakistan and dealing with Pakistan's objections. Why did India put itself in that position? The answer is that if Pakistan got the near-exclusive allocation of the three western rivers, India for its part got exclusive rights to the eastern rivers. This was important for India. If the Ravi, Beas and Sutlej had not been exclusively allocated to

India, Pakistan would have had the usual lower-riparian rights over these rivers, and would have had to be consulted about the Bhakra Nangal and Rajasthan Canal projects; and Pakistan would surely have raised objections. The projects might not have come up at all, or might have had to be substantially smaller. In a sense, one might say that the allocation of the eastern rivers to India under the Indus Treaty removed Pakistan from the picture in relation to these rivers, and facilitated the implementation of the Bhakra-Nangal and Rajasthan Canal Projects. The price paid for this was the acceptance of limited rights over the western rivers. The difficulties that this would lead to in due course, and the discontent that this would cause in J & K, were perhaps not fully anticipated.

The dissatisfaction in J&K is indeed very strong. There is a widespread feeling that while negotiating the Treaty with Pakistan, India failed to keep the interests of J&K in mind. At one stage the J&K Assembly even passed a resolution demanding the scrapping of the Treaty. While one must take note of the negative feeling about the Treaty in J&K, it is not really warranted. Indian negotiators did not ignore J&K's interests. The water-sharing by itself is only a small part of the Treaty. The bulk of the Treaty - the large and dense annexures and appendices - is about Indian projects on the western rivers, both storage and run-of-the-river. All those projects will be in J&K. Therefore, the substantial part of the negotiation was about projects to be located in J&K. How then can J&K say that its interests were ignored? What else was the negotiation about? The sense of grievance in J&K seems uncalled for.

Where do we go from here? Abrogation of the Treaty, occasionally advocated by some, does not merit serious discussion. Apart from the fact that by doing so India would incur strong international disapproval, it is not clear what India would gain by that course of action. In the absence of the Treaty, India might gain some leeway in regard to projects on the western rivers, but not absolute freedom; there would still be the requirement under international law that the lower riparian should be informed and consulted about interventions, and that significant injury should not be caused to it. On the other hand, India's exclusive rights on the eastern rivers would disappear, and Pakistan's rights as a lower riparian would be revived.

If abrogation is ruled out, should there be a re-negotiation of the Treaty, as often urged in both countries? In any re-negotiation, both Pakistan and India would try to improve their respective positions under the Treaty, and it is difficult to envisage an outcome that would be better than before from the points of view of both countries. The best course would perhaps be 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. That applies to both sides. This may appear to be platitudinous counsel, but given the complexities involved, nothing better seems available.

Can we, using the Indus Treaty as the basis, entertain visions of constructive India-Pakistan cooperation over the Indus? I doubt it. The Indus Treaty 1960 is essentially a *partitioning* treaty. The land was partitioned in 1947, and the waters were partitioned in 1960. How can we build cooperation on that basis? Article VII talks about 'Future Cooperation', but it is at odds with the rest of the Treaty. The Treaty is basically about a *division*; two isolated sentences in Article VII about 'cooperation' and about 'undertaking engineering works' cannot change the entire nature of the Treaty. Perhaps when an understanding has been reached on the Kashmir issue, and relations between India and Pakistan have ceased to be adversarial, we can think of a better Treaty on the Indus in replacement of the existing one; for the time being, it might be wiser to leave the existing Treaty as it is, and try to bring about a somewhat more constructive approach to its working.

Let us now take a brief look at two cases in which the arbitration clause of the Treaty has been invoked: Baglihar and Kishenganga. In the case of the Baglihar Project, the differences stand arbitrated by the Neutral Expert (NE) appointed in terms of the Treaty. The differences were about certain technical and engineering issues which I shall refrain from detailing. Based on its objections, Pakistan held the Project to be in violation of the Treaty. India denied the charge and gave its responses to the various points raised by Pakistan. The NE's findings, given in February 2007, did not uphold Pakistan's serious and fundamental objections, but recommended some design changes of a relatively minor nature.

Under the Treaty the NE's findings are final and binding, and the differences stand resolved, but there is a great deal of dissatisfaction in Pakistan over the outcome of the arbitration. That dissatisfaction has been reinforced by an article by John Briscoe, formerly of the World Bank and now with Harvard University. The NE is accused of 'reinterpreting' the Treaty and weakening the protection to Pakistan. When Pakistan talks about 'reinterpretation' it has three things in mind. First, in the matter of spillway gates the NE took the view that the 1960 Treaty did not bind India to 1960 technology and that India could use state-of-the-art technology; it is difficult to see how that view can be questioned. Would any engineer in Pakistan design a dam in 2007 to 1960 technology? Secondly, the NE gave equal importance to the restrictive conditions specified in the Treaty and to techno-economic soundness and satisfactory operation; again, it is difficult to see how this can be objected to, and moreover, the Treaty itself repeatedly qualifies its conditions by the proviso "consistent with sound and economical design and satisfactory construction and operation"; those words cannot be ignored. Thirdly, the NE stressed the importance of periodical flushing of the reservoir to get rid of sediment. This is what has caused the greatest anxiety to Pakistan because it seemed to weaken the protection against possible flooding. It is difficult to see how an expert engineer could have held that flushing was not necessary and that rapid silting-up must be accepted. However, there is no need to discuss this as the issue has been raised before the Court of Arbitration in the Kishenganga case, which I shall come to shortly.

