CHAPTER - SIX

ISSUE OF WATER SHARING

From time immemorial human ingenuity and skill have brought about progress in the sphere of human civilisation and culture through successful manipulation of the natural resources of the Earth. But today the global concern is rising as to how the tempo of development works for human progress could be maintained without disturbing the existing or requisite equilibrium in the whole circle of action and interaction of the elemental forces and the resources of nature. Wherever and whenever this equilibrium is found to be disturbed the repercussions thereof inevitably and even globally create
social tension, economic distress and political dissensions.

The water, specially, river water generated by the rain-mountain cycle, is the largest single economic resource of this region, specially when considered in conjunction with the population. It is also the largest water resource available to any equivalent area anywhere in the world. Considering the importance of water, as believed by many experts, the biggest constraint on the future growth of the world economy is going to be not shortage of oil but of water. This resource will become a power in international terms. But in terms domestic to this region it is already a power; only, we have not fully realized this fact. All countries of this region are primarily agricultural, and the key to this sector of their economy is optimum use of river waters. It is also the key to their industrialisation as the cheapest source of bulk power, that is hydel power. But advantage of this key resource of the region is only possible if there is full cooperation to this end between all countries, which are joined by the Himalayan river system southwards of the Himalayan watershed with China. Principally, this means cooperation between India, Nepal, Bangladesh and Pakistan. But since upon the prosperity of this inner ring

3. Ibid.
depends also the pace of development of the countries of the next ring of countries—Sri Lanka in the south, Bhutan in the north, Burma in the east and Afghanistan in the west, and of the inland states of Indian Ocean—whether or not they are formally counted among South Asian countries—optimum use of this resource is of importance to the whole of South Asia. In process of this cooperation lies the strength which some of the smallest countries of the region, for example, Nepal, have against the largest, India. Similar is the leverage Bangladesh has with India and India and Pakistan have with each other.

Disparities between the bargaining power in trade are also levelled out by the geo-economics of water utilization. Nepal may have nothing else to sell to India but it can sell to India enormous and highly lucrative opportunities for the generation of hydel power. The position of Bangladesh in terms of hydrographic leverage with India is very similar. In return, so is India’s leverage with these two countries because India is the only feasible and substantial buyer of the cooperation they can offer for the utilization of the waters flowing through them. Similarly, India and Pakistan also still have, despite the Indus Water Treaty, valuable cooperation to offer to or withhold from each other. The treaty was only an agreement on the division of the Indus water between them, not on its optimum exploitation. The question of

4. Ibid., p. 12.

water sharing is related to those rivers which run through several states. The Indus River System consists of rivers - Jhelum, Chenab, Ravi, Beas and Sutlej. Ganges River System flows through three countries - Nepal, India and Bangladesh, and has a very variable flow pattern. Ganges rises at about 23000 feet in Gangotri in Uttarakashi district of India on the southern slope of Himalayan range. The seven major tributaries are the Yamuna, Ramganga, Gomti, Gandak, Ghaghra, Kosi and Bagmati. Three of the major tributaries - Gandak, Ghaghra and Kosi pass through the territory of Nepal. Eleven miles below Farakka of India, the Ganga enters Bangladesh. At Goalundo in Bangladesh the river joins the Brahmaputra. The confluence receives the Meghna, a few miles downstream before its merger into the Bay of Bengal. From source to outfall the total length of Ganga is 1570 miles. Another river system in the South Asian region, which flows through more than one country is Brahmaputra River System. It, in the course of its long journey flows through China, India, Bhutan and Bangladesh. It goes through seven major falls with massive hydro-power potential. The drainage area of the Brahmaputra river is 234,000 square miles in Bangladesh and almost the entire area of Bhutan lies within its drainage system. Again the flow pattern of the river Brahmaputra is quite variable. Harnessing of this massive potential could also

significantly help mitigate the annual flood hazards that the Brahmaputra visits on the Assam valley and Bangladesh with unfailing regularity. It would involve regional cooperation between India, China, Bangladesh and Nepal.  

The cooperation is very much needed among all the riparian countries in order to attain all possible benefits from water resources of the region. Enhancement of such cooperation is already becoming a reality today as the concerned countries have shown their willingness to take important steps forward.

A. WATER SHARING BETWEEN INDIA AND PAKISTAN:

The era of Politics of water began in the sub continent, in fact, immediately after its partition. The making of political boundary in the existing socio-economic geographical setting disturbed the integrated system of water use. Nevertheless, it remained within the power of decision makers of the newly emerged political systems to work on a co-operative basis and co-ordinated plans and programmes for developing the available water resources for the maximum utilization in promoting common economic well-being. The first water sharing issue was of the Indus water in the western part of the sub-continent. The Indus and its five tributaries – Jhelum, Chenab, Ravi, Beas and Sutlej form the largest irrigation system in the world. The boundary line cut across the system – India became the upper riparian and Pakistan, the lower riparian. In April 1948,
India suddenly stopped the supply of water flowing into Pakistan. In support of India’s action, it was argued, “As India needed water for her own development plans it was ‘natural’ that she would tap all the available resources....”

