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THE LONG-TERM RESOLUTION OF THE GANGES WATER DISPUTE

Introduction :

The ongoing dispute over the sharing of the Ganges water is a major irritant between the two riparians—India and Bangladesh. Recently, the dispute has received a better appreciation from both governments with a brighter prospect for an early mutually aggreed upon solution in the Joint Communique issued following the Bangladesh Chief Martial Law Administrator's visit to India on 6-8 October 1982.[1] Ever since its independence in 1971, Bangladesh entered into negotiations with India for a lasting solution of the problem. A protracted series of correspondence and bilateral talks took place at different expert, official, ministerial and even Prime Ministerial levels at a regular intervals to work out a solution. None of these efforts brought about a solution.[2] It is therefore not surprising that the breakthrough on the dispute at the recent New Delhi talks has assumed a special prominence.

At the New Delhi talks, both sides decided not to extend the existing 1977 interim agreement on the sharing of the Ganges dry

1. See *Far Eastern Econ. Rev.*, 15 Oct. 1982, pp. 28-29; *Asiaweek*, 22 Oct. 1982, p. 19, col. 1; The *Statesman*, New Delhi, 9 Oct. 1982, p. 7, col. 1.

2. The dispute dates back to 1951. For a brief history of negotiations, see M. R. Islam, *The Indo-Bangladesh River Dispute: A Study of the Principles of International Law Governing Riparians' Rights to Use and Control the water of the Ganges*, an unpublished LL. M. thesis in Monash University Law School, Australia, 1979, pp. 10-11, 122-25, 143-45 and 154ff (hereafter referred to as the 'thesis'); H. R. Kulz, 'Further Water Disputes Between India and Pakistan (1969) 18 *ICLQ* 720-21; *White Paper on the Ganges Water Dispute*, Government of the People's Republic of Bangladesh, Sept. 1976, pp11 ff (hereafter referred to as 'White Paper'); Hassan, 'The Farakka Barrage Dispute: Pakistan's Case' (1968) *Pakistan Horizon* 356.

season flow that had just expired on 4 November 1982. They agreed to initiate fresh attempts towards achieving a permanent settlement—a task to be completed within 18 months by the Indo-Bangladesh Joint River Commission. However, for such a long-term solution, each country has a specific scheme, totally unacceptable to the other. In this paper, it is intended (a) to examine the merits and demerits of the alternative schemes; (b) to show, of the two schemes, which one appears to be more promising and suitable for the purpose; (c) to make a number of suggestions which could be of assistance in evolving a permanent solution; and (d) to focus on the future prospects of such a solution.

A Brief Factual Background :

The Ganges water dispute has resulted from the construction and operation by India of a barrage across the Ganges at a place named Farakka, about 17 kilometres upstream from the western borders of Bangladesh with India. The barrage was designed to divert a certain portion of the Ganges dry season flow into India's Bhagirathi-Hooghly river to resuscitate the Calcutta Port with silt-free water, to improve the navigability of the Port by providing sufficient water during the dry season.[3] Bangladesh is dependent on the Ganges water mainly for irrigation and inland navigation.

A major expectation generated by the emergence of Bangladesh in an atmosphere of friendly relations with India was that both countries could join forces in taming their flood-prone rivers. Indeed, to achieve this end they established the Indo-Bangladesh Joint River Commission in 1972.[4] In April 1975, an interim agreement was reached for the provisional operation of the Farakka Barrage for a

3. *India*-1970, Research Reference Div., Ministry of Information and Broadcasting, Govt. of India, p. 292. The Bhagirathi river is also known as the lower reaches and Calcutta is situated on the left bank of the Hooghly river.

4. The Commission was set up in accordance with Art. 6 of the 1972 Indo-Bangladesh friendship treaty, see (1972) 12 *Indian J. I. L.* 131.

period of 41 days from 21 April to 31 May 1975.[5] This trend of mutual understanding soon turned to angry disappointment in Bangladesh. India was accused of illegally and unilaterally diverting the Ganges dry season flow after the expiry of the agreement without any consultation with or concurrence by Bangladesh. This in effect disrupted fishing and navigation, put irrigation pumps out of action, brought unwanted salt deposits into rich and valuable farming soil, and thus created a chain of adverse reactions in Bangladesh.[6]

However, Bangladesh lodged a formal protest with India against the continuing operation of the barrage on 15 January 1976. During bilateral negotiations that resumed following the formal protest, Bangladesh insisted on devising an interim arrangement which would stop the damage being caused to it. Consequently, the two governments concluded another interim agreement on 5 November 1977 on the sharing of the Ganges dry season flow at Farakka as a short term solution. The Indo-Bangladesh Joint River Commission was vested with the task of carrying out a techno-economic feasibility study of an appropriate scheme or schemes which could be implemented for augmenting the Ganges dry season flow at Farakka to satisfy the requirements of both countries as a long-term solution.[7] The Commission was required to submit its recommendations within a specified period of three years. But even after the expiry of the five-year 1977 accord, a permanent solution involving a definite plan for augmenting the Ganges dry season flow at Farakka is yet to be worked out by the Joint River Commission.

