

Chapter 11

What Went Wrong?

Reactions to the 1996 Treaty were diverse and both in praise and blame. Some people welcomed it and praised New Delhi and Dhaka for reaching a long-term accord at last. Others criticized it, alleging that it would harm the interests of both the countries, particularly of Calcutta Port and would not resuscitate the Hooghly-Bhagirathi, to the extent envisaged and the very purpose of the barrage would be defeated in the long run. Some questioned and suspected the role, played by Jyoti Basu and Dr. Asim Dasgupta, his Finance Minister and felt that they had sacrificed the interests of West Bengal and of India at large.

What is the truth behind these mixed and diverse reactions? In my view, there were certain questions and issues which the Treaty did not address, or did it perfunctorily; these are:

- a) Were the problems of the two countries about the Ganga genuine?
- b) Was it necessary to sign such a long-term (30-year) treaty in haste?
- c) Were all major issues regarding the Ganga addressed in depth?
- d) Were all affected parties consulted before inking the accord?
- e) Was a long-term treaty really necessary?
- f) Was the treaty technically sound and its implementation feasible?
- g) Could national debates be held in two countries before signing the accord?

I venture to deal with these questions from my long association with the Farakka Barrage project, right from its foundation-laying to the conclusion of the 1996 Treaty and beyond (My answers below are in the same sequence, as above).

a) The unbridgeable differences between the two countries arose from (i) the stands, adopted by each; (ii) diverse opinions on the technical schemes for augmentation of the Ganga flow at Farakka; (iii) absence of stable governments in both the countries before and after the Treaty; (iv) India's policy of bilateralism toward Bangladesh; (v) India's refusal to involve Nepal as a third party to solve the augmentation problem.

New Delhi held that as the Ganga river flowed within the two countries, India and Bangladesh, both the issues of sharing of water and augmentation of flow were

to be settled by these two countries through mutual discussions only. Bangladesh, on the other hand, wanted to involve Nepal, Bhutan and China on the issue and wanted to get moral support of those countries by pressurizing India to come to a solution in its favour on the sharing as well as augmentation issue. The proposals on augmentation of the flow also varied widely on the same ground, as India wanted to involve only the two countries between him and Bangladesh; whereas Bangladesh wanted to involve Nepal also on the issue on the ground that most of the tributaries of the Ganga on its upper reaches originated from Nepal. Both sides tried to find flaws on technical, environmental and financial aspects on other's scheme and were rigid on their respective stands. However, Bangladesh could realize the limitations of its own proposal, when the issue was discussed by both sides with Nepal at a later date, Nepal imposed certain preconditions and also expressed its reservations on the proposal of Bangladesh. Lastly, political instability during the period on each side prevented either side to come close and arrive at an agreed understanding on the issue. Bangladesh side was more disturbed and the instability in government gave rise to some sort of suspicion and mistrust amongst the common people of that country towards India.

The differences could not be resolved, as each side did not see merit in the other's stand and the necessity of the volume of water demanded. India thought, Bangladesh did not need so much water, as it had surplus run-off of rain-water as well as ground-water going waste and flowing into the sea, unused. On the contrary, Dhaka took the diversion of water from Farakka to resuscitate Calcutta Port as wastage, because this could not be achieved by diversion of the Ganga water alone. The exchange of data by either side was deemed a way of delaying a solution.

b) Both sides were indeed interested to resolve differences on the two issues and to clear the air of suspicion and mistrust that had developed after the death of Sheikh Mujibur Rahman. The excessive haste in two sides, especially of Jyoti Basu, West Bengal Chief Minister, was inexplicable by experts and observers and a mystery to common people of the State. Governments changed in both countries between March and June 1996; the Treaty was signed in December, that year. Mr. Basu took extra interest, visited Dhaka in November amid overwhelming reception (his parents had migrated from that country, when it was East Bengal) and paved the way for a return visit by Sheikh Hasina, the then premier, to New Delhi, next month to ink the Treaty. The two new governments in Dhaka and Delhi were in power for a few months only, when the Treaty was signed. Why this unseemly haste when differences persisted for years? The new governments should have gone through records of about last 50 years, proceedings, prototype data, ground reality/field condition, views of experts, concerned States, engineers and scientists who knew the problems of the affected and the beneficiaries of two countries before signing such a long-term accord. On the plea of time being short, these were not done. The issues were sensitive, had far-reaching effects and needed a thorough scrutiny. Jyoti Basu, being the Chief Minister of West Bengal since 1977 knew the problems, but the same cannot be said of India's Prime Minister, H. D. Deve Gowda and Bangladesh premier, Sheikh Hasina. Both appeared to have been guided by officers and inked the Treaty without understanding the implications of a 30-year accord in depth.