The Harika Project was constructed by India as a security measure. Eleven miles upstream from Ferozpur Headworks, the Sutlej river passes through Pakistan territory. After flowing for seven miles it re-enters Indian territory at a point four miles upstream of Ferozpur thus making a loop. From this loop the waters of the Sutlej can be diverted into Pakistan territory leaving Ferozpur Headworks high and dry. According to Indian sources, in 1948, the Government of Pakistan dug a channel from the river in their territory above Ferozpur drawing water in Dipalpur canal. This Channel was capable of sucking in all the river supply, leaving none for the Eastern and Bikaner canals. So, Harika Project was undertaken. The barrage was constructed across the river Sutlej at Harika a few miles down-stream of the confluence of Beas and Sutlej in order to divert the water supplies into the Ferozepur feeder for utilization on the Eastern and Bhakhra canals.

Some of the other schemes led to the canal water disputes between India and Pakistan and accentuated the already existing tension between the two neighbouring countries. The canal headworks

---

on the Sutlej, Beas and Ravi rivers fall in India. But only two of the 25 canals lay in India and one was in both countries. The agricultural lands in the portions of the Punjab that came to India's lot were much poorer, having much less irrigation service than those in Pakistani part of the Punjab. Madhopur - Beas Link Scheme was envisaged to divert surplus supplies of the river Ravi to the extent of 10,000 cusecs of water for utilization in the Eastern canal, Shah Mahal canal, Makhu canal and other areas. The water of the river Ravi which was going to Pakistan was taken into the river Beas by this project. Pakistan grumbled that this link was a violation of the Inter-Dominion Agreement as by this project Pakistan headworks on river Ravi could be ultimately deprived of these waters. The Punjab Government also undertook Sirhind Feeder Project to utilize the waters of river Ravi which could help save water in river Sutlej and could also increase the quantum of water in Bhakhra. Other projects like Pong Dam and Thein Dam were also built to meet the requirements of Punjab, Kashmir and Rajasthan.

Canal water dispute assumed an international character and attracted the attention of some notable authorities on international law towards the solution of the Problem. As a result of Partition,

14. Paradox of India-Pakistan Relations, Publication Division, Ministry of Information and Broadcasting, Govt. of India, Delhi, 1965, p. 25.
16. The Times of India, 1 July 1958.
out of six rivers which watered the United Punjab, three Indus, Chenab and Ravi - flow through Kashmir to the West Punjab while two-Sutlej and Beas a tributary to the latter rise in the East Punjab and flowing long in the area subsequently join the Indus. The Indus (1,800 miles long) is the longest river in the Indus Basin and has the largest water supply. Next to it are Jhelum and Chenab in terms of water supply. The remaining three tributaries, the Ravi, the Beas and the Sutlej are comparatively poor in water supply and together carry about one-fifth of the flow of the entire system.

The Indus Basin Dispute which became an international issue after the partition, can be traced as far back as 1920. According to the Tripartite Agreement of 1920 between the undivided Punjab, Bikaner and Bahawalpur, the West Punjab canals had no right to the Sutlej waters and at the most had only a residuary interest in them, after the requirements of the proposed Bhakhra Project and other canals in the East Punjab, had been met with. In 1934, the Anderson Committee was appointed to consider various government's rights. The dispute, however, took a political and legal shape at the time of partition of the country. The Radcliffe Award was silent on the issue of the division of these waters. Even the partition Committee,

19. Ibid.
which was set up in 1947 to negotiate "vital and delicate issues" between the two countries, was not able to solve the problems that followed from cutting the rivers and canals in an arbitrary manner due to an artificial boundary between the two states. Then the partition committee referred the matter to two experts for further negotiations. As a result of the recommendations, a "Standstill Agreement" was signed on 18 December 1947. According to it, the same proportion of water supply from the rivers concerned was allowed to the parties as had been permitted to flow downstream in the past. The Agreement was to expire on 31 March 1948. It was specified in the Agreement that the parties "may ... execute a further agreement for any period subsequent ..." Since no agreement was reached between India and Pakistan, until 1st of April 1948, the Indian authorities discontinued the delivery of waters to Pakistan through the two canals in the Indian territory - the upper Bari Doab canal (from Madhopur Headworks) and Dipalpur canal (from Ferozpur Headworks). The discontinuous of water delivery by the Punjab Government to the West Pakistan led to immediate meetings. As a consequence, the Delhi Agreement of 4th of May 1948, was signed. The flow of water, however, was restored prior to the agreement at Pakistan's request. The Delhi Agreement clarified the basic position of India and Pakistan as agreed between the two countries. The Agreement was followed by India and Pakistan for many

---

25. *Ibid*.
months, but the issue was revived when the Kashmir problem was being fervently discussed in the United Nations. Speaking in the Security Council on 8 February, 1950, Zafarullah Khan, the Pakistan Foreign Minister, remarked that India obtained the agreement under duress and suddenly repudiated it unilaterally on 23rd August 1950. The Government of India refused to accept the unilateral abrogation of the treaty.