5. See the Joint Indo-Bangladesh Press Release of 18 April 1975; White Paper 16; *Basic Documents on Farakka Conspiracy From 1951 to 1976* (Dhaka, 1976), p. 81; '*Deadlock on the Ganges*', the Government of Bangladesh, Sept. 1976, p. 2; also, the thesis, 125ff.

6. For an account of these effects, see the thesis, 50ff A. R. Khan, Effects of Farakka Barrage on Bangladesh' The *Bangladesh Times*, 11 April 1976; M. R. Tarafder, 'Water: Vital Resource for Life' The *Bangladesh Observer* 25 Sept. 1976.

7. For the text: (1978) 17 *Int' l. Leg.Mat.* 103; for a critical analysis: the thesis, 176ff; T. Hassan, 'Ganges Water Treaty' (1978) 19 *Harv. I. L. J.* 708ff.

Proposal and Counter Proposal for Long-Term Resolution :

The Ganges flow is subject to great seasonal fluctuations. Its monsoon flow is enough to meet the needs of both countries—even enough for devastating floods. But its dry season flow is insufficient to satisfy their requirements. So any major harnessing of the Ganges dry season flow is bound to upset its natural equilibrium and to bring about a whole chain of adverse and inter-related repercussions, especially in the downstream. There is no arrangements between India and Bangladesh over any joint utilisation and development of the Ganges water system. Such a combined development will certainly have some economies of scale. This means that the net benefits either country can derive through independent action will be less than through co-operative efforts.[8] In fact, a long-term solution is entirely contingent on arriving at an arrangement for augmenting the Ganges dry season flow at Farakka.

Both India and Bangladesh have agreed upon the necessity of increasing the Ganges dry season flow at Farakka but they irreconcilably differ on how to do it. Each country has a specific proposal for the purpose. India has proposed a plan to build a long link-canal across Bangladesh connecting the Brahmaputra river with the Ganges at a point above the Farakka Barrage to make up for the shortage of the Ganges water in the dry months created by the Farakka withdrawal. As opposed to the Indian proposal, Bangladesh has proposed an alternative plan, maintaining that the augmentation of the Ganges dry season flow should take place from the Ganges system itself. Its alternative plan is to construct a series of storage dams along the higher reaches of the Ganges in the Indo-Nepalese

8. A country faced with the prospect of a co-operative eudeavour has three broad options which may be expressed as: international option > national option ⊳ staus quo option; for a discussion on this point, see D. G. LeMarquand, *International Rivers*: *The Politics of Cooperation* (1977) pp. 19, 137.

border region in order to store water during the monsoon and release it in the dry months for the benefits of both countries.[9]

The Indian link-canal scheme envisages digging across Bangladesh a link-canal of about 75 miles long connecting the Ganges and the Brahmaputra river in Indian territory. The mouth-end of the canal towards the Brahmaputra river would meet the river at a place in the Assam state of India just above the Indo-Bangladesh border. The tail-end of the canal towards the Ganges would meet the river at a place just above the Farakka Barrage. As India reasons, the Brahmaputra river has a much larger flow than the Ganges and the lean seasons of the two rivers do not overlap. The Ganges lean season comes much earlier than the Brahmaputra lean season. The delta areas of Bangladesh along the lower reaches of the Brahmaputra get water-logged through the early advent of the monsoon and as such the Brahmaputra lean period does not last for a longer time. During the Ganges lean period, much of the Brahmaputra water is wasted by flowing down into the sea, because it is of no use to Bangladesh at that time. So to augment the Ganges dry season flow at Farakka to make up for the shortage created by the withdrawal there, India considers that certain amount of the Brahmaputra dry season flow that flows unutilised to the sea can be diverted to the Ganges above the Farakka through the proposed link-canal.[10]

According to Bangladesh, the requirements of the situations do not warrant the transfer of water from the Brahmaputra into the Ganges. The best means of augmenting the Ganges dry season flow lies within the Ganges system itself. Its monsoon flow is more than enough to meet the needs of the two countries when much of its flow runs wastefully to the Bay of Bengal. A certain amount of the unutilised monsoon flow of the Ganges can be stored up by constructing storage dams along the upper reaches of the river in India and released

9. These proposal and counter proposal have come forth during the 11th meeting of the Joint River Commission held in New Delhi on 28 Sept. 1974, see White Paper 14.

10. See The *Hindu*, Int'l. ed., Madras, India, 18 May 1977, p. 2, col. 3.

during the dry months to enhance its flow at Farakka. The Ganges carries more than 300 million acre feet of water annually. Only nine million acre feet of water is needed from storage dams to meet the shortage at Furakka.[11] There is a potential for storage of the monsoon flow in the Ganges basin. Storage dams are being constructed over the Ganges system in India. A portion of this storage potential within India could meet the shortage at Farakka in the dry season.