The Baglihar Project is now in operation, but unfortunately a fresh difference emerged in this case in 2008 over the filling of the newly constructed reservoir. It was Pakistan's charge that in the process of initial filling India reduced the flows in the river in a manner not consistent with the provisions of the Treaty. Pakistani opinion buttressed by Briscoe's article, accused India of a deliberate violation of the Treaty with the purpose of harming Pakistan. But the fact is that there was indeed a lapse on India's part but it was a very minor one and certainly not a planned one. It was blown up by Pakistan into a huge controversy, but subsequently it was closed at a meeting of the Indus Commission, and has ceased to be an issue. I have not mentioned the technical details involved in the Baglihar case but can go into them if necessary during the discussion.

Let me turn now to the Kishenganga project. The Kishenganga is a tributary of the Jhelum. It originates in the State of J&K, crosses the LoC, runs for some 150 km in PoK, and joins the Jhelum (in PoK). India proposes to build a dam on the Kishenganga shortly before it crosses the LoC, divert a substantial part of the waters of the river through a tunnel to a hydroelectric project (330 MW, i.e., 110 MW x 3) located near Bonar Nala, another tributary of the Jhelum, and then return the diverted waters, after they have passed through the turbines, to the Jhelum via the Wular Lake. In this case, 'differences' over certain technical issues were proposed by Pakistan to be referred to a Neutral Expert as in the Baglihar Project, but this has not been actively pursued, and we need not go into those differences. However, Pakistan has also raised a 'dispute' to be referred to a Court of Arbitration, and the Court of Arbitration has been established and held a hearing.

The issue before the Court is whether the diversion of waters from one tributary of Jhelum to another is permissible under the Treaty. Art. III (2) of the Treaty requires India to let flow all the western rivers to Pakistan and not permit any interference with those waters, and Art. IV (6) calls for the maintenance of natural channels. If we go by these provisions, the diversion of waters from one tributary to another seems questionable. On the other hand, there is another provision (Ann. D, paragraph 15 (iii)) which specifically envisages water released from a hydroelectric plant located on one tributary of the Jhelum being delivered to another tributary; this seems to permit inter-tributary diversion. The correct understanding of these provisions and the determination of the conformity of the Kishenganga Project to the Treaty is a matter for the Court of Arbitration to decide.

Assuming that diversion from the Kishenganga to another tributary is found permissible, there is a condition attached: the existing agricultural use and use for hydro-electric power generation on the Kishenganga in Pakistan must be protected. There is indeed some existing agricultural use along the Kishenganga (Neelum) in PoK. Pakistan is also planning the Neelum-Jhelum hydroelectric project at a point on the Neelum before it joins the Jhelum. These claims of existing uses are contentious issues between the two countries, with reference to (a) the crucial date for determining 'existing use' and (b) the quantum of existing use.

A second issue that Pakistan has referred to the Court of Arbitration is the legitimacy of drawdown flushing of the reservoir for sediment-control. As I mentioned earlier, the Neutral Expert had recommended this in the Baglihar case. Pakistan was unhappy with that recommendation, but could not challenge it as the NE's findings were final and binding. It is now raising this as a general issue before the Court of Arbitration. Three questions arise:

- (i) Can an issue on which a NE has given a final and binding finding be raised again before another NE or a Court of Arbitration?
- (ii) If the NE's finding is applicable only to the particular project in question and not to others, should we accept the position that there can be substantially different (even contradictory) principles (laid down by different NEs) applying to different projects?
- (iii) If drawdown flushing is ruled out, then must the corollary of heavy siltation and reduction of project life (as in the case of Salal) be accepted as inevitable? If so, does this not amount to ignoring the words "consistent with sound and economical design and satisfactory construction and operation" and again "unless sediment control or other technical considerations necessitate this" in the Treaty?

These questions will no doubt be argued before the Court by the two countries. A further development in this case is that Pakistan has now moved the Court for an order to India to stop work on the project until the completion of the arbitration.

Returning from those two projects to the general state of water relations between the two countries, the new and disturbing development is that water has begun to loom large as a major issue between the two countries. A year ago, one could have said that there is no water issue because water-sharing on the Indus stands settled by the Indus Treaty 1960, but that argument does not work now. Water has become an 'issue' because Pakistan has made it one. There may be many reasons for this, and we can go into them during the Q&A session, but the important point is that water has the potential of becoming a new 'core issue' of even greater prominence than Kashmir, and calls for urgent attention.