c) Many issues were complex, affecting the interests of two countries and therefore, deserved a closer look. For India, the major issue was resuscitation of the Bhagirathi-Hooghly channel and reactivation of Calcutta Port. The main aim of constructing barrages at Farakka and Jangipur was diversion of 40,000 cusecs of the Ganga water into the channel, which would restore it to 1935 condition. If it was fulfilled, loaded ships of 26 feet (7.93 m) draught could visit Calcutta Port, round the year, 28 feet (8.54 m) draught vessels at least 200 days and 29 feet (8.84 m) draught vessels at least 100 days, in a year. This did not come to pass because of restrictions under the 1977 agreement. Belying hopes of India, only 22-foot draught vessels could visit Calcutta Port, round the year from 1978 because of reduced water in the channel. Though the target of 40,000 cusecs was not reached, the activities of Calcutta Port could return to normal. The river was somewhat resuscitated, navigation improved with 2 m draught vessels coming to the port. As the Ganga flows through Bihar and Uttar Pradesh, much of its catchment area is spread over these two large States; therefore, their present and future needs and of West Bengal should have received priority. Those of Nepal could also not be ignored; being a land-locked country, it has every right to use water of rivers, flowing through its territory.

Other issues before India were reduction of salinity, siltation and the frequency, intensity and the height of tidal bores in the port area, of the cost of dredging of the channel and the estuary and the maintenance of a navigation channel. Urgent issues before Bangladesh were the legitimate demand of water from a long and mighty river, originating in another country but flowing partly through it. On this depended navigation and agriculture, reduction of salinity and other environmental issues. Under international law, interests of a lower riparian country are to be safeguarded, while an upper riparian country develops itself. Bangladesh indeed suffered some ill-effects of diversion from the Farakka Barrage; its navigation, irrigation and water-supply to industries were all affected and the ecology degraded. These issues were of its national interest and should have been addressed by the accord.

d) In both the countries, many other affected parties were not consulted. In India, they were the Ministries of Surface Transport, of Water Resources and of External Affairs, Calcutta Port Trust, various departments of West Bengal, Bihar and Uttar Pradesh governments, various chambers of commerce and industries. In Bangladesh too, its ministries of water resources, irrigation and waterways, agriculture, public health and of foreign affairs were concerned but were not consulted.

Questions arise, why was the Treaty signed in so much haste and why vitally concerned government departments and organisations were not taken into confidence? A solution through another agreement was indeed overdue, but did not justify such haste and marginalisation of concerned parties. National interests and objectives of both countries were sacrificed. All these strengthen a suspicion that there was a hidden motive in two governments, collective or individual interests of the signatories that compelled both sides to ink the treaty, post-haste. There was some deeper thinking which was not divulged to the people of two countries, because it was more political than pragmatic. This was to demonstrate to their people that they could

solve such an intractable problem so quickly, which eluded previous governments, formed by political opponents of the new parties in power in Dhaka and New Delhi.

e) Was such a long-term accord really necessary for either or both countries? It was intriguing that such a historic long-term treaty was signed after Jyoti Basu returned from a visit to Dhaka in November 1996 and publicly announced that a short-term agreement of two to three years' validity was in the offing. Not only opposition parties but other left parties in the coalition ministry that Mr. Basu headed, were taken aback when the treaty was found to be of 30 years' validity. Prime Minister Deve Gowda met Mr. Basu in New Delhi a day before the signing ceremony and convinced him about the merits of a long-term accord. A veteran of behind-the-door diplomacy, Mr. Basu was the kingpin in bringing the two countries together to resolve the issues and everything happened as he desired. Why did he lead India to ink such a treaty of dubious benefits without detailed examination of relevant data, particularly when it had no provision of augmenting the Ganga water flow at Farakka? This was strange and Mr. Basu did not give any clarification to the people through the media.