Bangladesh also referred to the untapped potential storage on the main tributaries of the Ganges originating in Nepal. Bangladesh has proposed that the two governments might consider approaching the Nepalese government for that and their existing Joint River Commission could be extended with the inclusion of Nepal for the maximisation of the development of the Ganges. There are 52 storage sites in the Ganges within India,. Of these, 29 have either been constructed or are under cosnstruction which will provide about 23 million acre feet and yet to be constructed storages will give about 30.5 million acre feet. A UNDP study has located 20.5 million acre feet of possible storage in Nepal.[12] Hence there is no reason to look elsewhere for the water to meet the Ganges dry season shortage at Farakka.

India contends that there are very few suitable storage dam sites for additional storage possibilities in India. Those that exist are needed by Indians who live in the Ganges plain. India points out that it would not be realistic to depend on the storage dams as a means for augmenting the Ganges flow in the lower reaches for the optimum development of the water resources of the region. As to

11. The text of interview of Mr. B.M. Abbas, former Adviser to the President of Bangladesh on flood Control, Irrigation and Power with BBC London on 4 March 1976 and with Radio Bangladesh on 6 April 1976, see The *Bangladesh Observer*, 8 March and 7 Adril 1976 respeciively; also The *Bangladesh Times* 9 April 1976.

12. The statement made by the leader of the Bangladesh delegation to the 31st General Assembly sessson held in Nov. 1976 in The *Bangladesh Observer*, 18 Nov. 1976; also White Paper, 15.

the inclusion of Nepal in the scheme, India maintains that the question of considering the Ganges water development in a third country is outside their scope. India thinks that the link-canal plan holds prospects of benefits for both countries and fits in with the concept of optimum development of the water resources of the region. Storage dams appeared feasible in the Brahmaputra system in India which could be developed as and when need arose. To that end, India earlier proposed that the link-canal could be taken up in the first phase and storage dams development in the second phase of the link-canal scheme.

Both countries therefore want to develop the water resources of the region but in a different way. While Bangladesh wants to do it riverwise, India prefers to take into account all, particularly two major, rivers of the region as a whole. Bangladesh recognises the utility of the Brahmaputra basin development through storages but does not admit the necessity of diverting its dry season flow to the Ganges. After experiencing the dire effects of the Farakka withdrawals in more than one-third of its territory adversely affecting 25 million people, Bangladesh is probably apprehensive of water diversion from its other major river the Barahmaputra. Presumably Bangladesh believes that such diversion would have untoward effects on the lower reaches of the Brahmaputra in Bangladesh, below the point at which water would be diverted from the river for delivery into the link-canal. And such diversion would aggravate the existing damage and suffering inflicted by the Farakka withdrawal.

There also appears to be other reasons why Bangladesh has not agreed to the link-canal plan. The excavation of such a canal would create untold troubles and repercussions in Bangladesh. It would cost hundreds of millions of dollars. In effect it would provide a barrier between the northern part of Bangladesh and the rest of the country. The canal would also, by intersecting various natural water courses, pose grave engineering and hydraulic problems. As the canal would require a great deal of territory, thousands of acres of land would have to be acquired in Bangladesh, displacing innu-

merable poor peasants living in the path of the canal.[13] This will put an enormous quantity of fertile agricultural land out of cultivation with inevitable adverse impacts on the existing food crisis. It may be mentioned that the current level of food production in Bangladesh, with a very high density of population, is insufficient to sustain even the very low per capita consumption of 14 ounces per day.[14]

To Bangladesh, the expected benefit derived from the execution of the canal scheme would not be able to compensate for the economic loss suffered by the digging of the canal. In fact, the net gain for Bangladesh would be nil unless the scheme involves constructing storage dams along the upper reaches of the Brahmaputra valley in Assam which would help substantially to prevent devastating floods in Bangladesh during the monsoon. Initially India referred to the Brahmaputra development through storages as the probable second stage of the link-canal scheme. But at a later stage it pointed out in a meeting of the Joint River Commission, the technical difficulties of the storages in the Brahmaputra valley in Assam.[15]

Moreover, Bangladesh seems to be highly cautious about the scheme, in particular very suspicious about the location of both ends of the canal in Indian territory. It raises considerable doubts and mistrust that the canal might be used to substitute the Brahmaputra for the Ganges in flushing out the Calcutta Port, enabling India to divert the Ganges water for irrigation in India. Politically, Bangladesh thinks that the presence of the proposed link-canal 'would give India one more valve to turn off' and Bangladesh does not desire to jump out of a basket only to find itself stuck on another valve.[16]

13. Bangladesh estimates that the canal will entail a permanent loss of 1.3 million acres of land through water logging and land acquisition, an annual loss of crops valued at U$ 225 million aud will uproot 2.5 million people, see The *Bangladesh Observer*, 14 Sept. 1976.
14. See '*Ganges Water*: *Crisis in Bangladesh*' a memorendum circulated by Bangladesh in the Istanbul Islamie Foreign Ministers Conference in May 1976.
15. See White Paper, 15.
16. See *The Time*, 6 Dec. 1976, p. 15, col. 3.