The points that are repeatedly made in Pakistan are the following:

- (1) India is storing or diverting waters to the detriment of Pakistan. (In stronger language this becomes: “India is stealing Pakistan's water”. This has not only become a slogan of the jihadists but is often echoed by ordinary people.)
- (2) The water scarcity in Pakistan is caused (or partly caused) by Indian action.
- (3) The flows in the western rivers have diminished over the years, and India, as the upper riparian must bear the responsibility for this.
- (4) India is misusing the provisions of the Indus Treaty. Every Indian project on the western rivers is a violation of the Indus Treaty.
- (5) Even if each project conforms to the provisions of the Treaty, the cumulative impact of the large number of projects that India proposes to construct will be huge and will cause great harm to Pakistan.
- (6) Environmental concerns did not figure at all in the Indus Treaty but must now be taken into account.
- (7) A wholly new development is climate change and the impact that it will have on water. This needs to be discussed between the two countries.

Let me comment very briefly on these points.

(i) Storage/Diversion: So far as one knows, India has not built any storage, not even the 3.6 MAF permitted by the Treaty, nor does it intend to cause harm to Pakistan by diverting Indus waters. In any case, there is such a thing as the Permanent Indus Commission. How can India store or divert waters to the detriment of Pakistan under the watchful eyes of the Indus Commissioner for Pakistan?

(ii) Water scarcity in Pakistan: It is clear enough from (i) above that India has nothing to do with this.

(iii) Reduced flows in the western rivers: Assuming that this is the case, it does not follow that the responsibility for it can be laid on India. What needs to be done is to institute a joint study by Pakistani and Indian experts to establish that there is a declining trend in flows and to ascertain the factors

responsible.

(iv) Violations of the provisions of the Indus Treaty by India; every Indian project a violation of the Treaty: This is simply not true. If there are deviations from the Treaty provisions in any project, they will be questioned by the Indus Commissioner for Pakistan, and the questions may be resolved within the Commission, or become differences or disputes and get referred to arbitration, as in the Baglihar and Kishenganga cases. Where then is the question of violation of the Treaty?

(v) Misuse of the Treaty: A recent article in the Pakistani media is headed 'Misusing the Indus Treaty'. India might argue that it is only using and not misusing the Treaty, and that it is Pakistan that is misusing the Treaty to block every Indian project on the western rivers. Leaving that aside, the point is that (as I mentioned earlier) Pakistan is fundamentally unreconciled to the permissive provisions of the Treaty that enable India to construct hydroelectric projects on the western rivers.

(vi) Cumulative impact of many projects: Opinion is divided on the question whether the cumulative impact of a number of projects, each conforming to the provisions of the Treaty, could be greater than the sum of the impacts of individual projects. This is a concern that needs to be taken seriously and should be jointly studied, not merely to assuage Pakistani anxiety but also to satisfy ourselves that we are not causing serious ecological damage by constructing so many projects.

(vii) _Environmental concerns, Climate Change: These are post-Treaty developments and call for urgent inter-country consultations, not only at the governmental level but also at academic and expert levels.

The above analysis shows that while certain misperceptions need to be dispelled, joint studies are needed on (a) the reported reduction of flows in the western rivers and the factors responsible, and (b) the cumulative impact of a large number of projects on the western rivers. Inter-country consultations and research are also called for on environmental concerns and on the impacts of climate change.

However, that is not enough. Right or wrong, certain misperceptions on water persist and are widespread in Pakistan. This has serious implications for

India-Pakistan relations and for peace on the subcontinent. Persistent efforts are needed at both official and non-official levels to remove misperceptions and to reassure the people of Pakistan that their anxieties are uncalled for.

Apart from the Indus Treaty, there are other possibilities of cooperation between the two countries: for instance, on timely information-sharing on floods and cooperation on the minimisation of damage; sharing experience and knowledge on the problem of water-logging and salinity in the Indus basin; and so on. These possibilities have not been adequately explored.

Nepal

Turning to India's water relations with Nepal, Nepal as the upper riparian is not dependent on India for water, and India as the lower riparian need have no serious worries about being denied water or being flooded by Nepal. Nevertheless, there have been serious project-related differences between the two countries, and this is an important part of overall India-Nepal relations. Ideas of flood control, irrigation and hydro-power have led to the formulation of a number of large projects to be located in Nepal, such as Karnali, Pancheswar and Sapta Kosi, and these have been the subject of talks between India and Nepal for several decades. These talks have made no headway at all, because of a tangled history.