Bangladesh required more water than it agreed to in the Treaty. Its demand was 44,000 cusecs in the lean season, but as the Treaty was silent on augmentation, it had to remain content with its share of the Ganga water at Farakka. With more water, its problems of irrigation, navigation, salinity, fall in ground-water level and overall environmental decline etc. could have eased, or been arrested.

Seeking and reaching an understanding about augmentation needed more time; if this was not available, a short-term accord of two to five years' validity could be struck, but a 30-year Treaty bypassed this major issue, entailing sacrifice of basic interests of two countries. Expectedly, the Treaty invited far-reaching adverse effects in both sides.

f) As regards technical soundness and feasibility of the augmentation scheme, both sides depended heavily on technical experts. The JRC was active for two decades and kept all records, collected since 1948 and the JCE was also looking into the issue for long. The discharge of an alluvial river depends on many factors. Some of these are characteristics of the catchment area, human habitation, forest-cover, development of water-resources through irrigation and supply of drinking water, industries, erosion and siltation etc. Because of rapid rise in population in India, the surface features of catchment areas changed fast. New houses were built and more and more land came under the plough. New towns and industries came up, raising the demand for water for sundry purposes. Forests were cleared for meeting rising demands of fire-wood, furniture and building materials; this reduced rainfall and ground-water availability, caused erosion of banks, siltation in the river-bed and affected discharges in the river. Thus, any assumption of the volume of discharge over 30 years, based on average of past 40 years is bound to be technically unsound and go wrong. The quantum of flow, supposed to be available at Farakka, as given in Annexure-II was impractical, because it may go down in future. It could be true for a short period of two to five years, but may not be so for 30 years, because a lot of changes can occur meanwhile in the catchment area and new water resources projects may come up, requiring water for various activities. Thus, discharges in

the Ganga will not remain static but in all probability, go down. It was unfortunate that the technical experts of India's Ministry of Water Resources and West Bengal government's irrigation and waterways directorate, who were associated with the Treaty either did not foresee these eventualities, or their views were not sought, or given due consideration.

Calculation of average discharge for 40 years (1949–1988) should be based on the maximum and minimum discharges of a number of years. If the figures for the minimum are for 15 years in a span of 40 years, the situation can recur in the next 30 years, i.e., the period of the Treaty. The discharges will drastically go, in three decades, much below those, stipulated in the Annexure-II. How would water-sharing materialise in those years of scarcity? Will the shares of India and Bangladesh be reduced and will these reductions be proportionate? The Treaty did not clarify this, but it specifically provided that the share of Bangladesh would never go below 80% of the quantity, as laid down in the Annexure. To keep Bangladesh unaffected in such crises, India would have to suffer and sacrifice her interests. For instance, if the flow at Farakka falls to 40,000 cusecs, India will get less than 10,000 cusecs as long as it lasts. In fact, on a day in 1980, the minimum discharge did come down to about 38,000 cusecs. Since 1976, on a day each in nine years— 1980, 1983–1985, 1988, 1992–1994 and 1997; the minimum discharges were less than 45,000 cusecs. The sharing formula in Annexure-II would have been difficult to apply in those years; there was no guideline in the Treaty. Such days are bound to recur in future and perhaps more often, as upper riparian States would continue to draw more water for diverse purposes. Though the Treaty provides for mutual consultation in the event of the flow at Farakka going below 50,000 cusecs in any 10-day period, it would have been better if an automatic response by the two sides was incorporated in it, because by the time, they consult each other, the climax of fallen discharge might have passed and some harm had been done. In fact, this happened in April 1997, four months after the Treaty came into effect. The flow at Farakka went down to about 46,000 cusecs, landing field engineers in a spin for release of water from the barrage. As stated, whenever one side got 35,000 cusecs in a 10-day period, the other side was to get only about 11,000 cusecs. The treaty gave no guarantee that a similar situation would not arise in future. The Ganga is an alluvial river; its bed and banks below the barrage and the feeder canal are made of very fine silt, silty clay, sand and sandy silt deposits with little shearing resistance to sudden changes in external forces. The soil is loose, porous, non-uniform and heterogeneous, owing to uneven level between the river and the ground-waters inside the bank-soil mass. Water may either moist the soil mass, or exit non-uniformly and damage the soil. This helps erosion of banks and the bed and causes bank-slips, which are frequent in the tidal reach where water-level always changes and fluctuates. In the Hooghly, this occurs twice a day, with flow and ebb tides.