So far, the Indian link-canal proposal is totally unacceptable to Bangladesh because of the likely economic and other negative impacts. On the other hand, Bangladesh's storage dams idea along the upper reaches of the Ganges has never seemed to find favour with India mainly because of third country involvement and the lack of adequate storage sites on the upper reaches of the Ganges in India.

However, of the two schemes that the two governments have in view for the purpose, the storage dam scheme, as will be seen in the analysis to follow, appears to be relatively more appropriate for the economic and optimum utilisation of the Ganges water. This scheme aims to store up the Ganges monsoon flow along the upper reaches of the river so that they could be fed down and distributed by engineering works and used by both countries during the dry season rather than be permitted to flow to the sea unused. The scheme would maximise the dry season flow by minimising the waste during the monsoon within the Ganges system itself. This in effect would provide dual benefits by increasing the dry season flow and decreasing the monsoon flood intensity in both countries. On the contrary, the link-canal scheme does not prevent the Ganges monsoon flow from causing devastating flood and from flowing unutilised into the sea. This means the wastage of huge quantity of the Ganges flow and economic loss by flood during the monsoon in both countries.

Apart from this apparent utility difference, legal, economic and engineering problems involved in the execution of these two schemes also differ. It does not seem to be safe to rely on the Brahmaputra dry season flow for augmenting the Ganges dry season flow on a lasting basis. In the near future, the Brahmaputra dry season flow will also be insufficient to meet their requirements, as the uses of its water are rapidly increasing in both countries. To meet their growing needs, its dry season flow would also have to be developed in the near future. If a certain amount of its dry season flow is diverted to the Ganges, this might pose engineering and hydraulic problems for the future development of the river. Furthermore, the dry season of both rivers occurs, with a small variation,

almost simultaneously. In the absence of any development of the Brahmaputra flow, if its dry season flow is diverted to the Ganges, it would certainly have adverse cosequences on the lower reaches of the river in Bangladesh.

In undertaking the link-canal plan, legal difficulties may arise as to the basin states' rights and interests in the Brahmaputra water with the involvement of China and Bhutan. They are also the co-basin states of the Brahmaputra and a larger portion of the river lies in their territories. In designing the scheme, their lawful rights and interests must be taken into account. Otherwise the scheme will be deficient from the point of view of an overall settlement of competing claims. For the sound utilisation of the Brahmaputra water in India and Bangladesh, it is essential to know the development plans that are intended for its other parts in Bhutan and China. Possible future upstream diversions by Bhutan and China will be a problem for implementing the scheme. The problem may be avoided either by undertaking a basin wide development scheme including China and Bhutan or by obtaining assurance from them for a fixed amount of uninterrupted flow.

A basin wide plan will invite more complex problems. China and Bhutan may not co-operate with and take part in such a plan unless they are benefited by it. Hence in working out an unified development plan, the respective rights of each basin state, their objectives for co-operation and individual shares of benefits should be taken into consideration. Such a task is obviously not easy and not within the purview of the Indo-Bangladesh Joint River Commission. China and Bhutan would have to be included in the Commission with a new statute redefining powers and functions acceptable to them all. This means that the solution of the Ganges water allocation problem between India and Bangladesh will no longer be within their bilateral jurisdiction. It will be conditional upon the agreement with third parties, particularly with China, completely disinterested in the Ganges water development.

Moreover, as the number of participants increases, the situation will become more and more complicated. Different claimants

must have different objectives for co-operation. It is very difficult, indeed at times almost impossible, to reconcile and make trade offs between them. The end result may be similar to Hardin's case, the 'tragedy of the commons'.[17] Contrarily, when the number of users is small, the incentive for collective action is greater and coordination and implementation of an arrangement is easier. In launching such a step, thought must also be given to the political relationship among the Brahmaputra basin states, particularly the traditionally uneasy relationship between India and China, which may come into play to frustrate co-opearation. On the face of this relationship, the alternative way of obtaining assurance for a fixed quantum of uninterrupted flow also appears to be unrealistic, if not impossible. It is very unlikely that Bhutan and China will sacrifice their rightful shares of the Brahmaputra water to make up for the shortage of the Ganges water.