This water treaty was followed by four years of negotiations between two countries when unsuccessful attempts were made to reach some settlement. India suggested a joint technical survey of the Indus Basin so that both the governments might know the facts of the situation. India contended that there was enough water in the Indus Basin to fulfil the requirements of India and Pakistan by some construction here and there to utilize the water. But Pakistan proposed that the matter should be referred to the United Nations or to the International Court of Justice under Article 7 of the U.N. Charter. Jawahar Lal Nehru agreed to some extent and recommended that attempt should be made to solve the dispute without going into complicated legal issue. He proposed that an ad hoc tribunal consisting of two judges from Pakistan and two from India should be set up to go into matter for they would be better qualified than the International Court

of Justice sitting thousands of miles away.

The dispute, in the meantime, attracted the attention of some international authorities. David B. Lilienthal, Head of the Seven-State Tennessee Valley Authority (TVA) of USA, visited India in 1951. He recommended that since it was not a "religious or political problem but a feasible engineering and business problem" and as "river pays no attention to partition", the whole system must be developed as one unit-built and operated as one unit like the seven states T.V.A. system in the U.S.A. He, however, justified Pakistan's legal claim to the Indus waters but clearly laid down that there was need of active partnership from both sides. He described the situation as, "No army with bombs and shell fire could devastate a land as thoroughly as Pakistan could be devastated by the simple expedient of India's permanently shutting off the sources of water to keep the fields and people of Pakistan alive."

The world Bank took the initiative to solve the problem in November 1951. A working party was accordingly set up by India and the other by Pakistan who with the help of an engineer nominated by the World Bank were entrusted with the task of preparing a comprehensive long range plan of specified engineering measures to procure supplies to each country from the Indus and its distributaries. In spite of their best efforts, the Indo-Pakistan engineers could not come to a settlement. The Indus water dispute, thus,

---

29. The Hindu, 29 November 1950.
became an extremely complicated issue on account of the combination of political, economic, legal and technical problems with an adverse historical and religious background. Negotiations and heated debates dragged on till 19th September 1960, when the *Indus Water Treaty* was signed, fixing and delimiting the rights and obligations of the two countries with regard to the use of the waters of the Indus river system. It came into force from April 1, 1960. As envisaged in the treaty, a permanent Indus Commission representing both the Governments, had been set up to establish cooperative arrangements for implementation. India herself needed the waters of the Indus river system for increasing her agriculture production, which was the keystone of her development plans. Yet, under the terms of the treaty India not only agreed to the allotment of the Western rivers to Pakistan in toto, but also undertook to supply water to Pakistan from her own three eastern rivers - Ravi, Beas and Sutlej - till such time as Pakistan was able to construct its own irrigation and water works system. The other terms of the Treaty were also distinctly advantageous to Pakistan and many impartial observers expressed amazement at India's generous attitude. In a broadcast to the people of India on 3rd of September, 1965, Lal Bahadur Shastri showed the generosity of India. He said, "Our quarrel is not with the people of Pakistan. We wish them well, we want them to prosper, and we want to live in peace and friendship with them. What we are up against is a regime which does not believe in freedom, democracy and peace as we do."  

---

B. WATER SHARING BETWEEN INDIA AND BANGLADESH:

One issue on which India and Bangladesh are concerned is the sharing of waters of Ganges, Brahmaputra and the Tista rivers. The Ganges River System flows through three countries: Nepal, India and Bangladesh, and has a very variable flow pattern. The drainage area of the river Ganges in India is 3,32,585 square miles; in Bangladesh it is 26,015 square miles, about half the total area of the country; and almost the entire area of Nepal lies within its drainage system. The peak discharge recorded at Hardinge Bridge in Bangladesh is about 2.5 million cusecs, whereas the minimum, which occurred in 1976, is only 23,200 cusecs (less than 1 per cent of peak discharge). This extremely variable flow pattern of the Ganges River results in a major challenge in surface-water resource planning. The dispute between India and Bangladesh is over their quantum of share of the dry season flow of the Ganges. It arose because of the barrage project of India at Farakka across the Ganges to divert 40,000 cusecs of the dry season flow of the Ganges to resuscitate the Bhagirathi-Hooghly, an offshoot of the Ganges. Bangladesh, the down-stream country claims that this project affects the ecosystem of the region, and with that interests of Bangladesh, in a number of ways.