In Annexure-II, the discharges in the Ganga and the feeder canal are shown as fluctuating in March and April. The flow in the canal reduces to the minimum from one 10-day period to the next to 6,820 cusecs from 21–31 March to 1–10 April and that in the Ganga reduces to 7,366 cusecs from April 1–10 to April 11–20. Thus, the total flow during this period of March 21 to April 20 varies from 64,688 to 62,633

cusecs, but these do not tally with the figures of prototype observations in several years. In some critical years, if the flow falls to about 45,000 cusecs, minimum 35,000 cusecs are to be released to one side, as per the Treaty, the other side gets only 10,000 cusecs, bringing down the discharge, instantly, by 25,000 cusecs from one 10-day period to the next. Even if the average flow is around 50,000 cusecs, a guaranteed discharge of 35,000 cusecs would flow to one side and only 15,000 cusecs to the other side, reducing the total flow by 20,000 cusecs in the next 10-day period. This abrupt fall will severely affect the canal-bed and the banks owing to sudden fall in external water-pressure, of the tractive force of flowing water and cause bank-slips, silt deposits on the bed, rendering the canal cross-section unstable. However, the Ganga being more wide than deep, the vertical difference owing to such falls in discharge would not be much and bank-slips would not be severe. As the canal is much narrower than the Ganga, vertical fluctuations would be appreciable and bank-slips and slides would be more severe. This occurred in 1997 and affected the banks of the canal in about 30 places, following big and small slips in March and April. Sharing of the Ganga water from 1977, as per the Treaty, actually increased siltation in the river-bed. The envisaged benefits did not accrue to the extent desired. The Bhagirathi-Hooghly did not receive 40,000 cusecs, round the year, from 1978. In the lean season previously, flow-tides carried huge silt-load which could only be reduced by maximum upland discharge. After 1977, water became almost silt-free and its scouring capacity reached the maximum. Tides were quite high in the lean season and a steady flow of 40,000 cusecs, round the year for at least five years, could degrade the river-bed gradually, to the desired extent. Expected benefits of Calcutta Port after the commissioning of the barrage included up and down movement of vessels of 7.93 m, or 26 feet, draught, round the year, of 8.54 m or 28 feet draught for 200 days and of 8.84 m, or 29 feet, for 100 days, but this was not achieved. Only vessels of 6.71 m or 22 feet draught, plied round the year until 1996; vessels of 8.54 m could not come to the port, even for a single day. The salinity of water, supplied to Kolkata and Howrah regions also, was not reduced, to the desired extent. Thus, although the barrage brought some benefits to the port, they were far less than those envisaged before the construction of the barrage.

The discharges in the lean season being much less than required, navigation did not improve much and *chars* emerged, particularly below Diamond Harbour. Navigation on the Haldia channel was blocked by silt and loaded ships could not ply through the Haldia channel now. The ships now pass through the Rangafalla channel, near Kulpi. The bores during flood-tides in Kolkata region continue to occur but less frequently than before the barrage, in about 50 days as against 120 days before. Unstable flows caused erosion of banks and left a huge volume of silt on the bed, making it unstable too. It has to be admitted, however, that although some envisaged benefits eluded, some were indeed achieved.

After the signing of the 1996 Treaty, siltation, salinity, bore tides, bank erosion etc. increased because of fluctuations in flows – 10 days less and 10 days more – in the lean season, the water current also varied. The silt-load that, entering the river, moves upward with flow-tide and is deposited in the bed cannot be wholly scoured.