On the other hand, the main problem inherent in the storage dam scheme is the lack of sufficient storage sites along the upper reaches of the Ganges. But on this point, the two governments, as mentioned earlier, differ irreconcilably. While India maintains that there are very few suitable dam sites available in India for additional storage, Bangladesh contends that a portion of the available storage potential in India could make up for the shortage at Farakka. This does not seem to be a serious problem if the two governments agree on the scheme. This may be solved by conducting a joint engineering survey, for which there is ample precedent and relevant experience.[18] It may not be difficult for a joint survey team to work out an operating scheme for storing water wherever dams can best

17. It describes the actions of sheep owners using common grazing land. In the case, the problem of agreement is more difficult to resolve as the number of herders is large. The marginal cost attributable to each herder increasing his flock and overgrazing the commons is not charged to him, and thus the incentive to agree on regulation is minial, G. Hardin, 'The Tragedy of Common' (1968) 162 (3859) *Science* 1243-8.

18. For example, the International Joint Commission-the US and Canada established the International Columbia River Engineering Board; International Commission for the Pyrenees (France and Spain) set up the Mixed Commission of Engineers.

store it. In the case of the availability of untapped dam sites inadequate for the purpose, the team might consider the techno-economic feasibility fof utilising those available sites together with the development of existing storages by increasing their capacity to store the required quantity of water to meet the shortage at Farakka. It is in the best interest of both India and Bangladesh to explore, for a satisfactory and expeditious settlement, all of the vailable possibilities of solution within their bilateral compass.

The next step that the two governments may consider to overcome the inadequacy of dam sites in India is, as suggested by Bangladesh which involves some additional problems, the inclusion of Nepal in the scheme. There are some untapped storage possibilities over the main tributaries of the Ganges along the Indo-Nepalese border region or in Nepal.[19] For these untapped storage potential, the two governments might consider approaching Nepal. This is again, like the Brahmaputra basin development, not an easy task because of third party involvement. Nepal may be reluctant to participate if the scheme does not ensure proper share of benefit for her. As a result, Nepal's share of benefit should be accommodated in the arrangement. For this task, the Indo-Bangladesh Joint River Commission must necessarily be extended with the inclusion of Nepal. But the problems of third party involvement in this case seem to be comparatively less complicated than that of the Brahmaputra basin development. Nepal is a co-basin state of the Ganges directly linked with the mainstream through its tributaries and contributes substantially to the mainstream flow.[20] The association of Nepal with the scheme seems to be sound from the legal point of view, for it takes into account the accommodation of competing claims of all of the three claimants. If Nepal is excluded, the execution of any scheme undertaken by India and Bangladesh in the Ganges may be difficult because of the future upstream withdrawals in Nepal. Like

19. See above note 15.
20. Nepal contributes approx. 53% and 35% of the dry season and the total annual flow of the Ganges respectively and 17% of the Ganges basin lies in Nepal, see above note 12.

India and Bangladesh, Nepal has also direct economic incentive for co-operation. Nepal will also be equally benefited by such a scheme in the fields of irrigation, power generation, flood control and navigation.[21] Perhaps the desire to derive these benefits has already prompted Nepal to express its willingness to co-operate in the joint development and utilisation of the Ganges water.[22]

As far as the political relationship with Nepal is concerned, she is a common friend of both India and Bangladesh. The relationship between these three countries is favourable enough for a region co-operation for the development of the Ganges water by building reservoirs in Nepal if India and Bangladesh agree to do so. For such a step and to overcome Nepalese reservations, Bangladesh and India should first prepare a complete accord concerning Nepal's involvement in a long-run solution. This being done, they should make a joint proposal to Nepal. Nepal would probably like to talk to India and Bangladesh separately and jointly to sort out its involvement, possible role and expected share of benefits. The three countries should sit together and deliberate on these matters. The final step would be a feasibility report before the whole plan is approved by Nepal.

In view of the discussions referred to, it may be said that of the two schemes, the storage dam scheme is, in the absence of any other more appropriate bilateral scheme and subject to the availability of suitable dam sites, comparatively less complicated and more suited for augmenting the Ganges dry season flow at Farakka.

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21. For using the dam sites in Nepal. natural river or excavated channels can be used and if a canal is excavated in Nepal to discharge water from the Gandak and Kosi rivers in to the Mahananda in India and the Karotoa and Atrai in Bangladesh, a navigation route will also be created and land-locked Nepal will have a riverine outlet through Bangladesh.

22. King Birendra of Nepal has expressed such a view in the Plenary session of the Colombo Plan Consultative Committee, see *Holiday*, weekly, Dhaka, 26 March 1978.

Suggestions and Recommendations :

Evolving a scheme for augmenting the Ganges dry season flow poses legal, engineering and economic problems which are difficult to cope with. Further, each country has a definite plan for the purpose completely untenable to the other. The incentives which stimulate them to co-operate and reconcile are different and complex. As a result, it is difficult to bring them into harmony. Taking these factors into account, it is submitted that due consideration of the following factors, *inter alia*, could be useful in arriving at a permanent solution to the dispute.