36. Ibid.
37. Begum, Khurshida, op.cit., p. 3.
The barrage would also disturb the agriculture pattern, water transport, fish wealth etc. of Bangladesh. The people of Bangladesh feared that India, by not providing waters to them, wanted to cripple the economy of Bangladesh for ever so that it could always be subservient to India. The dispute centres around the question of their respective needs and that of the best means of augmentation of its flows to meet the inadequacies in the supply of water during the dry season.

In a divided political geography India and Pakistan emerged as two sovereign authorities of the Ganges. India became the upper riparian country and the East Pakistan (now Bangladesh), the lower riparian. The boundary line between the two states lies quite near the point of bifurcation of the flow of the Ganges into the Bhagirathi Hooghly and the Padma. The Hooghly falls on the Indian side. The Calcutta Port with the Hooghly's problems in its navigation routes, now became the responsibility of the Government of India. Pointing out the river problems of Bengal, in 1941, Mr. S.C. Mazumdar, the Chief Engineer of Bengal (before partition) said that these are dominated by the large portion of the silt carried by floods. He

---

40. Ibid., p. 28.
referred to the extensive deforestation in the catchment area, and
the excessive grazing by the growing cattle population. The extent of huge erosion is so great that in 1970s there has emerged a new island of 40,000 sq. km. in the Bay of Bengal. The rate of depletion of forests in the Himalayan ranges is so great that this could become barren by the first half of the next century. On account of this problem of huge erosion in the catchment areas, India's Farakka Project for withdrawing water from the down stream flow for resuscitating the Bhagirathi-Hooghly with silt-free water, creates a host of new problems of the downstream areas where the river channel is left to carry a bigger volume of silt load with lesser volume and velocity of water flow. The Farakka Barrage was built to save the Calcutta Port and to improve the lot of millions of people living in Eastern India. Water from Ganges is necessary to flush the Hooghly and thus save the Calcutta port from silting, and India has been trying to impress the Dhaka that there is no other way of saving the port. Bangladesh demanded uninterrupted flow of Ganges waters all the year around and insisted on India obtaining prior permission before utilising or diverting any Ganges waters in its own territory. Bangladesh alleged that India made "unilateral withdrawal of water".

There was a long series of correspondence between India and Pakistan over the Farakka issue. In the period between 1957-58, Pakistan made three important proposals:

(a) that both the parties should secure the advisory and technical services of U.N. to assist in planning for cooperative development of eastern rivers;

(b) that the projects of the two countries be jointly examined by experts of the two countries before their implementation;

(c) that the Secretary General of UN be requested for the appointment of an engineer or engineers to participate in the meetings of expert level.

India did not agree to these proposals, specially the idea of the arbitration of a 'third party'. Early in 1960, it agreed to exchange data on projects of mutual interest. There were a number of meetings of water resource experts of the two countries. Between 1968 to 1970, five Secretary level meetings were held. In the meetings, one of the proposals from Pakistan's side was to guarantee Pakistan of fixed minimum deliveries of the Ganges water on a monthly basis at an agreed point. The three important recommendations of the last meeting were:


46. Begum, Khurshida, op. cit., p. 93.

(a) the point of delivery of supplies to Pakistan will be at Farakka;

(b) the constitution of a body to ensure the delivery;

(c) the arrangement of meetings at particular intervals to consider the quantum of water to be supplied to Pakistan.

Notwithstanding all these discussions, negotiations and exchange of data, the question of apportionment remained unresolved. In the Lok Sabha in 1961, Nehru, when was asked about the objections of Pakistan, gave a reply, "we have not allowed it to be stopped or suspended and we do not intend to stop it in anyway." Indian stand was in favour of bilateral talks. Its reference to the UN would delay the solution of the issue. The problem raised by Bangladesh was of a technical nature involving the fate of the economy of the whole of eastern India. India pleaded that while Bangladesh needs water only for irrigation, India needs increased flow of Ganges water to save Calcutta port from being chocked by silt. On the other hand, Bangladesh contended that Ganges is an international river and demanded equitable sharig of its waters. India refuted this contention by pointing out that for about 90% of course, the river flows through Indian territory, and, therefore, it can not be termed as international river. However, India expressed its willingness to consider sympathetically Bangladesh's requirements and to accommodate them as far as

48. Lok Sabha Debates, 14th Session, 1961, Col. 3202.

possible. The political crisis of 1971 in Pakistan brought the two contending parties of Ganges water conflict, India and Bangladesh, close to each other. The difficulty in apportioning the normal resources led the two governments of the two countries to agree that augmentation of the Ganges is necessary. To proceed further in this direction, Indo-Bangladesh Joint Rivers Commission was set up in July 1972 to:

A. maintain liaison between the participating countries in order to ensure the most effective joint efforts in maximising benefits from common river systems to both the countries;

B. formulate flood control works and recommend implementation of joint projects;

C. formulate detailed proposals on advance flood warnings, flood forecasting and cyclone warnings;

D. Study flood control and irrigation project so that water resources of the region can be utilized on an equitable basis for mutual benefits of the people of the two countries; and

E. formulate proposals for carrying out coordinated research on problems of flood control affecting both countries.

50. Ibid.


Both the countries discussed the issue on 6th of December 1976 at Dhaka. The Indian team was led by Mr. Jagjiwan Ram, the then Minister for Agriculture and Irrigation. But the talks were with no success. The White Paper issued by Government of Bangladesh in September 1976, reads: "A grave crisis has arisen for Bangladesh on account of India's unilateral action in diverting the waters of the Ganges at Farakka. These withdrawals amount to as much as three-fourth of the dry season flow of the river Ganges. It is difficult to find a precedent in the world where such heavy amount of waters of an international river are appropriated unilaterally by a country at the cost of the vital interests of a neighbouring country". Against this statement, India forwarded its opinion in its publication, The Farakka Barrage, "The available technical and economic data, studies and observations show that the operation of the Farakka Barrage will not affect Bangladesh adversely. Some 'minor problems' may arise, but these can be remedied without impeding the diversion of the Ganges water into the Hooghly".

After prolonged negotiations the two countries concluded a comprehensive long-term and short-term agreement on the sharing of Ganges water in November, 1977. This agreement, known as Farakka


55. *Farakka Barrage*, Ministry of External Affairs, Government of India, New Delhi, p. 139.

Agreement was designed to meet the needs of both countries and the port of Calcutta during the dry season. The agreement, described as "unique" in the history of riparian states, secured the essential requirement of Calcutta port and protected the interests of Bangladesh. It provides for withdrawal by India and Bangladesh during the leanest period - from April 21 to April 30 - at the rate of 20,800 cusecs and 34,700 cusecs working out at 37.5% and 62.5% respectively of the minimum flow of 55,000 cusecs at Farakka in the lean season. After the leanest ten days period, India's share will increase at a higher rate to get as closer to 40,000 cusecs as quickly as possible. Within the lean season. The rate of withdrawal by India during these periods will increase roughly from 2% to 25%. On a long term basis the two states have committed themselves to augment the flow of Ganga. In 1978, the two parties formally made two suggestions for the augmentation of the Ganges. The Bangladesh suggestion was to build up storage dams in parts of Nepal and India from which sources of water are to be released into the Ganges during the dry season. Indian suggestion was to link up the Brahmaputra with the Ganges by digging a long canal for diversion of its water for augmenting the dry season flow of the Ganges. But the two parties failed to concede to each other's plan.

In October, 1982, they reached an interim accord on Ganges water. Under the accord, it was decided to terminate the 1977 Farakka Agreement

A period of 18 months was given to complete studies on the ways to augment the flow of Ganga. It was decided that the Indo-Bangladesh Joint River Commission would complete the feasibility study and decide upon the optimum solution which would be accepted by both the sides. On 24th of December 1982, the two countries agreed to set up a joint committee of experts to carry out pre-feasibility study of schemes proposed by either side for augmenting the dry season flow of Ganga and Farakka. On 7th of January 1983, they reached an accord on making new arrangements for sharing of Ganges water for another two years. Though the Joint River Commission has been holding meetings at regular intervals thereafter, it could not find a mutually acceptable solution.

In October 1985, Prime Minister Rajiv Gandhi and President F.M. Ershad achieved an "understanding" on the sharing of the river waters. Both sides included a long term scheme for augmenting the Ganges flow at Farakka. A memorandum of understanding was signed for sharing these waters for a period of three years. Despite this accord Bangladesh insisted on the building of reservoir dams and pressed for inclusion of Kathmandu in this project. In January 1986, the two countries agreed to study proposals of each other regarding sharing of waters.

61. The Indian Express, 28 October 1982.
Now the two parties have decided to make a deeper study of the matter by collecting more scientific data, it is to be expected that a settlement will be reached on a technical basis without politics being injected into it. What is being aimed at now is a comprehensive formulation of sharing the common rivers including the Ganges and the Teesta. This, no doubt, requires that the technical committees make more intensive studies on the availability of water and their quantum in different periods. It has also to be noted that Bangladesh's real problem is extensive flooding, and any attack on this menace which has become an annual feature would call for concerted action by India and Bangladesh. The Indo-Bangladesh task force has made certain suggestions in this regard such as embankments along the common rivers, exchange of expertise for effective river training works in Bangladesh and exchange of flood forecasting data on a regular basis. During the Prime Minister, Begum Khaleda Zia's visit to India in May 1992, the two sides agreed to evolve a longterm and fair arrangement concerning the sharing of waters. Consequently, there was a ministerial level meeting between the two neighbours on August 28, 1992 and a joint committee of experts (JCE) was set up to consider the questions of short and long term sharing of the waters. But the last JCE meeting held in November 1992 failed to make any breakthrough in resolving the long standing issue. The secretary level talks under the aegis of the joint committee of experts first took place in New Delhi in