During ebb-tide, it moves with reduced flow of sweet water. The combined ebb-flows diminish for 10 days, raising the bed and in the long run, may revert the river to pre-barrage condition. Owing to variable flows, the banks would become unstable and cause continuous bank-slips and consequent loss of land and increase of silt and would further raise the bed. Intensive dredging to keep up the navigation channel would be required as before, with prohibitive rise of cost. For disposal of spoils, more land would be required. Salinity would intrude toward land because of variable flows and spoil farmland, ground water and water for drinking and use in industries. Bore tides in the port area will also increase. The Treaty is technically unsound. The water-sharing ratio is not consistent with the basic theory of soil mechanics; frequent forward and backward movements of flow will not keep the soil static and stable in the banks and the bed. It will always remain under-stressed with inward or outward force like a tidal reach. This unnatural situation will destabilise the feeder canal and the reach of the parent river, the Ganga downstream and the Bhagirathi-Hooghly for decades to come. The reaches will never stabilise and return to the regime condition. Siltation and erosion can return if they are not properly maintained.

Water-sharing by properly operating gates of the barrage would be quite difficult. Many of these and the regulators have to be frequently raised and downed. Discharges in the Ganga and the Bhagirathi-Hooghly via the feeder canal fell up to end-April and increased thereafter. This arrangement was technically sounder and it became easier to implement the 1977 short-term accord and the 1982 MOUs. The barrage gates and the canal regulator were operated more easily than under the Treaty.

The Treaty was technically unsound from another aspect too. The earlier accords and three Agreement/MOUs of 1977, 1982 and 1985 calculated the flows, reaching Farakka on the basis of 75% availability from the data observed for 26 years – from 1948 to 1973, keeping a latitude of 25%, presumably in view of (a) variations of flows reaching Farakka, (b) dead storage in the river, (c) utilization by upper riparian states, and (d) maximum probable years of occurrence. However, the flow data between 1974 and 1977 were not taken into account for some objections by Bangladesh. The agreement and the MOUs rightly envisaged the variations of the flows for some obvious reasons. An increasing population needs more use of water. The Farakka barrage was constructed with a raised crest-level, higher than the deepest level of the river-bed by about 2–3 m.

Like a dam in the hilly region of a river, whose design provides one, a dead storage was deemed necessary, upstream of the barrage, by experts in the Agreement and the MOUs. The experts, who drafted these, kept in view the interests of upper riparian States of India and provided for 25% of water as reserve for their withdrawal and use. However, the Treaty of 1996 arrived at the volume of flow, reaching Farakka, as the average of the total for 40 years, from 1949 to 1988; for some unknown reason, the flows of 8 years – of 1948 and from 1989 to 1996 – was not taken into account. They took the total flow of the Ganga reaching Farakka; this was a technically erroneous decision. Every river flow varies and in the case of the Ganga, it was likely to be less in future. Both dead storage and the needs of the upper States were ignored; the full flow determined the sharing ratio. This was an incorrect

Table 11.1 Comparison of flow considered in Agreement of 1977, Treaty of 1996 and actual flow available at Farakka in 1988 and 1997

| Period | Anticipated flow in 1977 (75% of the availability from 1948 to 1973) (cusecs) | Anticipated flow in 1977 (considering 100% availability) (cusecs) | Anticipated flow in 1996 as per Treaty (cusecs) | Actual flow available in 1988 (cusecs) | Actual flow available in 1997 (cusecs) |
|---------------|---|---|---|--|--|
| 1 | 2 | 3 | 4 | 5 | 6 |
| January 1-10 | 98,500 | 131,333 | 107,516 | 88,029 | 101,976 |
| 11-20 | 89,750 | 119,667 | 97,673 | 77,605 | 89,672 |
| 21-31 | 82,500 | 110,000 | 90,154 | 74,195 | 97,542 |
| February 1-10 | 79,250 | 105,667 | 86,323 | 66,752 | 85,604 |
| 11-20 | 74,000 | 98,667 | 82,859 | 61,158 | 81,016 |
| 21-28/29 | 70,000 | 93,333 | 79,106 | 56,894 | 61,920 |
| March 1-10 | 65,250 | 87,000 | 74,415 | 56,305 | 66,170 |
| 11-20 | 63,500 | 84,667 | 68,931 | 55,869 | 56,769 |
| 21-31 | 61,000 | 81,333 | 64,688 | 55,135 | 53,312 |
| April 1-10 | 59,000 | 78,667 | 63,180 | 50,848 | 50,331 |
| 11-20 | 55,500 | 74,000 | 62,633 | 54,734 | 54,526 |
| 21-30 | 55,000 | 73,333 | 60,922 | 66,530 | 64,052 |
| May 1-10 | 56,500 | 75,333 | 67,351 | 70,038 | 66,728 |
| 11-20 | 59,250 | 79,000 | 73,590 | 73,650 | 65,955 |
| 21-31 | 65,500 | 87,333 | 81,854 | 82,087 | 66,487 |