(a) *The mandate of the Commission:* It is suggested that every phase of the scheme selection should be removed from the government level for consideration on the technical level. The technicalities of an appropriate scheme selection are better left to the province of technical experts who possess necessary specilised knowledge which the state leaders lack. The Indo-Bangladesh Joint River Commission, which consists of technical experts of the two governments and represents them equally and jointly, should have the final decision making power. Since each government has equal necessary control and influence over the Commission through its members,[23] any further consideration of the scheme approved by the Commission at the government level, as was the case under the 1977 agreement[24], seems to be a superfluous step. Such a step might invite political factors into consideration, and a desertion or a veto by either of them is enough to paralyse the achievements of the Commission.[25]

It is true that the efficiency and effectiveness of the Commission in evolving a scheme is contingent not only upon the mandate assigned to it, but also on a number of related factors, such as, its stature,

23. Art. 2 of the Statute of the Indo-Bangladesh Joint River Com. 1972.

24. Arts. 9-11 of the 1977 agreement, see above note 7.

25. For example, the 1951 Helmand River Delta Commision report was not accepted by the governments concerned due to their disagreement on the report, *UN Legislative series*: *Legislative Texts and Treaty Provisions Concerning the Utilisation of International Rivers for other Purposes than Navigation*, *UN* Doc. ST/LEG/SER.B/12 (1963) p.270.

relations between the two governments, their readiness to move away from set positions etc. In fact, the condition that the decision of the Commission must be unanimous itself is a limitation which may at times make the Commission virtually powerless.[26] Nevertheless, the exclusion of decision making power from the Commission's mandate limits its potential to exert pressure and influence on the governments concerned as well as to influence the settlement of the differences.[27] Such an exclusion also does not stir up the members of the Commission to devote themselves for the job whole heartedly. In consequence, in the event that other contributing factors are missing or are not sufficiently influential, such an exclusion is likely to militate against a settlement.

In this respect, however, one positive aspect of the recent Joint Communique is that the two leaders have agreed to confer the final decision making authority upon the Commission.

(b) *Objectives for co-operation:* Economic incentive is the main objective of a country for co-operation. The Commission must direct the trend of co-operation to mutuality by which both countries can benefit through a distributional accommodation. It is not denying that political, social, economic and technical factors which motivate their behaviour are complex and not easily channelled in specific directions. Nonetheless, a deeper understanding of how these factors influence potential co-operation would contribute to the ability of the Commission to work out a suitable plan, or at least, to identify the obstacles to be overcome and to deal with them in a realistic fashion. The Commission must know and weigh the different objectives for co-operation and make trade-off between them.

26. Art. 9, see above note 23.

27. The failure of the following commisions may be accounted for mainly by the limited mandate conferred upon them: International Commision for the Pyrenees between France and Spain, see B. MacChesney, 'Judicial Decision: Lake Lanoux Case' (1959)53 *Am.J.I.L.* 168; the 1925 Nile Commission report, (1929)130 *Brit. and For. State Papers* 111; the International Commission for the Protection of the Rhine Against Pollution above note 8, pp. 111-2

Accurate and adequate information about the two schemes must be provided so that the Commission can evaluate various socio-political, environmental, legal and techno-economic aspects of a particular scheme. Thel lack of relevant information on alternative schemes can create uncertainty in pursuing a specific plan which may delay making decision and arriving at a solution.

The desire to pursue a good neighbourly policy, to be a model of co-opearative international character are examples of some non-economic objectives which also persuade a country to co-operate. The US' willingness to undertake the desalting plant to treat the overly saline Colorado water it passes on to Mexico is an example of international co-operation despite strong economic disincentives. The US' policy appears to have influenced by the image it would project in Latin America and the Third World.[28]

Co-operation may also be obtained from a country that wishes to gain concessions for other bilateral issuses, such as, favourable trade arrangements or support for a policy of greater national interest. This factor persuaded the US to conclude the Columbia water treaty. There were a number of complex bilateral issues between the US and Canada at the time for which the US sought Canadian support. Similarly, the US opted for the Colorado salinity agreement to facilitate co-operation on other difficult bilateral issues at the time notably, trade relations, immigrant farm labour problems and the control of illgegal drugs entering into the US from Mexico.[29] In the recent Joint Communique, both India and Bangladesh have commit ted themselves to revive and foster their friendly and good neighbourly relationship. Apart from the Ganges water dispute, they have some other outstanding contentious bilateral issues exemplified by the delimitation of the maritime boundary, the ownership of New Moore (South Talpatty) island and trade arrangements. The importance of these issues and their trade-offs may also be explored in gaining co-operation.