The story started in the 1950s. The Kosi/Gandak agreements of the 1950s were not inspired by any large visions of 'regional cooperation', a term that came into circulation much later; they were essentially projects conceived *by* India to meet *its* requirements or solve *its* problems, with some benefits to Nepal included. That was the way (myopic, in hindsight) the projects were designed with Nepal's agreement, but they were subsequently criticised in Nepal for conferring substantially more benefits on India than on Nepal, though this was inevitable given the relative magnitudes of cultivable areas in the two countries. The projects also suffered from poor design, inefficient implementation and bad maintenance (not to mention corruption); even what was promised was not delivered either in Nepal or in India. The Kosi/Gandak agreements, initially signed in 1954/1959, were amended in 1966/1964 to take care of Nepalese concerns, but the sense of grievance was not wholly removed. The bitterness generated by these experiences cast a long shadow on all

subsequent dealings between India and Nepal. Suspicion and mistrust grew and became a massive impediment to good relations between the two countries. The Indian handling of that difficult and complex situation can hardly be said to have been wise or sensitive. The result was that all talks between the two countries were fore-doomed to failure. The Tanakpur episode, which we need not go into here, made things worse.

A new chapter in Indo-Nepal relations seemed to open with the Mahakali Treaty of February 1996. Unfortunately, that Treaty, signed after extensive consultations with a view to avoiding the mistakes of the past, and celebrated then as a major event, remains stalled. Some differences relating to the interpretation and/or implementation of the Treaty remained and still remain unresolved, not because they are very difficult but because they are caught up in the complexities of the relationship between the two countries. The result is that the Treaty has remained a dead letter, contributing to a worsening of India-Nepal relations rather than a dramatic improvement as had been hoped.

The old acrimony was revived by the disastrous Kosi floods of 2008. They were a national calamity in India, and they affected Nepal badly too. There were some brief mutual recriminations over the responsibility for the failure of an embankment in Nepal, but the exchange of blame gave way later to talk of cooperation. Once again one began to hear talk of a high dam on the Kosi. There is no serious likelihood of agreement over any such project, but in the event of such an agreement, it will no doubt lead to further misunderstandings and a further worsening of India-Nepal relations.

We must recognise that there are two different but inter-related ambivalences in Nepal: an ambivalence about India and an ambivalence about large projects for the generation of electric power for export. On India, there is on the one hand deep distrust, suspicion, and resentment towards a large neighbor perceived as hegemonic and interventionist, and on the other, a recognition that geography, history and culture make closeness between the two countries inevitable. This leads to an oscillation between moves towards cooperation and a drawing back when the possibility of cooperation comes closer. This ambivalence has been accentuated by Indian insensitivities and blunders. The other ambivalence is towards large hydroelectric projects. On

the one hand there is a feeling that water is Nepal's prime resource, like oil to the gulf countries, and should be used for the generation of wealth, as Bhutan has done, and that this calls for the undertaking of large projects for the export of power; on the other, there are doubts about that export-led model of development, worries about major projects in the Himalaya, and apprehensions about the excessive closeness to India that such projects would bring because India would be the largest buyer of electricity from those projects. These complexities have made the relationship between the two countries a very difficult and fragile one, and neither country has handled it well.

During the last few years, prolonged political instability in Nepal made serious talks between the two countries difficult, and that situation continues. As a matter of fact, the political relations between the two countries seem to have deteriorated in recent years. Moreover, whenever anything goes wrong in Nepal, the tendency at the popular level seems to be to blame India. Without going into the merits of these accusations, let me merely say that I see hardly any prospect of good, stable, easy, constructive relations between the two countries in the near future.

Against that complex background, what should we do? In an article in *The Hindu* a few years ago I had made the following suggestions:

(i) scrap the old Kosi and Gandak Agreements and the 1996 Treaty on the Mahakali, all of which are unpopular in Nepal; stop talking about Karnali, Pancheswar, Sapta Kosi, etc; do not try to enter into any more treaties on large projects on the Himalayan rivers; do not create new opportunities for misunderstandings; and

(ii) do not seek excessive closeness; let not Nepal feel threatened; aim at friendliness, correctness and a reasonable distance. Nepal has felt smothered by excessive closeness: let us try distance for a change. It may pave the way for a new and better closeness in due course.

That article was widely read both in India and in Nepal. Some former Indian Ambassadors to Nepal privately expressed agreement with it. However, it is very unlikely that the Government of India would want to try the approach of friendliness, correctness and distance that I was outlining. They might be afraid that the space that India vacates will be quickly occupied by China.

Summing up, India-Nepal relationship is not primarily a water question; it is a much larger and more difficult one of a dysfunctional overall relationship. High-handedness and insensitivity and sheer stupidity on occasion - on the part of India, and hyper-sensitivity, resentment, and a readiness to put the worst constructions on Indian actions on the part of Nepal, with the further complication of the presence of China on the other side of Nepal, have created a very difficult and complex relationship which is not easy to disentangle.