December 1992. The Second meeting of the Secretaries under the aegis of the JCE took place on 30-31 March 1993 in Dhaka. The Indian delegation was headed by the water resources secretary, Dr. C.D. Thatte, while the Bangladesh team was led by the water resources and irrigation Secretary, Mr. M. Asafuddowla. During this meeting, India stressed on the need for diversion of the waters of the Brahmaputra to the Ganges while Bangladesh insisted on "adequate" release of the waters from the Ganga.

The two countries should concentrate on the mechanics of the optimum use of the flood of water now running out into the sea or making a swamp of vast areas in the southern part of Bangladesh. Viewed in the overall context, there is no real alternative to cooperative efforts to ensure that the waters of the Ganges and the other common rivers are put to the maximum use.

C. WATERS BETWEEN INDIA AND NEPAL:

Nepal is a resource poor country in other respects but is very rich in water resources. The total number of rivers and rivulets in Nepal is more than 6000. The total length of which exceeds 45,000 km.

In real terms considerable scope exists for greater Nepalese cooperation in harnessing the water resources of Nepal for irrigation, flood control, inland river navigation and generation of hydro-electric power. The enormous water resources of Nepal, it has been estimated, can yield hydro-electric power to the extent of 83000 MW, of which about 30,000 MW is economically explitable. But the installed power potential so far is only 240 MW. To develop even a tiny portion of potential is beyond the capacity of Nepal. Nepal cannot take advantage of its immense water resources potential for hydro power development in the absence of agreements with India. India, on the other hand, cannot take advantage of Nepalese hydropower sources, which could be among the least expensive energy sources for northern India, without such agreement with Nepal. So, there is wide scope for meaningful cooperation between Nepal and India, which may not only have an enduring impact on Nepal's future course of development but may also contribute substantially to India's own power-starved economy. Though Nepal's economic development depends very much on India, it would be wrong to consider Nepal's economic dependence on India as completely one sided. Indian economic interests in Nepal are also quite profound. The sources of most of the rivers of the Gangetic

70. Bhat, T.P., **op.cit.**, p. 44.
72. Shibasawa, A.H., **op.cit.**, p. 322.
plains in India are in Nepal. Nepal has its say regarding its part in the water resources development of the region and has its own policy stand in determining its foreign relations on water terms. According to King Birendra, "one of our chief resources in Nepal is water which if harnessed and managed properly holds a magic key for all round development of our country." In order (for both countries) to take advantage of potential benefits from these resources, carefully orchestrated, constructive and probably protacted negotiations would be required. So far, cooperation between Nepal and India in this sector has been somewhat tentative and limited. The 1950s and the early 1960s saw the expansion of the irrigation network in Nepal with Indian assistance. India and Nepal both benefited from two major projects set up with Nepalese cooperation - the Kosi and the Gandak projects. However, the unresolved problem of high silt in the Kosi river has substantially limited the possible benefits.

The Karnali hydro power project (sometimes called Chisapani high dam hydropower project), with an installed capacity of at least 3,600 MW, was first studied during 1962 and 1966 by Nippon Koei of Japan with UNDP financing. The project is located about 45 km. north

75 Shibusawa, A.H., op.cit., p. 1
76 Shibusawa, A.H., op.cit., p. 322.
of the Indian border. The studies and recommendations of Nippon Koei were reviewed by the snowy Mountains Hydroelectric Authority (SMHA) of Australia in 1968, who were employed by His Majesty's Government of Nepal with funding from the UNDP. In view of the results of the studies, Governments of Nepal and India established a committee on Karnali to promote bilateral discussions on Chisapani. The Committee met in 1978, 1979, 1981 and 1984. During these meetings, committee discussed various aspects related to the project. Besides Karnali, there were studies about many other potential project works. The project studies at different locations in Sapta Kosi, Mahakali, Bagmati Rapti, Kamala and Kankai reveal excellent prospects for water resources development works in Nepal. Among the projects identified, the huge storage projects are capable of producing enormous benefits in terms of regulated flows, irrigation, flood control and navigation, in addition to hydro-electricity generation. These benefits extend beyond the national boundaries at downstream reaches. In this context prospect for cooperation among the neighbouring countries is required. Nepal rightly or wrongly seems to feel that it did not have a fair deal in past 'water sharing' arrangements and has thus grown cautious of concluding comprehensive agreements with India on projects which are complex and may involve joint ownership or operation of multipurpose river schemes. But the fact of matter is that the atmosphere of