28. See above note 8, p. 12.
29. See above note 8, pp. 13, 15,

(c) *Cost-benefit distribution:* The division of the costs and benefits of the scheme is an important factor that may positively or negatively influence a country's willingness to co-operate. A party may be reluctant to a plan if its costs outweigh its benefits or if that party would have to bear all or the lion's share of the expenses while the benefits would accrue to the other at a little or no costs. Switzerland, for example, was at first reluctant to discuss the Council of Europe's proposed convention for the 'Protection of International Watercourses Against Pollution' unless the scope of the convention was extended to cover pollution of coastal areas. It felt that as a landlocked country it would have to make great sacrifices for the benefits of downstream coastal states, like the Netherlands, which could continue to pollute its coastal streams and coastline.[30]

Difficulties may arise in working out an equitable division of costs and benefits which is further complicated by the two alternative schemes, each of which entails a different distribution of costs and benefits. Yet, some policies must be formulated to cope with the situation. The 1977 agreement has quantified their shares of the Ganges normal dry season flow. The division of costs of a plan may be worked out in proportion to the additional quantity of water that each country would receive from the increased flow during the lean season. If the costs of the plan are not borne by the parties in proportion to the benefits derived from the plan, better co-operation may not be forthcoming.

(d) *The element of mistrust and no-confidence:* Mistrust and no-confidence may also play an adverse role, militating against potential co-operation. The Indus water treaty, for example, divided the Indus river system between India and Pakistan at a great expense in a manner such that neither country need depend on water flowing from the other. They rejected the World Bank's unified development plan in favour of independent planning and operation, for they could not rely on each other. Their individual plans were found to be

30. See above note 8, p.14.

exceedingly expensive and inefficient.[31] So the Indo-Bangladesh Joint River Commission must maintain and foster continuous trust and confidence between the parties and conduct negotiation with reciprocal trust and confidence.

(e) *Change in value over time :* Any solution worked out by the Commission will certainly reflect some value. But a change in value, demand, economic condition and politics may undermine it over time. Inflation and increased nationalist sentiment in Canada destroyed much of goodwill the US expected from the Columbia river treaty.[32] Therefore thought must also be given to ensuring that the arrangement will remain valid over time. Provisions for periodic review and renegotiation to reckon with the changing situation may be incorporated in the arrangement. This may serve as a release mechanism to keep the settlement valid in the future.

(f) *The good offices of a third party* : Common to all basin states is the remote possibility that they would have the ability to embark on a programme of integrated development without extraneous help in one form or another.[33] Both India and Bangladesh may be reluctant to give up of their own accord and positions that they hold with respect to the maximisation of their individual interests. Likewise, awareness of the power to opt out of any decision of the Commission might move them to withhold their approval as a means of pressing their desires. Consequently, solution might be endlessly deferred in the hope of gaining a better bargain. Precisely, this appears to be the case. In view of these circumstances, it would be better to entrust any mutually agreed upon impartial third party with the task of resolving the differences. They should avail themselves of the assistance of such a third party as a coordinator, advisor or even as an umpire if necessary.

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31. See N. S. Libai, 'Development of International River Basin: Regulation of Riparian Competition' (1969-70)45 *Indiana L.J.* 28
32. See above note 8, p. 133.
33. See '*Integrated River Basin Development*: *Report of a Panel of Experts* UN Dept. Eco. & Social Affairs, UN Doc. E/3066(1958)p.34.

The function of such a third party would be to direct the survey, investigation and discussion along the objective lines, to determine the areas of agreement and disagreement, to locate the sources and causes of disagreement and to narrow down differences. The parties might tend to moderate and compromise their positions more easily with the help of a technical expert or experts of any third party proposing a scheme which would most closely meet their needs. In the presence of such an expert or experts, it would be also difficult for the members of either side to opt out of the decision of the Commission on any unreasonable grounds or in the political interest of their respective governments.

The third party aid by way of good offices in resolving international river dispute is highly commendable and has not only been universally advocated but also been demonstrated fruitfully in practice.[34] Cambodia, Laos, South Vietnam and Thailand, despite their apparent difficulties,[35] are involved in and are co-operating with the project for the integrated development of the Lower Mekong. The real stimulus for such action indeed came from the UN Economic Commission for Asia and the Far East (ECAFE) and working under the auspices of the ECAFE provided a stabilising influence.

It is therefore suggested that if the Commission fails to agree on any scheme or schemes within the specified time, the parties should seek jointly the good offices of any mutually agreed upon impartial third party to expedite the settlement. Such an aid would very likely be useful to prepare and smooth the way for the adoption of a realistic and sensible plan for the unified development of the Ganges water.

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34. C. B. Bourne, 'Mediation, Conciliation and Adjudication in the Settlement of International Drainage Basin Disputes' (1971)9 *Candian Y. I. L.* 114; J- G. Laylin and R. L. Bianchi, 'The Role of Adjudication in International River Disputes: The Lake Lanoux Case' (1959)53 *Am. J. I. L.* 30.

35. Political difference and rivalry have led occasionally to the severance of their diplomatic relations. Thailand and Combodia, for example, broke off relation in 1958 and again in 1962. Their foreign alignment divides them even further, see above note 31, p. 205.