decision and India's interests were sacrificed. Besides, out of 40 years, from 1949 to 1988, there might have been some years of very high and some years of very low discharges which should have been excluded from determining the average and the maximum years of occurrence of predominant discharge should have been taken into account to arrive at a reasonable volume of flow. The earlier agreement and the MOUs took note of this but the 1996 accord did not.

The Treaty did not consider increasing the Ganga flow at Farakka in future, which was falling in the lean season, especially from February to April. A comparison of the actual flows reaching Farakka with those of the schedule of water-sharing at the barrage from January to May, as per the 1977 agreement, or the MOUs of 1982 and 1985, reveals the facts, as shown in Table 11.1.

The table shows that the actual discharge at Farakka in 1988 and 1997 were far less than the anticipated flow of 1977 and 1996, as recorded in the agreement and the Treaty. For instance, the actual flow of 1988, compared to that mentioned in 1977 accord was about 11.5% less in January, 18% less in February, 12% less in March but 1.50% and 23% more in April and May, respectively. From February to April, when the demand is highest, the flow reduces. The excess flow in April 1988 was due to sudden rise in the discharge in the last 10-daily period. Similarly, the actual flow at Farakka in 1997, compared to the flow, envisaged in the 1996 Treaty, was

far less than the anticipated 100% flow, reaching Farakka in 1977, round the year. The actual flow is bound to gradually diminish in future owing to rising demand for the river-water; therefore, it was necessary to provide for augmenting the flow at Farakka in the Treaty. The 1977 agreement specifically provided for finding a solution to the long-term need of augmenting the flow of the Ganga in the dry season. The JRC was entrusted with carrying out investigations and study schemes, as submitted by either government, for finding a solution, acceptable to both sides. Previous governments were also seized with the problem and made specific provisions, although these could not materialise up to 1988 because of differences of views but the fact remained that both countries understood the problem, thoroughly. The 1996 Treaty did not provide for augmentation of flow at Farakka; it merely recognised the need for cooperation to find a solution. It could have at least envisaged a definite time-frame for an agreed solution, without which both countries are now suffering.

The issue of augmentation was separately discussed by India's Prime Minister and West Bengal Chief Minister, Jyoti Basu, particularly by diverting 13,000 cusecs from Sankosh river in Bhutan at a cost of 70,000 million rupees; but they felt, it was not feasible and impractical, because the link canal from the Sankosh river to the Ganga would have to pass through dense forests, numerous tea-gardens etc. for which environmental clearance may not be available. Besides, 13,000 cusecs, required in the lean season could be elusive; only about half of it could be guaranteed. Cost-wise, they would be prohibitive; one cusec of water through this canal could cost as much as 10 million rupees.

g) These lead to the inescapable conclusion that the Treaty was not well-drafted, well-timed and well-discussed at all levels before it was signed. Because it was a 30-year treaty and renewable thereafter, national debates were necessary in both countries before it was conceived. It should also have been discussed by national-level political parties, experts, engineers and scientists in related fields, the provincial governments of riparian countries and their concerned departments, the beneficiaries and implementing authorities. These were not done, perhaps deliberately and the Treaty was executed in post-haste, ignoring the genuine interests of both countries.