78. Shibusawa, A.H., op.cit., p. 323.

fear and suspicion between the two close neighbours has deprived them both of the immense benefits of irrigation, electricity, flood control and many other mutually advantageous economic projects whose benefits would have been available by now. If the Nepalese river basins are developed and their potential harnessed, it is possible to create a vast infrastructure for industrial development. A carefully planned irrigation canal system may augment agricultural development in the whole of north-eastern belt of the sub-continent. The development of gas potential and hydro-electric power can support a large complex of petro-chemical, metallurgical, and a number of other power-intensive industries. The inter-river basins need to be harnessed jointly by co-basin states of the region, to improve not only the supply of power, but also the existing irrigation system, river navigation, fishery and forestry, prevent water-logging and salinity and to improve quality of the life of the people in general.

In the way of cooperational development, there is one hindrance, Nepal's mistrust for India. On the question of Western canal under the Kosi Project, Nepal was under suspicion that India had persuaded Nepal to undertake this joint project mainly to further her own interests at the cost of Nepal. While about ten million acres of land

82. Ibid.
could be irrigated in North Bihar by the Western Kosi Canal, Nepal would be able to receive the benefits of only a few thousand acres of additional irrigation. Under the Kosi Agreement of 1986, Nepal was required to surrender some portion of her territory to India on payment of reasonable compensation. It is not the lack of water resources but the lack of their development which has held back the economic development of the area of Nepal and India forming part of the Ganges river basin. To increase the cooperation between the two countries, Indo-Nepal Sub-Commission on Water Resources was set up in August 1988 to deal with all aspects of Indo-Nepal cooperation in multiple uses of water resources for mutual benefits. This sub-commission shall identify new programmes/projects for water resources development for cooperation between India and Nepal in specific sectors viz., irrigation, water-logging drainage, hydro-electric power generation, inland navigation, calculation of hydrological data, measures to prevent and reduce losses due to floods, flood forecasts and flood warning, environment safeguard measures and transfer of technology suited to requirements of both the countries.

A new thrust was given to the cooperation in water resources development between the two countries during the exchanges of visits of the prime ministers of India and Nepal in 1990-91. During the visit of Mr. K.P. Bhattarai to India in June 1990 bilateral cooperation


in the field was one of the priority goals decided upon. Later, after several rounds of official discussions between the two sides, a number of major understandings were reached on various projects and other aspects of cooperation in this sector. New hopes were generated by this understanding after a lapse of many years of doubts and uncertainties, during which period the waters of these rivers continued to flow unused to the sea, producing nothing but instead causing heavy damage at times to both countries through floods. In December 1991, Nepalese Prime Minister Mr. G.P. Koirala visited India. During his visit five agreements were signed. One of them was regarding water resources. Among the projects on which an agreement has reached, following deliberations of the Indo-Nepal Joint Commission, are the Karnali Multi-purpose project, Pancheshwar Multi-purpose project, Kosi-Bhimnagar Barrage, the Bagmati-Kamla Scheme, the Sapta Kosi high dam and Buri Gandak Scheme. Pancheshwar multi-purpose project will be in Western Nepal bordering India. The Sapta Kosi high dam multi-purpose project is to be located north of Barakshetra in Nepal, and will, besides providing irrigation and producing power, trap the silt carried by the river. Among the various understandings reached in December 1991, one related to the Tanakpur Barrage, a relatively minor 120 MW

---

86. The Hindustan Times, 8 December 1991.
87. Ibid., 21 December 1991.
hydro-electric project is Uttar Pradesh, close to the Indo-Nepal border. Recently, this was at the centre of a major controversy in Nepal. The Communist Party of Nepal had called the agreement as a sell out because under the 1991 agreement, the left afflux bund of the Tanakpur Barrage is to extend some 550 metres into Nepalese territory. Since the Tanakpur project is a hydro-electric project, there is no consumptive use of water in India as such there cannot be any adverse effect on the use of waters of this river in Nepal. It was agreed that up to 150 cusecs of water from Tanakpur Barrage will be made available on round the year basis for irrigation of 4000 to 5000 hectares of land on the Nepalese side of the border. And Nepal will also receive free of cost 20 million units of power annually from the Tanakpur Barrage Power station. The Nepal Government accepted the propositions without hesitation.