Bhutan

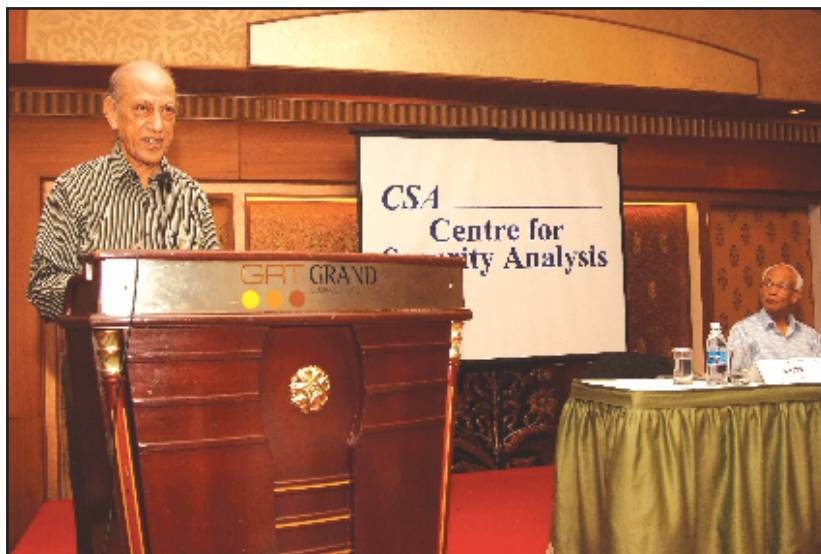
With Bhutan, India's water relations, if that description fits the case, are relatively unproblematic. The relationship is essentially one of economic cooperation in the construction and operation of hydro-electric projects in Bhutan for the sale of the generated power to India. The price of electricity initially negotiated was rather low but that has been corrected by subsequent revisions. The revenues to Bhutan have been very large and have made that country richer than other South Asian countries in terms of income per capita. As I said, the India-Bhutan relationship, unlike the India-Nepal relationship, has been largely unproblematic. One phase of a project has led to another, one project to a second, and so on. The only question here is how this succession of projects in the Himalayan region, of larger and larger capacities, and the concomitant developments in terms of growing wealth and the inevitable intrusion of the outside world and modernity, are reconcilable with Bhutan's deep concern for ecology and heritage, its concept of Gross National Happiness and its pursuit of the middle path. However, that is a matter for Bhutan to reflect on, and I am sure that reflection and introspection are going on. This is not a question of India-Bhutan relations, and we need not spend more time on it.

Bangladesh

Let us turn now to Bangladesh. As the lowest riparian in the Ganga Brahmaputra Meghna system(s), Bangladesh could well feel a certain sense of insecurity in relation to water, particularly considering the size of the immediate upper riparian, India, in terms of land and population. Bangladesh is very conscious of the fact that there are 54 rivers (including rivulets and



Lt Gen V. R. Raghavan (Retd) President of Centre for Security Analysis (CSA) Introducing the speaker and the subject.



Mr Ramaswamay R Iyer, former Secretary, Water Resources, Government of India delivering his talk.



Left to right : Prof M. S. Soundara Pandian, Director, School of Excellence in Law, Tamil Nadu Dr. Ambedkar Law University (TNDALU), Dr. Raghunadha reddy Dean, TNDALU, Dr. Geeta Madhavan, Founder member, CSA, Mr. T. S. Krishnamoorthy IAS (Retd), former Chief Election Commission and Dr. V. Vijayakumar Vice Chancellor, TNDALU



Left to right : Mr. B.S. Raghavan IAS (Retd), Mr. M.R. Sivaraman IAS (Retd), Mr. N. Vittal IAS (Retd), Lt Col Nandan Nilakanta (Retd)

streams) crossing the Indo-Bangladesh border, and that 94% of the country's waters originate beyond its boundary. It is indeed a water-abundant country, but parts of it suffer from seasonal shortages; and of course there are floods from time to time, and these are occasionally catastrophic.

In the relationship between India and Bangladesh the dispute over Ganga waters was for more than two decades an important component, perhaps the most important one; and though it now stands resolved by the Treaty of December 1996, its potential for re-surfacing should not be under-estimated. The dispute began with the planning and eventual construction by India of a barrage across the Ganga at Farakka for diverting a part of the waters of the river towards its Hooghly arm with the objective of keeping the Calcutta Port flushed and operational and protecting the water-supply of the city from the incursion of salinity. This caused serious concern in what was then East Pakistan and later became Bangladesh. It is necessary to understand the depth of feeling that Farakka aroused in Bangladesh. Bangladesh regarded this as a "unilateral diversion" of the waters of the Ganga by India with severe adverse effects on it (Bangladesh); and felt that this was a case of a larger and more powerful country disregarding the legitimate interests of a smaller and weaker neighbour. That view became widely prevalent in Bangladesh, cutting across all kinds of divisions. A national sense of grievance grew and became a significant factor in electoral politics. In its extreme form the nationalistic position became a myth with India being cast in the role of a demon: whether Bangladesh was afflicted by drought or by floods, the responsibility was laid at India's door. 'Farakka' was blamed for all kinds of ills. The dispute now stands resolved through the Ganges Treaty of 1996, but fifteen years after the Treaty feelings still tend to run high over Farakka in Bangladesh, as if it continues to be a live grievance!