In this context, it is further recommended that such a third party aid could be obtained from either the UN or the World Bank. Since each of the organisations has shown interest, either of them would very likely respond positively if the parties make a joint request. The UNDP attempted to initiate co-operation between India and Pakistan for the multilateral development of all major rivers common to India and East Pakistan (now Bangladesh) which was aborted due to political considerations. As a result, the UNDP has given up further attempts, awaiting a propitious political climate.[36] The present relationship between India and Bangladesh is favourable enough for such a step. Now the two governments should jointly invite the UNDP for its help. Similarly, the World Bank has expressed its willingness and readiness to negotiate and co-operate with the parties for a permanent solution, if the parties concerned seek its assistance jointly.[37]

In this respect, the most hopeful reference is that the Indus water dispute between India and Pakistan was negotiated and concluded under the auspices and sponsorship of the World Bank. Without the influence of the Bank, brought about through its prestige and command of technical skill, this bitter dispute might not have been settled yet. The Bank made it possible even when diplomatic relations between the parties were hostile. In the spirit and experience of the Indus water dispute, both India and Bangladesh should jointly approach the Bank for its assistance. Such an aid may also be followed by both financial and techinical help. The incentive for active co-operation for the third party aid may be enhanced by making technical and financial assistance, given by the donor institution, for the unified development of the Ganges water. The World Bank's commitment to generate major aid funds for the Indus river development was the major incentive for India and Pakistan to reach agreement.

36. See UN Doc. E/3587(1962), pp. 24-5; E/3881(1964), pp. 59-60; and E/4138 (1966), pp. 64-5.
37. A statement to that effect was made by the Vice-President of the World Bank on 25 Nov. 1967 over tha Radio Pakistan, see *Dawn*, Karachi, 26 Nov. 1967.

(g) *An artificial method* : Another alterntative—perhaps the extreme one—may be attempted as a last resort. An enormous quantity of water is preserved on the Himalayas in solid form which may be melted by some artificial method, heating or creating artificial avalanches or by sliding ice below snow line. Water which will thus be available can also increase, at least to some extent, the Ganges dry season flow. Scientific, engineering and economic feasibility of this possibility may carefully be studied and investigated. This method of artificial intensification of melting mountain glaciers has been suggested to increase the stream flow in Central Asia.[38]

The Future Prespects :

Conflicts of interest among states on various international levels are a common phenomenon in international daily life. The struggle to minimise struggle has become a prime concern of the world community. It is therefore not surprising that mutual co-existence of neighbours sometimes engenders problems between them. But it is imperative that they should seek solutions in a spirit of understanding and co-operation. The peaceful resolution of the Ganges water dispute, as in many other conflicts in the world arena, depends on the mutual recognition of needs and a co-operative endeavour to find a solution which most closely meets them. Discernibly, the parties concerned have realised that without adhering to the principle of peaceful co-existence and mutual give and take, an agreed upon solution is almost impossible.

There are certain fundamental denominators which are common to arriving at such a solution. Both countries must have a desire to develop a workable solution, recognising at the outset that there will be a need for compromise. Neither India nor Bangladesh would obtain all they want but would have to give up something. This is the essence of any compromise.

38. See G. A. Avsyuk, 'Artificial Intensification of the Melting of Mountain Glaciers to Increase the Stream Flow in Central Asia' (1963)4 *Soviet Geography: Review and Translation* 46.

A permanent solution is of paramount significance to the Indo-Bangladesh relationship and to the entire Indian Sub-Continent. Negotiations between India and Pakistan failed mainly due to political hostilities between them. With the emergence of Bangladesh and its initial friendly relations with India, the situation became favourable for a solution once and for all, but again turned to sour for political reasons. At present, both governments have a better appreciation of the economic and political realities of the Ganges water development. The climate for a lasting solution has again become favourable. Both countries shoud take advantage of this friendship to explore the possibilities of a large-scale project which would work to the economic welfare of them both in the long-term. The prospects for a permanent solution appear promising, however it must be recognised that the political situation in the region is volatile and there could well be future changes in the present Indo-Bangladesh relationship which may adversely affect the successful achievement of a long-term solution. It took more than a quarter-century to arrive at the present stage and if the two countries fail to work out a permanent arrangement, it is not known when another firm basis for such a solution would be found.

On the necessity of a long-term arrangement, the two countries are in complete agreement but inexorably disagree on how it should be done. This appears to be the main problem to be removed in reaching a permanent resolution. One hopeful aspect is however that the positions of the two countries on the quantification of water at Farakka as a short-term solution were no less contentious prior to the conclusion of the 1977 interim agreement. If due regard is paid to the precedential impact of the short-term solution, and that it was achieved notwithstanding many complex problems, the attainment of a mutually acceptable long-term resolution of the Ganges-water dispute is distinctly possible if goodwill, co-opertation and reasonableness prevail on both sides of the dispute.