To take another step towards cooperation Prime Minister, Sri P.V. Narasimha Rao visited Nepal from 19 to 21 October 1992. A joint communique was issued. On water resources cooperation, the Communique mentions the need to accelerate the completion of investigations and preparations of project reports on the Karnali, Pancheshwar, Kosi, Buri Gandak, Kamla and Bagmati projects in a time-frame. The two prime ministers, of Nepal and India, did well to explore the

possibility of private sector participation in setting up hydel projects, while the bigger projects will take time to be finalised and executed, it will be eminently sensible to undertake smaller hydel projects which can be completed in two or three years and generate power to meet, especially, domestic needs.

Water resources have always been identified as the land locked kingdom's only major source of income. But, far from using this to its advantage, scheming politicians have always used it as a tool to defame or unseat those in power. Nepal can never hope to balance its trade with India unless it is able to sell its hydro power to India in a really big way. On the other hand, it faces a veritable ecological disaster because its largest exposure to India through torrential rivers flowing into Gangetic basin, its soil - a free export. Without such hydro power development backed up by large scale economic afforestation, Nepal may turn out to be a classic case of ecosystem leading to genocide. But this all can be prevented. Given trust, goodwill and understanding between the government of the two countries there is no reason why a modus vivendi cannot be evolved to enable them to undertake such mutually beneficial projects which have far reaching implications - India could assume a more generous and magnanimous stand on the question of the utilisation of Nepal's water

91. Ibid.
resources to the mutual benefit of both countries, especially in view of the fact that Nepal's cultivable land reportedly cannot use more than 20 per cent of water that flows down to India from its rivers. India has very good reasons to be interested in Nepal's economic, ecological and indeed socio-political stability. Nepal has till now successfully exploited 2,400 MW of her hydro-electric potential of 83,000 MW. India has since independence installed 18,732 MW of hydro-power out of the total potential of 84,000 MW. Both countries, therefore, have a long way to go in harnessing their water resources. It is in the interest of both the countries to cooperate in the development of water resources.

D. WATER UTILISATION IN BHUTAN:

Known as the land of thunderbolt Bhutan is picturesquely set within the folds of the eastern Himalayas. Numerous rivers and their tributaries flow through the mountaineous territory of Bhutan. Eventually, they emerge in the Duar plains and drain into the Brahmaputra. In western Bhutan, the Amo Chu cuts across in a South-eastern direction and passes by the market town of Huntsoling on the Indo-Bhutan border. The waters of Ha, Paro and Thimbu Chu unite at the Wong Chu and reach India as the Raidak. The Mo Chu or Sankos runs for more than two hundred miles within Bhutan and passes by historic Punakha and Wangdiphodrang. The swift flowing Manas and its tributaries drain in eastern

---

93. Shaha, Rishikesh, op.cit., p. 162.
Bhutan. India and Bhutan have through many years developed close understanding and friendship and meaningful benefits.

One of the major hydel projects in Bhutan is Chukha hydel project. This project was constructed by India and went into stream in 1988. The second and third phases of the Chukha hydel project are now underway. Chukha generates about 336 MW of electricity of which India buys 90 per cent.

During the January 1993 visit to India, King Jigme Singye Wangchuk of Bhutan, signed a Memorandum of Understanding for a multi-purpose project (the more than 1520 MW Sankosh hydel project which will be the tenth largest in Asia), the Dungsen cement factory and the Kurichu hydel project in eastern Bhutan. These and other hydel projects for which feasibility studies were ready, will also be taken up soon.

The Sankosh project is a major undertaking that will not only generate electricity but control floods, irrigate large areas of land and help river navigation. The project will not affect the environment as it is in a deep gorge. It is expected to be completed in five years time. Both India and Bhutan will benefit from this

---

97. Ibid.
project. The President of India, Dr. Shankar Dayal Sharma said the agreement was significant as it would help people in both countries. It was another example of "our friendship and our commitment to strive for the Common good of our people", he said. He added, "India had always considered it a privilege to be associated with Bhutan's advancement into the age of science and technology. Our ties are today multidimensional, extending to the most significant fields of human endeavour."

The development of vast water resources of the Himalayan region has far too long remained an official preserve stalemate in intergovernmental rhetoric rooted in mutual suspicion and reserve. The river basins are not yet been fully developed. There is considerable amount of scope for irrigation, hydro-electric power, navigation and fisheries. Modern water resources technique can provide gainful employment to many in this area. Since a sound water management policy can not be evolved for a single basis, the countries of this region should evolve a multilateral approach to the development of the river basins. The alternative is for these countries to be disunited and remain underdeveloped. Their growing populations are pressing on the resources base which is undergoing continuous ecological degradation. So far, the subject of water resources has been kept out of the SAARC mandate; it is to be dealt with on a

98. Times of India, 4 January 1993.
99. Ibid.
bilateral basis. While SAARC itself has not yet dealt directly with water issues, it has been making progress in other fields—such as exchange of experts and technological information among the countries in the region. It would seem appropriate, therefore, for the countries in the region to seek the development of all water resources by all possible cooperation.