I do not propose to enter into an elaborate discussion of the details of the Ganges Treaty. It is sufficient to note the following:

- The Treaty is for 30 years but extendable further by mutual agreement.
- It is a water-sharing Treaty.
- The sharing is only during the lean season each year, which is the period from 1 January to 31 May.

- The sharing point is Farakka. (The Treaty requires the Government of India to make every effort to protect the flows arriving at Farakka, so that there is no diminution of the quantum that is available for sharing.)
- Basically the Treaty provides for equal sharing of the flows arriving at Farakka with some special provisions for the leanest part of the lean period, viz., 11 March to 10 May.
- The diversion of flows by India at Farakka will be limited to the capacity of the feeder canal taking the water to the Hooghly, namely 40000 cusec.
- If the flows in the river fall below 50000 cusec, the Treaty recognizes an emergency situation, and provides for urgent consultations between the two Governments.
- In the event of a review, the Treaty lays down that pending agreed adjustments as a result of such a review India shall release to Bangladesh not less than 90% of its entitlement.

The conclusion of the Treaty was generally welcomed in both countries. Criticisms of the Treaty by some people in either country as a 'sell-out' to the other side tended to cancel each other out. Both in Bangladesh and in India Parties that were critical of the Treaty when it was signed (BNP in Bangladesh, BJP in India) came to power later, but they did not seek to disturb the position.

The Treaty had a shaky start because of low flows in the river in the very first lean season after it was signed, namely the period from 1 January to 31 May 1997. I shall not go into the details, but the critics of the Treaty in Bangladesh tried to present the Treaty in a bad light, accused India of violating the Treaty, and tried – unsuccessfully - to mount a campaign against it. Fortunately, that bad period passed, the ensuing years were years of good flows in the river, the Treaty worked well, and there was a gradual realisation that Bangladesh was benefiting by it. The Treaty seems to have worked to the satisfaction of the two Governments. There was a provision for a review on request by either country at the end of five years, i.e., in December 2001, but

neither country moved for a review at that stage presumably because neither had any serious problem with the Treaty.

Agreements or Treaties are needed on some of the other rivers (Teesta, Muhuri, Manu, Gumti, Khowai, Brahmaputra, Dharla and Dudh Kumar) that have been identified as important. On the Teesta River, on which both countries have built barrages, water-sharing talks have been intermittently going on for many years without reaching finality.

Whether the Ganges Treaty will continue to work well, and whether Treaties or Agreements will be reached on other rivers, are political questions and not water-related questions. It is common knowledge that the political relations between the two countries were far from good for several years, and attempts to improve them made no headway until recently. However, after Sheikh Hasina became the Prime Minister of Bangladesh, there was a dramatic change in the situation, and the relations between the two countries are very good indeed at present. Agreements are being reached on a number of pending issues. The logjam on the Teesta seems to have been broken, and it is expected that an agreement or treaty will be signed when Prime Minister visits Dhaka. One hopes that the controversy over the Tipaimukh Project will also be resolved; on that project, of course, there is not merely anxiety on the part of Bangladesh, but also opposition within India. One hopes also that progress will be made on a number of other non-water issues between the two countries.

I must say a few words about the Indian project for the inter-linking of rivers which has caused some concern in both Bangladesh and Nepal. Bangladesh is worried about the implications for it of possible diversions in India from the Ganga and the Brahmaputra. It has communicated its apprehensions to the Indian authorities. Even Nepal, an upper riparian, seems to be worried about the ILR Project. Its concern is that any project in India might create vested rights that could have the effect of forestalling possible future developments in Nepal. For a while, it appeared that the ILR Project was going to become a major issue between India and her neighbours. In Bangladesh in particular, strong language of the kind heard earlier about Farakka began to be heard about the ILR Project. However, the Government of India have made it clear that the Himalayan component of the Project is not

being looked at for the present and that before doing so Bangladesh and Nepal would be consulted. Moreover the ILR Project is not making much headway and so protests in Nepal and Bangladesh have become muted.

China

We come now to China. Until some years ago water did not figure in the talks between India and China, but during the last few years it has become part of the agenda. Unfortunately there is not much to say. From time to time there are media reports and articles about Chinese plans to divert the waters of the Brahmaputra (or Tsangpo) northwards, worrying people in India and Bangladesh, but there is hardly any reliable detailed information.

It must be noted that two different kinds of intervention are being talked about. One is the idea of a massive project, the world's largest, for the generation of hydro-electric power at the point on the river where it takes a u-bend before entering India. This may be feasible or not; it may have horrendous ecological consequences; but if the waters are returned to the river after they pass through the turbines, it may not affect the flows to India and Bangladesh. The other is the idea of a diversion project. If Brahmaputra waters do get partly diverted northwards, this will definitely reduce the flows correspondingly, and is therefore a matter of concern to downstream countries. We are told that there are no such official plans, but we cannot be too sure of this.

What then is the position?

First, certain parts of China are indeed desperately short of water and the Chinese authorities have to provide water to those areas from some source. Secondly, there is plenty of water in the Tsangpo, and it may seem natural to the Chinese to consider diverting some of it to water-short areas. Does not some such thinking lie behind India's own river-linking project? Thirdly, while there may be no official decision and no 'project', the media reports cannot be dismissed as entirely without foundation. The idea of a diversion has indeed been mooted in academic papers. It must have been discussed in government circles too. There seems to be little doubt that the Chinese have been thinking about such a possibility. Fourthly, the Project may be gigantic and may present horrendous problems, but that is unlikely to deter the Chinese; it may even enthuse them. Fifthly, if they have decided that the national interest demands

the south-north diversion of waters, they are unlikely to be unduly worried about international law or lower-riparian concerns. However, and this is the sixth point, what *may* deter them would be political and foreign policy considerations; if they feel that good relations with neighbours are desirable for political reasons, then they may indeed take their concerns seriously and try not to upset them.

Until recently, China denied the existence of any project, but satellite images have made it clear that there are some structures on the Brahmaputra, and China no longer denies this. However, it says that there are only run-of-the-river hydroelectric projects involving no storage or diversion.

From the Indian point of view, the point to examine would be the quantum of possible diversion and the impact it would have on the flows to India. In the absence of hard information, we may have to work out possible scenarios. There is a view that any diversion by China will not affect India badly because precipitation further down contributes a good part of the river's waters. It seems to me that complacency on that ground would be dangerous. We shall have to keep questioning the Chinese constantly on their plans and expressing our concerns. This will have to be as important a part of the agenda for India- China talks as the border issue. We have to do our best to ensure that the Chinese do not undertake any major intervention in the river, or that in doing so, they keep India in the picture and take Indian concerns into account fully in the planning, construction and operation of the intervention.

It appears that the Government of India are seized of this matter and that the subject does figure in the talks with the Chinese. I can only say that it is necessary to be extremely watchful and take timely action, as there is not much point in complaining about reductions in flows after a dam has been built.

It is necessary for India to make common cause with the Bangladeshis on this matter. That may not be easy, as they may turn round and say that China is only doing to India what India has been doing to Bangladesh. India has to find ways of overcoming that awkwardness. A joint India-Bangladesh approach to China on this matter would be far more effective than separate approaches.

Conclusion

Finally, returning to the overall South Asian context, I must refer to the general advocacy of 'regional cooperation'. There is much force in that advocacy, but it tends to become doctrinaire. Regional cooperation is of course a good thing, and no one will argue against it. The question is: cooperation at what level, between whom, and for what purposes? Generally 'regional cooperation' tends to mean cooperation between governments, often in the context of big projects to be jointly undertaken. It is possible to think of cooperation in other ways.

Given the commonalities among the countries of South Asia, there are many possibilities of close collaboration among them in relation to water. For instance, there is a massive incidence of water-logging and salinity in the Indus Basin in Pakistan, and this is also a serious problem in the Indian part of the Indus Basin. The occurrence of arsenic in groundwater is a major affliction in Bangladesh, but the problem is also experienced in West Bengal and Bihar. The great Sunderbans wetlands, shared by Bangladesh and India, have sadly deteriorated and are in need of urgent attention. As I said at the outset, the Himalaya is the water-tower of South Asia and special efforts for its protection are called for. The periodic floods in the Himalayan rivers, often severe and sometimes catastrophic, require an extensive network of observations, information-sharing, warning systems, and disaster-preparedness and damage-minimisation. With growing populations and the processes of urbanization and economic development, the protection of the natural environment (air, forests, mountains, wildlife, etc) from degradation, denudation or destruction, and of rivers, lakes and aquifers from the menace of pollution and contamination, necessitate understandings and protocols on standards, institutions and regulatory regimes. Local, community-led initiatives in water-harvesting and watershed development and the related social mobilization and transformation, are taking place in all the South Asian countries; and movements for the protection of the environment and for safeguarding the rights and interests of the poor, the weak and the disadvantaged, and for the empowerment of women, are also a common feature. Inter-country solidarities in these matters and exchanges of knowledge and experience, already occurring to some extent, need to be expanded. 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 or 'think tanks', or 'people-to-people'.

Above all, the imminence, indeed the present reality, of climate change, and its possible impacts on water resources, are matters of urgent concern to all the countries of South Asia. The report on Climate Change and Water by the Technical Support Unit of Working Group II of the Intergovernmental Panel on Climate Change (June 2008) says, among other things, the following: "Areas in which runoff is projected to decline face a clear reduction in the value of services provided by water resources. Increased annual runoff in some areas is projected to lead to increased total water supply. However, in many regions, this benefit is likely to be counterbalanced by the negative effects of increased precipitation variability and seasonal runoff shifts in water supply, water quality and flood risks." The implications of this for the South Asian countries are not quite clear. However, this is a matter that calls for the closest collaboration among the countries of South Asia at governmental, NGO and civil society levels. All these possibilities have not received the attention they should have.

Postscript:

In the case of the Kishenganga Dispute, Pakistan petitioned the Court of Arbitration to order a stoppage of work on the project pending a final decision by the Court on the dispute. The Court has stayed the permanent work, i.e., the construction of the dam, but allowed other works to continue. This is not an unexpected development. It does not give us any indication of the view that the Court is likely to take on the main issue before it.

In India-Bangladesh relations, the recent visit by the Indian Prime Minister to Bangladesh marked a high point, but unfortunately the celebratory spirit was marred to some extent by the last-minute failure on a crucial matter, namely the failure to sign a treaty on water-sharing on the Teesta River as planned, because of reservations on the part of the Chief Minister of West Bengal. If this issue is not quickly resolved and an understanding reached on the Teesta, the political relations between the two countries are very likely to take a downward turn.

BIO DATA OF RAMASWAMY R IYER



Ramaswamy R Iyer was formerly Secretary, Water Resources in the Government of India, and in that capacity he was the initiator and principal draftsman of India's first National Water Policy in 1987. After his retirement from the Government, he was Research Professor at the Centre for Policy Research, New Delhi, where he worked on water-related issues, and in particular on cooperation on river waters by India, Nepal and Bangladesh (1990-99). He continues in CPR in an honorary capacity. He was a member of two high-level committees set up by the Government of India to review the environmental and displacement/rehabilitation aspects of the Sardar Sarovar Narmada Project (1993 - 95) and the Tehri Hydro-Electric Project (1996-97), and was a Member of the National Commission on Integrated Water Resources Development Plan (1997-99). He has also been a member of many other Government Committees and Commissions from time to time.

He has done consultancy assignments for the World Bank, the World Commission on Dams (WCD), the International Water Management Institute, Colombo, UNDP, New Delhi, the European Commission, and others. He was a member of the UNSGAB High Level Expert Panel on Water and Disaster, an adjunct to the UN Secretary-General's Advisory Board on Water and Sanitation.

He has to his credit numerous articles, papers, on water resource policy, public administration, governance, and economic, political, social and cultural issues.

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“Water a key issue in Indo-Pak relations”

Special Correspondent

CHENNAI: While the Indus Treaty of 1960 on water sharing between India and Pakistan is regarded as a largely successful instance of conflict resolution between two countries, a new and disturbing development is that water has started to loom large in Indo-Pak relations, Ramaswamy R. Iyer, former Secretary, Water Resources, Government of India said on Tuesday.

In an address on ‘India’s water relations with her neighbours,’ hosted by the Centre for Security Analysis (CSA), Mr. Iyer said water sharing in the Indus Basin is no longer a closed issue with Pakistan especially after the neighbour has invoked arbitration over Kishanganga project on the Chenab, accused India of misusing provisions of the Indus Treaty and launching projects that diverted the flow of the western rivers.

“Even if tomorrow Kashmir is resolved, water will remain a core issue,” he said.

While it could be argued that Pakistan is raising water sharing issues as a diversionary tactic for its inter-provincial conflicts or that water being an emotional issue for the people suits the Pakistan Army, a joint study by experts on both sides on whether there is indeed a reduced flow on the western rivers could



POINT OF VIEW: Ramaswamy R. Iyer, former Union secretary, Water Resources, addressing a meeting organised by the Centre for Security Analysis (CSA), in Chennai on Tuesday. CSA president V R Raghavan is in the picture. — PHOTO: K.V. SRINIVASAN

erase the perception that India has not been a fair and just upper riparian, Mr. Iyer said.

The expert also suggested as confidence-building measures studies on the impact of the 33 Indian projects on the Western rivers as the cumulative impact could be bigger than the sum of the individual projects.

According to Mr. Iyer, while India had a comfortable water sharing relationship with Bhutan, the same was not the case with other neighbours in the sub-continental mainland. While the problem with Nepal – the upper riparian

– was not primarily over water but a dysfunctional relationship, the potential of disputes with Bangladesh – the lowest riparian – could not be discounted in spite of the Ganges Water Sharing Treaty.

Water which until recently did not figure prominently in Indo-China relations is now cause of concern especially pertaining to fears over the downstream effects of Chinese engineering engagements on the Brahmaputra.

Lt. Gen (Retd) V. R. Raghavan, CSA president, participated.

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